

# 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

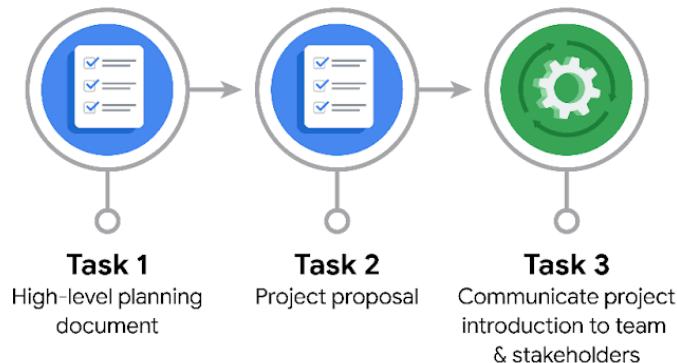
Completing this end-of-course project will empower you to respond to the following interview topics:

- 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?

The audience is New York TLC

- 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?

Estimating taxi fares

- What questions need to be asked or answered?

What is the condition of the provided datasets?

What variables will be the most useful?

Are there trends within the data that provide insight?

What steps can I take to reduce the impact of bias?



- What resources are required to complete this project?

Project datasets

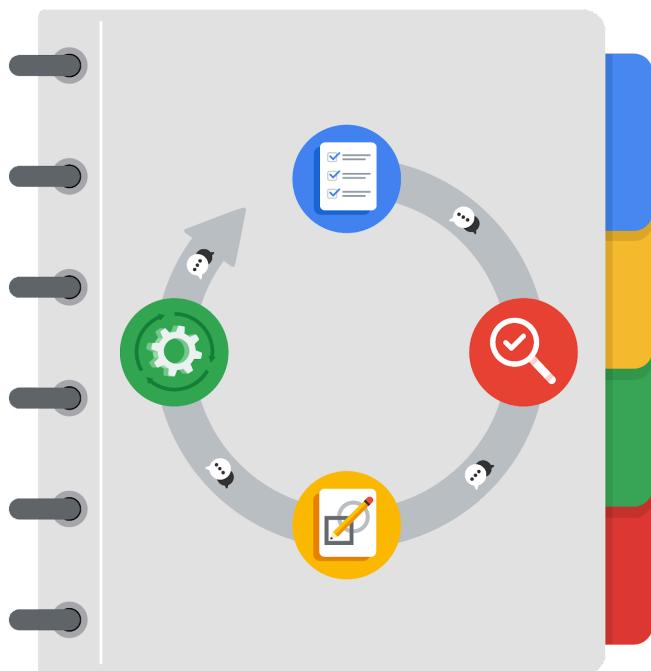
Python (and the whole coding environment with jupyter notebooks and useful libraries)

Input from stakeholders

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

Scrubbed datasets for EDA, visualizations, statistical model, regression analysis, machine learning model...

## 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 constructing the model, we need to evaluate whether it meets the project's expectations and goals

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

Why did you select these stages for this task?

A statistical test should be used during the analyzing stage. During the construction phase, the test is carried out.

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

Why did you select this stage for this task?

During the analysis phase, we will gain a deeper understanding of the dataset and the information within it.

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

Why did you select these stages for this task?

Planning takes place when you first make choices about the methods needed. The cleaning process then takes place in the analyzing stage.



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

Why did you select this stage for this task?

Creating the PACE workflow helps to plan how to best approach a project.

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

Why did you select this stage for this task?

Communication is necessary at various points through the project. Sharing final insights with stakeholders is the final step after conducting the data analysis. It happens during the execution phase.

**7. Compute descriptive statistics:** Analyze ▾

Why did you select this stage for this task?

Investigating the statistics within the data happens during analysis.

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

Why did you select these stages for this task?

Visualization begins with data assessment which happens during the analysis phase and then created during the construction phase.

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

Why did you select this stage for this task?

The project proposal is the initial document used to define a project.

**10. Build a regression model:** Construct ▾ and Analyze ▾

Why did you select this stage for this task?

During the analysis stage, the model is examined. Then we build it during the construction model.



**11. Compile summary information about the data:** **Analyze** ▾

Why did you select this stage for this task?

Inspecting a dataset and compiling information take place in the analysis phase.

**12. Build machine learning model:** **Construct** ▾

Why did you select this stage for this task?

Building a machine learning model takes place during the construction stage.