**Project**

**Start your project (foundation of data science)**

# Waze[app] scenario (project)



**Project goal:**

Waze leadership has asked your data team to develop a machine learning model to predict user churn. Churn quantifies the number of users who have uninstalled the Waze app or stopped using the app. This project focuses on monthly user churn. An accurate model will help prevent churn, improve user retention, and grow Waze’s business.

**Background:**

Waze’s free navigation app makes it easier for drivers around the world to get to where they want to go. Waze’s community of map editors, beta testers, translators, partners, and users helps make each drive better and safer.

**Scenario:**

You are the newest member of Waze’s data team. Your team is about to begin their user churn project. The first step is to create a project proposal. The proposal will clearly define the overall goal of the project, and identify key tasks, milestones, and stakeholders.

### **Using of PACE and RACI matrix - skills:**

* Effective communication
* Understand cross-functional team dynamics
* Project management
* Share insights and ideas with stakeholders

## **Background on the Waze scenario**

Welcome to your new role at Waze! We’re thrilled to have you on the data team!

Waze’s free navigation app makes it easier for drivers around the world to get to where they want to go. Waze’s community of map editors, beta testers, translators, partners, and users helps make each drive better and safer. Waze partners with cities, transportation authorities, broadcasters, businesses, and first responders to help as many people as possible travel more efficiently and safely.

You’ll collaborate with your Waze teammates to analyze and interpret data, generate valuable insights, and help leadership make informed business decisions. Your team is about to start a new project to help prevent user churn on the Waze app. Churn quantifies the number of users who have uninstalled the Waze app or stopped using the app. This project focuses on monthly user churn. In your role, you will analyze user data and develop a machine learning model that predicts user churn.

This project is part of a larger effort at Waze to increase growth. Typically, high retention rates indicate satisfied users who repeatedly use the Waze app over time. Developing a churn prediction model will help prevent churn, improve user retention, and grow Waze’s business. An accurate model can also help identify specific factors that contribute to churn and answer questions such as:

* Who are the users most likely to churn?
* Why do users churn?
* When do users churn?

For example, if Waze can identify a segment of users who are at high risk of churning, Waze can proactively engage these users with special offers to try and retain them. Otherwise, Waze may simply lose these users without knowing why.

Your insights will help Waze leadership optimize the company’s retention strategy, enhance user experience, and make data-driven decisions about product development.

### **Project background:**

Waze’s data team is in the earliest stages of the churn project. The following tasks are needed before the team can begin the data analysis process:

* A project proposal identifying the following:
  + Organize project tasks into milestones
  + Classify tasks using the PACE workflow
  + Identify relevant stakeholders

# 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.

**Data Project Questions & Considerations**

**PACE: Plan Stage**

* Who is your audience for this project?

Audience will be the Waze data team and cross-functional team members.

* 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?

Working to develop a machine learning model to predict user churn.

* What questions need to be asked or answered?

What is the condition of the provided dataset?

What variables will be the most useful?

Are there trends within the data that can provide insight?

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

* What resources are required to complete this project?

***For all projects,*** you will needthe project dataset, Python notebook, and input from stakeholders.

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

**For all projects**, the deliverables include a dataset scrubbed for exploratory data analysis, visualizations, statistical model, regression analysis and/or machine learning model.

### **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](https://www.coursera.org/learn/foundations-of-data-science/supplement/4OtHr/the-pace-stages) and [Communicate objectives with a project proposal](https://www.coursera.org/learn/foundations-of-data-science/supplement/79Ysh/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 constructed, data is run through to evaluate whether it meets the project’s expectations and goals.

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

Why did you select these stages for this task?

During the analyzing stage, it is determined that a statistical test will be used. During the construction phase, the test is carried out.

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

Why did you select this stage for this task?

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

1. **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.

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

Why did you select this stage for this task?

Planning stage. Creating an initial project PACE document outlines the workflow and helps to plan how to best approach a project.

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

Why did you select this stage for this task?

Communication is necessary at various points throughout a project. Final insights are shared with stakeholders in the execute phase of the data project workflow.

1. **Compute descriptive statistics:** Analyze

Why did you select this stage for this task?

Investigating the statistics within data takes place during analysis.

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

Why did you select these stages for this task?

Visualization begins with data assessment and is created during the construction stage.

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

Why did you select this stage for this task?

Planning stage. A project proposal is the initial document used to define a project.

1. **Build a regression model:** Analyze **and** Construct

Why did you select this stage for this task?

During the analyzing stage, the model is examined in detail to be sure it will meet the needs of the task. The building of the regression model will take place in the construction phase.

1. **Compile summary information about the data:** Analyze

Why did you select this stage for this task?

Inspecting a dataset to compile information would take place in the analysis phase.

1. **Build machine learning model:** Construct

Why did you select this stage for this task?

The building of a data model would take place in the construct stage.

**Waze Project Proposal**

## **Overview:**

Waze leadership has asked the data team to build a machine learning model to predict user churn. The model is based on data collected from users of the Waze app.

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestone** | **Tasks** | **Deliverables/Reports** | **Relevant Stakeholder (Optional Activity)** |
| **1** | Establish structure for project workflow (PACE)  Plan | * Global-level project document | May Santner — Data Analysis Manager |
| **1a** | Write a project proposal  Plan |  | Sylvester Esperanza — Senior Project Manager |
| **2** | Compile summary information about the data  Analyze | * Data files ready for EDA | Chidi Ga — Senior Data Analyst |
|  |  |  |  |
| **2a** | Begin exploring the data  Analyze |  |  |
| **3** | Data exploration and cleaning  Plan **and** Analyze | * EDA report | Chidi Ga — Senior Data Analyst |
| **3a** | Visualization building  Analyze **and** Construct | * Tableau dashboard/visualizations | Sylvester Esperanza — Senior Project Manager |
| **4** | Compute descriptive statistics  Analyze | * Analysis of testing results between two important variables |  |
| **4a** | Conduct hypothesis testing  Analyze **and** Construct |  | May Santner — Data Analysis Manager |
| **5** | Build a regression model  Analyze **and** Construct |  |  |
| **5a** | Evaluate the model  Execute | * Determine the success of the model | Harriet Hadzic — Director of Data Analysis |
| **6** | Build a machine learning model  Construct | * Final model |  |
| **6a** | Communicate final insights with stakeholders  Execute | * Report to all stakeholders | Harriet Hadzic — Director of Data Analysis |