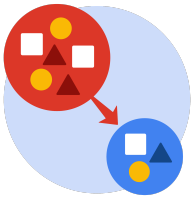
Course Four

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~~

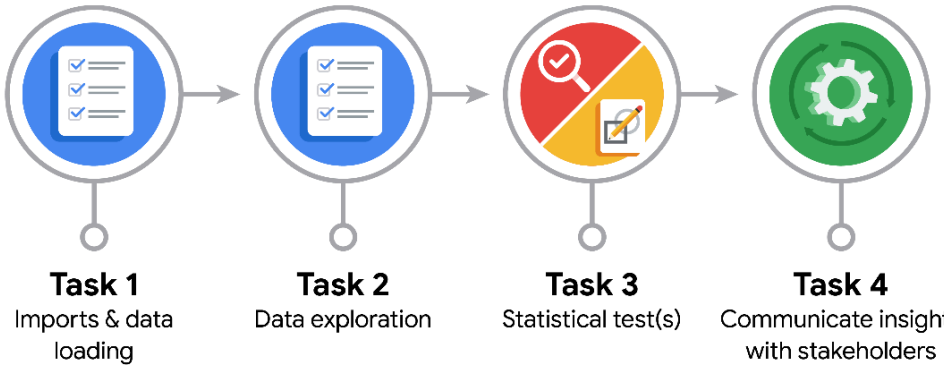
Relevant Interview Questions

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 investigate user churn within the Waze app.

- What is your research question for this project?

To determine if there is a difference between android and iphone numbers of rides taken using the Waze app.

- What is the importance of random sampling?

This allows for a group of data that is representative of real-life and reasonably free from bias.

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

Choosing more users that share your taste in technology/phone usage that ends up skewing the data.

PACE: Analyze & Construct Stages

- In general, why are descriptive statistics useful?

They allow insight through summarizing a large amount of data into useful patterns and trends.

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

The descriptive scripts and requests I ran saved me time and provided values to base variables that I will be able to manipulate for answers.

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

With the null hypothesis, it starts at a position of assuming that things can happen by chance, the alternative hypothesis works in the opposite direction assuming there is statistical evidence for anything that is happening. Null assumes everything already is as it should be and any anomalies are just flukes of chance. Alternative hypothesis sees conspiracy and connections behind everything,

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

I assumed since IPhone users are more common that we would be safe in saying that there is an 80% chance of there being more iPhone rides through the Waze app then Android.

- What conclusion can be drawn from the hypothesis test?

The conclusion was that more iPhone users than Android users take rides through Waze on average.

PACE: Execute Stage

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

Advertising to gain new customers should be prioritized towards Android or discounts & special offers, while for iPhone users, some kind of loyalty rewards would work well.

- What recommendations do you propose based on your results?

The bottom line is that more iPhone users ride with Waze than Android meaning that to prevent churn, the heavier focus should be placed on Android advertisements.