CS 525: Deep Neural Networks
Homework 5

---

1 Hyperparameter Testing

As there was a large number of possible hyperparameter settings, and we were intended to test at least 10 settings, we considered the following when designing our tests:

- Increasing the number of epochs generally improves performance
- Regularization didn't tend to improve performance (during casual testing of our network)

So, we chose to iterate over all of the suggested choices for number of hidden units, learning rate, and number of minibatches. We used 30 epochs during testing, as this seemed to be enough to get an idea for how well the other hyperparameters were performing, while not taking exhaustingly long. After testing, we chose 100 as the number of epochs for our model.

Clearly this approach has some flaws; namely, that the absolute "best" hyperparameter setting may be missed. However, testing every possible configuration would take a very long time, and this approach satisfied the requirements of the assignment.

2 Screenshots

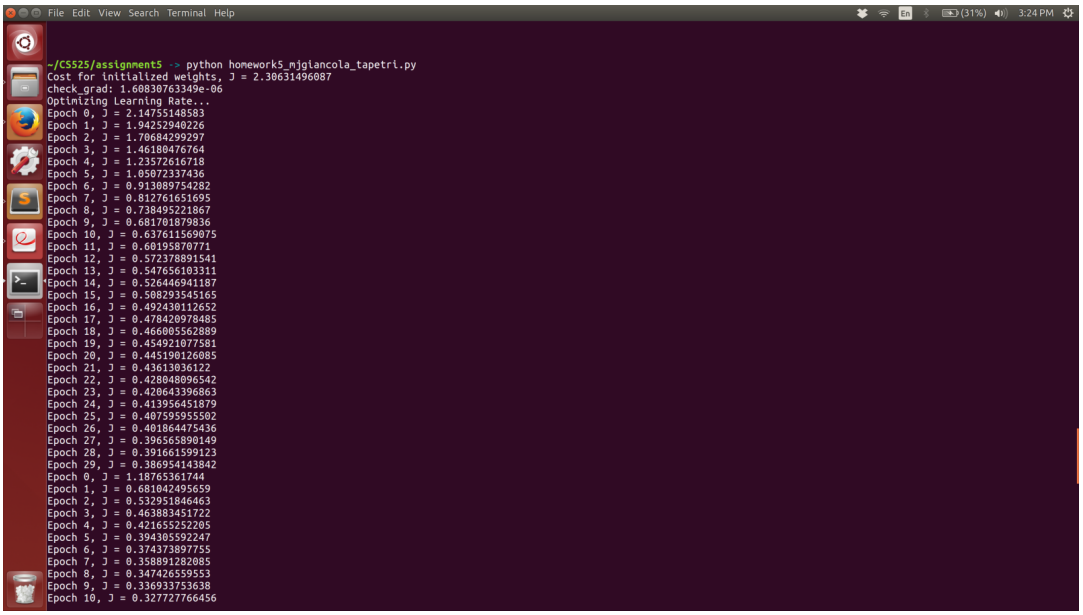

Figure 1: Starting Hyperparameter Optimization

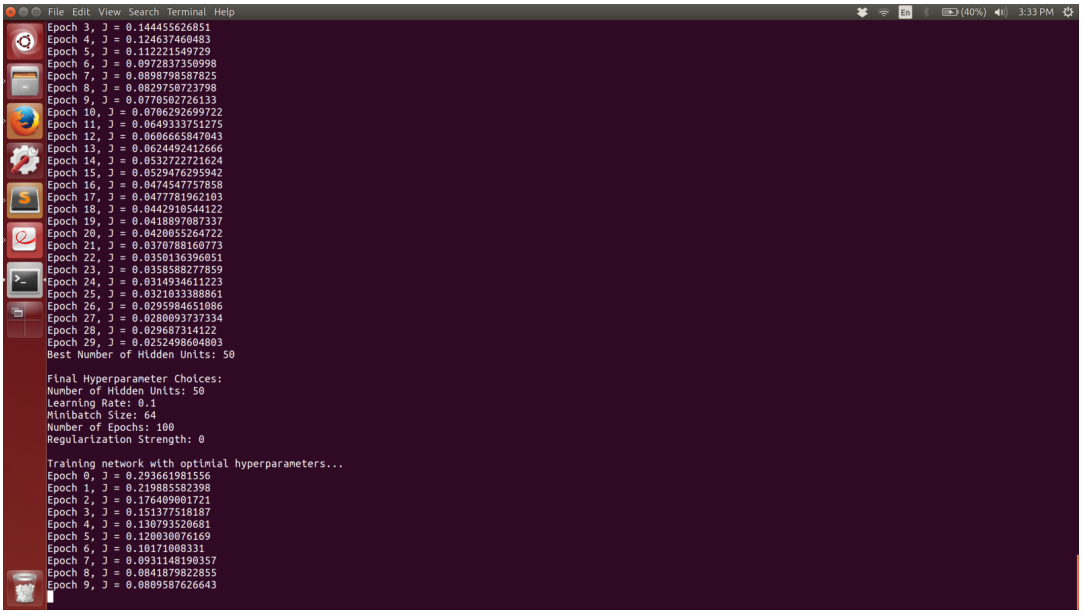

Figure 2: Finished Hyperparameter Optimization

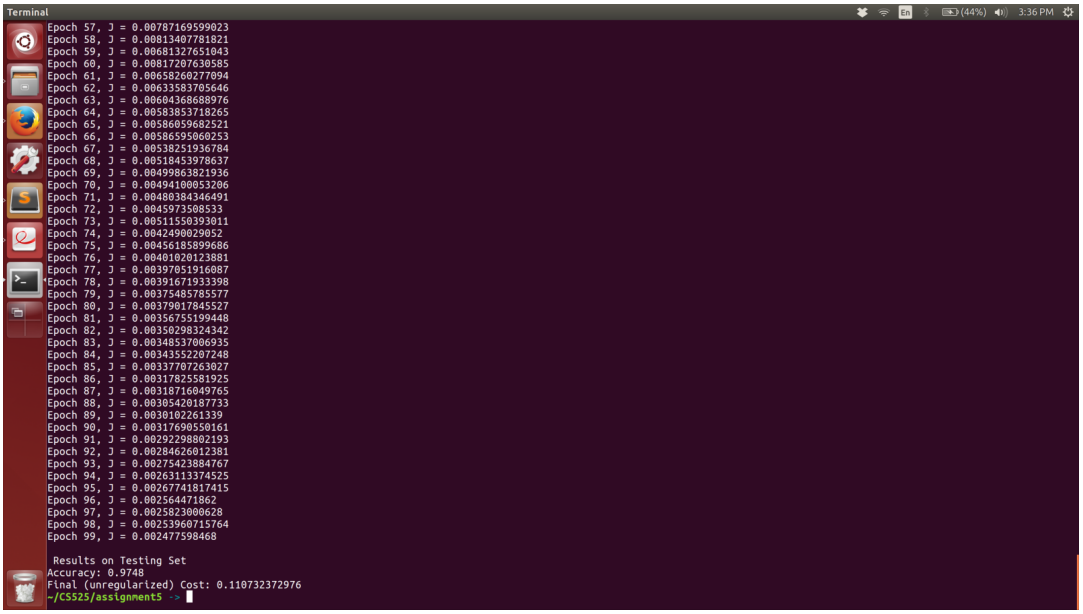

Figure 3: Results on Test Set