Course Four

From Data to Insight: The Power of Statistics

Instructions

Use this PACE strategy document to record decisions and reflections as you work through this end-of-course project. As a reminder, this document is a resource that you can reference in the future, and a guide to help you consider responses and reflections posed at various points throughout projects.

Course Project Recap

Regardless of which track you have chosen to complete, your goals for this project are:

- Complete the questions in the Course 4 PACE strategy document
- Answer the questions in the Jupyter notebook project file
- Compute descriptive statistics
- Conduct a hypothesis test
- Create an executive summary for external stakeholders

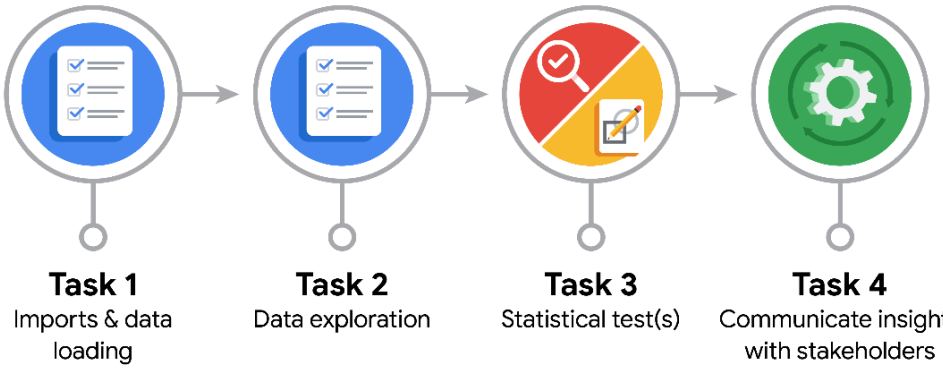
Relevant Interview Questions

Completing this end-of-course project will empower you to respond to the following interview topics:

- How would you explain an A/B test to stakeholders who may not be familiar with analytics?
- If you had access to company performance data, what statistical tests might be useful to help understand performance?
- What considerations would you think about when presenting results to make sure they have an impact or have achieved the desired results?
- What are some effective ways to communicate statistical concepts/methods to a non-technical audience?
- In your own words, explain the factors that go into an experimental design for designs such as A/B tests.

Reference Guide

This project has four tasks; the visual below identifies how the stages of PACE are incorporated across those tasks.



Data Project Questions & Considerations

PACE: Plan Stage

- What is the main purpose of this project?

to demonstrate knowledge of how to prepare, create, and analyze hypothesis tests.

- What is your research question for this project?

1) Do videos from verified accounts and videos unverified accounts have different average view counts?

2) Is there a relationship between the account being verified and the associated videos' view counts?

- What is the importance of random sampling?

Random sampling methods give you the best chance to create a sample that is representative of the population as a whole. And working with a representative sample allows you to make reliable inferences and accurate predictions about the population you're researching.

- Give an example of sampling bias that might occur if you didn't use random sampling.

Sampling bias occurs when some members of the population are more likely to be selected than other members.

PACE: Analyze & Construct Stages

- In general, why are descriptive statistics useful?

To describe the center, spread and position of data giving you initial understanding of distribution.

- How did computing descriptive statistics help you analyze your data?

let you quickly identify the variation in your data values, and get a better understanding of the basic structure of your data.

- In hypothesis testing, what is the difference between the null hypothesis and the alternative hypothesis?

The null hypothesis is a statement that is assumed to be true unless there is convincing evidence to the contrary. The null hypothesis typically assumes that there is no effect in the population, and that your observed data occurs by chance.

The alternative hypothesis is a statement that contradicts the null hypothesis, and is accepted as true only if there is convincing evidence for it. The alternative hypothesis typically assumes that there is an effect in the population, and that your observed data does not occur by chance.

- How did you formulate your null hypothesis and alternative hypothesis?

In statistics, the null hypothesis is often abbreviated as H sub zero (H0) (usually =, but sometimes ≤ or ≥). Null hypotheses often include phrases such as “no effect,” “no difference,” “no relationship,” or “no change.”

In statistics, the alternative hypothesis is often abbreviated as H sub a (Ha). (usually ≠, but sometimes < or >). Alternative hypotheses often include phrases such as “an effect,” “a difference,” “a relationship,” or “a change.”

- What conclusion can be drawn from the hypothesis test?

There is no and able to effect in the population.

PACE: Execute Stage

- What key business or organizational insight(s) emerged from your A/B test?

Data professionals often use A/B testing to help stakeholders choose the best design for a website or app to optimize marketing, increase revenue, or enhance customer experience.

- What recommendations do you propose based on your results?

A/B testing is one of the most popular applications of statistics for business purposes. Data professionals use A/B testing to help business leaders optimize product performance, improve customer experience, and grow their online business.