KDD Cup Homework 1: **Encouraged to be done by this sunday 5/23.**
We will be meeting at 8pm Thursday, Friday, Saturday, and Sunday for “office hours” discussions of this homework.

Part 1:
Watch (AND UNDERSTAND) 3blue1browns Machine Learning playlist, burn it into your soul. You are encouraged to write down ANY questions you have and bring them to office hours or post them in the discord (You are NOT dumb for asking questions, nobody else understands ML either). This topic is COMPLEX, you may need to watch the videos more than once to really understand what is happening.
https://youtube.com/playlist?list=PLZHQObOWTQDNU6R1_67000Dx_ZCJB-3pi

Part 2: (Optional, but strongly encouraged):
Implement a simple handwritten digit classifier in raw python. You are encouraged to read and understand: http://neuralnetworksanddeeplearning.com/chap1.html

Code is provided at the end of that book chapter, make sure you UNDERSTAND what it does Again, write down questions and bring them to office hours or ask in discord.

Part 3:
Implement that same handwritten digit classifier in Tensorflow using the model.fit method. Once again, make sure you fully understand your own program.
Sample Videos here:
https://www.youtube.com/watch?v=wQ8BIBpya2k
https://www.youtube.com/watch?v=Zi4i7Q0zrBs
https://youtu.be/iqQgED9vV7k

TensorFlows official example on their site:
https://www.tensorflow.org/datasets/keras_example

UAlbany IEEE Meeting going over Tensorflow:
https://www.youtube.com/watch?v=3cI189iQR1I
My Example from that meeting:
https://github.com/James-Oswald/IEEE-Workshop-Neural-Networks-with-Tensorflow/blob/master/basicNetwork.py

Part 4: (Optional, but strongly encouraged)
Rewrite your previous handwritten digit classifier with a custom training loop. We will be using custom training loops in the real code for the KDD Cup.
https://www.tensorflow.org/guide/keras/writing_a_training_loop_from_scratch