Course One
Foundations of Data Science

Instructions

Use this PACE strategy document to record decisions and reflections as you work through this end-of-course project. You can use this document as a guide to consider your responses and reflections at different stages of the data analytical process. Additionally, the PACE strategy documents can be used as a resource when working on future projects.

Course Project Recap

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

- ☑ ~~Complete the PACE Strategy Document to plan your project while considering your audience members, teammates, key milestones, and overall project goal.~~
- ☐ Create a project proposal for the data team.

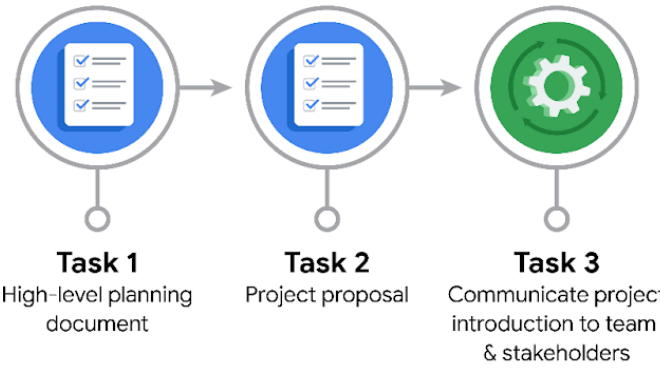
Relevant Interview Questions

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

- As a new member of a data analytics team, what steps could you take to get 'up to speed' with a current project? What steps would you take? Who would you like to meet with?
- How would you plan an analytics project?
- What steps would you take to translate a business question to an analytical solution?
- Why is actively managing data an important part of a data analytics team's responsibilities?
- What are some considerations you might need to be mindful of when reporting results?

Reference Guide

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



Data Project Questions & Considerations

PACE: Plan Stage

- Who is your audience for this project?

Data team at Waze

- What are you trying to solve or accomplish? And, what do you anticipate the impact of this work will be on the larger needs of the client?

Analysing user data and develop a machine learning model that predicts user churn. Aims to prevent user churn and improve user retention to grow Waze's business.

- What questions need to be asked or answered?

Who are the users most likely to churn? Wny do users churn? When do users churn?

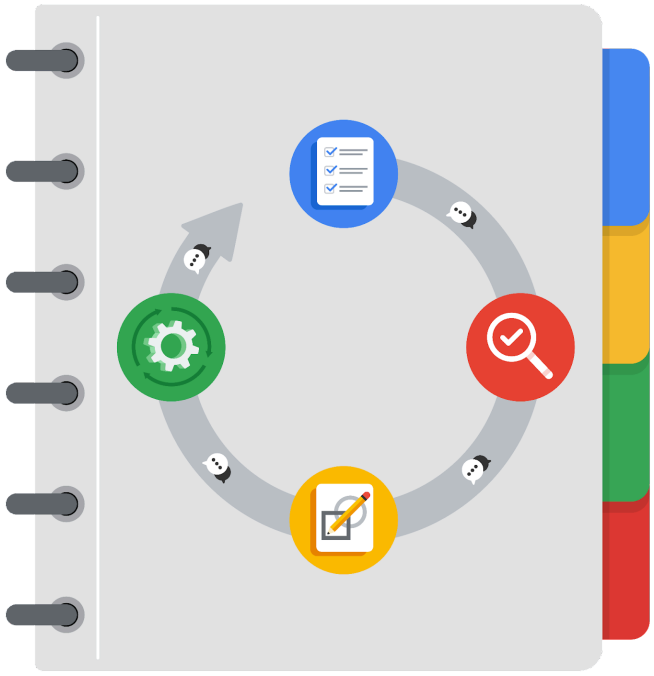
- What resources are required to complete this project?

Sample of Waze user data

- What are the deliverables that will need to be created over the course of this project?

Finalised machine learning model Visualisations and presentation for Waze executives

THE PACE WORKFLOW



[Alt-text: The PACE Workflow with the four stages in a circle: plan, analyze, construct, and execute.]

You have been asked to demonstrate for the company's data team how you would use the PACE workflow to organize and classify tasks for the upcoming project. Select a PACE stage from the dropdown buttons. A few tasks involve more than one stage of the PACE workflow. Additionally, not every workplace scenario will require every task. Refer back to the Course 1 end-of-course portfolio project overview reading if you need more information about the tasks within the project.

Project tasks

Following are a group of tasks your company's data team has determined need to be completed within this project. The data analysis manager has asked you to organize these tasks in preparation for the project proposal document. First, identify which stage of the PACE workflow each task would best fit under using the

drop down menu. Next, give an explanation of why you selected the stage for each task. Review the following readings to help guide your selections and explanation: The PACE stages and Communicate objectives with a project proposal. You will later reorder these tasks within a project proposal.

1. **Evaluating the model:** Execute

   Why did you select this stage for this task?

After the model has been built and revised in the CONSTRUCT phase, we use evaluation metrics to evaluate the model performance to present the findings to stakeholders.

2. **Conduct hypothesis testing:** Analyze **and** Construct

   Why did you select these stages for this task?

During the ANALYSE phase, we conduct Exploratory Data Analysis that can include hypothesis testing. In the next phase as well, we can do hypothesis testing as a part of statistical inference to uncover information about the dataset we are using to build the model.

3. **Begin exploring the data:** Analyze

   Why did you select this stage for this task?

Explanatory Data Analysis (EDA) is done in the ANALYSE stage to get a better understanding of the data

4. **Data exploration and cleaning:** Plan **and** Analyze

   Why did you select these stages for this task?

During the Planning stage, we can briefly go through the dataset to get an understanding of it. Afterwards in the Analysis stage, we will be doing a more thorough cleaning and exploration of the data prior to constructing the model.

5. **Establish structure for project workflow (PACE):** Plan

   Why did you select this stage for this task?

   During the Planning phase, we aim to define the scope of the project and establish the structure for the project workflow to ensure that it is completed efficiently.

6. **Communicate final insights with stakeholders:** Execute

   Why did you select this stage for this task?

   Once we have constructed and tuned the model, in the Execution phase we evaluate it and present the findings to stakeholders.

7. **Compute descriptive statistics:** Analyze

   Why did you select this stage for this task?

   Descriptive statistics is also computed as a part of Explanatory Data Analysis where we investigate the dataset

8. **Visualization building:** Analyze **and** Construct

   Why did you select these stages for this task?

   During the Analyse and Construct phases of the PACE workflow, we will be exploring the dataset and uncovering relationships in the data, this can be represented by building data visualizations.

9. **Write a project proposal:** Plan

   Why did you select this stage for this task?

As we are planning the project, we write a project proposal to outline the objectives and milestones. This is done at the beginning of the PACE workflow to serve as a reference for the project team, and to ensure that the project timeline is adhered to.

10. Build a regression model: Analyze and Construct

Why did you select this stage for this task?

First, in the Analysis phase, we make sure the regression models is suitable for the objectives. During the construction phase, we can build the regression model to create an efficient prediction model.

11. Compile summary information about the data: Analyze

Why did you select this stage for this task?

In the Analyse stage, we summarise the data to get an idea of the overall dataset.

12. Build machine learning model: Construct

Why did you select this stage for this task?

This is done in the Construct stage, which is responsible for the building and revising of the machine learning model