

## Overview

You will be provided a dataset that contains answers from a survey given to 2 Computer Science Classes, one from year 2017 and the other from 2018. Given this dataset, you will be executing the following:

- Exploratory Data Analysis and Feature Engineering
- Unsupervised Learning
- Supervised Learning

## Assignment

You may use any programming language and API you prefer to complete this assignment (R, Python, Scala, etc).

### Exploratory Data Analysis and Feature Engineering

Perform Exploratory Data Analysis and Feature Engineering. Provide a zip file containing:

- Brief PDF report highlighting observations or patterns in the data that you found. Include charts/plots illustrating your observations/patterns (minimum of 1 chart)
- Source code files

### Unsupervised Learning

Identify subgroups within the data and visualize results; perform any method of unsupervised learning you wish. Provide a zip file containing:

- Brief PDF report explaining your approach that include charts/plots illustrating your results
- Source code files

### Supervised Learning

Construct a model that will predict **what year an individual student is from**. Perform any method of supervised learning you wish. Use 3-fold cross validation in conjunction with Area under ROC Curve as a performance metric for your model. Include a confusion matrix of your best run.

Provide a zip file containing:

- Brief PDF report explaining your approach; include Area under ROC Curve Value and Confusion Matrix
- Source code files