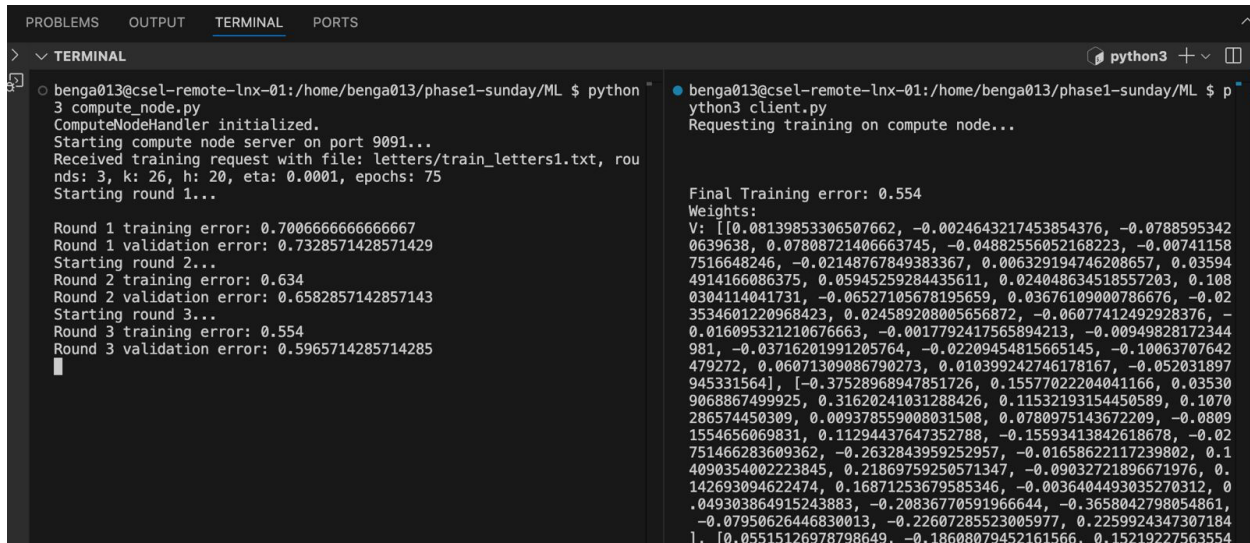CSCI 5105 Programming Assignment Phase 1

For Phase 1, we've built a compute node that trains a neural network (MLP) using a Thrift service. It reads a training file, initializes the model with random weights, and trains it over multiple rounds. After each round, it validates the model using a separate dataset and returns the final training error along with the updated weights. We also wrote a client application which is executed on the compute node, posts requests for training and gets responses back.

We have three parts to our system: the compute node, the client, and the Thrift IDL file. The compute node does the training and validation themselves, and the client makes requests and prints out the output. We modified the Thrift interface so that it is able to do more than one round of training, so we can observe how the model improves over time. We tested it by running the server, issuing training requests, and ensuring the error rate decreases each round.

Everything has gone well so far, and the compute node is successfully training the model. We can see that the error goes down with each round, which means that the training is going well. Now, we will move on to Phase 2, where we will connect this compute node to a coordinator that will direct multiple compute nodes, hence improving the system to be more efficient and scalable.

Below is a screenshot of the compute node returning the weights, as well as the training and validation errors.