# Assignment 6

DSCI 222 – Data Science Workflow using Python
School of Mathematical and Data Sciences
West Virginia University

## Instructions

This is a homework assignment to be solved in a small group (3-4). It is a great opportunity to show your teamwork skills. Enjoy it! All material needed for the assignment can be found in Github

- Create and share with me a single folder with all members of the group clearly listed.

  Files included in your deliverables folder

  - Deliverable 1 Video Recording
  - Deliverable 2 Colab Notebook

- Include your **full name** as a Python comment at the top of the notebook and at the top of your report.
- All data manipulation should occur within the Python script. No manipulation of the supporting file(s) should occur prior to importing the file(s) into your script. You may check your work by manually performing data analysis.
- Set share folder permissions so chood@mix.wvu.edu can access and run every file and notebook.
- Everything counts! Include as much as you want in your deliverables, even if the activity is not fully complete by the deadline. *Important:* Review the grading policy and course policies in the online syllabus.
- **Total: 100 points.**

# Activity: Neural Network Tutorial

## Scenario

In this assignment you will be making a video tutorial teaching some content not explicitly covered in class. You have two tutorial options to choose from. Both deliverables will be based on whichever of the two options you choose.

- Option 1: In class, we have learned how to create a single linear layer neural network in PyTorch to predict housing prices. This is essentially replicating the linear regression machine learning model we used in SciKit Learn.While PyTorch is commonly used in academia, TensorFlow is just as common to see in industry.

  Create a video tutorial on how to create a Neural Network with a single linear layer to predict housing prices with TensorFlow. You should use the same fetch_california_housing data we used in class

- Option 2: In class, we have learned how to create a single linear layer neural network in PyTorch to predict housing prices. This is essentially replicating the linear regression machine learning model we used in SciKit Learn. We also learned in class how to create classification models using SciKit Learn

  Create a video tutorial on how to create a Classification Neural Network to predict whether or not an individual is predicted to make a purchase based on the ad they are being served. You should use the same Social_Network_Ads data we used in class.

## Deliverables 1 and 2 (100 points):

Google Colab Notebook and Video Recording

- In the video, you must clearly explain what each line of code does. Every part of the script should be addressed, and nothing should be skipped.
- Your video must be a screen recording of the code as you explain it so that viewers can follow along. You may appear on screen if you choose, but this is not required.
- You should include explanatory text, comments, and Markdown cells in the `.ipynb` file to support your explanation.
- In your video, you should not only explain how each line of code works, but also WHY it was written in the fashion it was.
- All members of the group must speak during the video.