

## Assignment 0: Programming & Math Basics

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*CSE 517/447 Win 24*

**Due at 11:59pm PT, Jan 10, 2024 (+1% extra credit towards the final grade)**

1. Welcome to CSE 517/447! This is an introductory assignment designed to review Python, PyTorch, and machine learning basics, mostly for the purposes of making sure you're ready for the class. Assignment 0 is worth +1% extra credit, and thus is optional (but recommended).

2. To get started, open the HW0 Colab notebook.

<https://colab.research.google.com/drive/1KJb8pB1o4t8pVXF1DqR5g1PY872eft>

Please make a copy for yourself by navigating to **File** → **Save a copy in Drive**. Alternatively, when attempting to save, Google Colab will prompt you to save a copy in your own drive.

3. You can execute cells by pressing the “run cell” button on the left. Part 1 is a review/introduction to tensors in PyTorch, and exercises begin in part 2. The notebook is designed such that you execute all the cells in a sequence and see what the results are, until you reach a location where the code is not yet implemented. Each exercise is next to either a `#TODO` in code, except exercise 3 where you should write a short response.

This notebook walks you through manually implementing backpropagation and gradient descent on a toy neural network with a toy dataset, and then introduces features of PyTorch which automatically implement the behaviors you manually implemented earlier in the notebook. The notebook wraps up with asking you to implement the bare minimum optimization loop in PyTorch for this toy example.

4. Once you have completed all exercises, submit your modified notebook to Gradescope. You can download the notebook to your computer via **File** → **Download** → **Download .ipynb**, and then upload it to Gradescope.

We will not care about the filename, as long as it is a `.ipynb` file.