### [**Executive Summary of Project**](https://learn.rochester.edu/webapps/assignment/uploadAssignment?content_id=_5627426_1&course_id=_71774_1&group_id=&mode=view)

It is common in the real-world to prepare written executive summaries of your work to present to a general audience.

As one of the final deliverables, please prepare a brief (approx. 150 words) of your project in a single paragraph (See EXAMPLE below for Format). It must include:

-- 1-2 sentences on the goal of the project. Does not use business-specific jargon/acronyms; if you need to, expand such acronyms in the first sentence. Simplify any business and technical jargon and write in common English!!

-- 1-2 sentences on the Methods applied

-- 1-2 sentences on the Results obtained

**Title:** Customer Upsell Opportunity Prediction Engine (Title must be descriptive!)

DO NOT WRITE TITLE as "XXX Capstone" e.g. "Paychex Capstone")

**Sponsor Name:** Paychex

*Team Members: XXX*

Paychex wants to sell more Professional Employer Organization (PEO) products to increase revenue for its business and reduce costs/improve service for its clients. Thus, the goal of this project is to predict which existing Paychex clients are most likely to purchase PEO (Basic or Master plan). To deliver against this goal, the team employed various classification algorithms, e.g., Support Vector Machine and Extreme Gradient Boosting, to successfully predict customer upsell propensity. Additionally, the team leveraged SMOTE resampling and Optuna hyperparameter tuning to mitigate class imbalance performance issues. Finally, the team delivered a dynamic interface for Paychex to generate client lists with their respective upgrade probabilities.