Homework 3

1. (5 pts) Setup Python and Tensorflow and implement a deep neural network with 5 layers. Use the first three column of the provided data to predict the third column label. Randomly select 90% of the data for training and test on the rest 10% of the data. You can use any Python and Tensorflow library.

Your submission should include
- neural network training source code (3 pts)
- a test script that can load the trained neural network and run it on the test dataset (1 pts)
- a figure of validation loss for each epoch and test loss for each epoch (1 pts)

2. (5 pts)
- Provide results with and without normalization (standard scaling) (1 pts)
- Provide results with two different mini-batch sizes (0.5 pts)
- Provide results with two different learning rates (0.5 pts)
- Provide results with Momentum and Adam optimizer (0.5 pts)
- Provide results with two different initialization approaches: random and Xavier (1 pts)
- Provide results with and without regularization (0.5 pts)

Provide the code with all the options (commenting out one option)
Provide all results as figures

· Don’t copy anyone else’s work.
· Don’t let anyone copy your work.
· We will check!
· You will receive FF for the course if you cheat in homework/projects.