Machine Learning Third Assignment

Name: Or S. Naim

Eta = 0.01
Number of hidden layers: 1
Number of neurons in the layer: 77
Epochs = 147

I didn't have time to explore many parameters unfortunately, and look for the optimal parameters in a systematic manner, as I had to deal with bugs. Rest assured however, that I concluded my assignment after getting sufficient accuracy.

During development, I noticed that the predicted label is constantly one less than the actual label. i.e predicted label is 2, actual label is 3, as a result of the way I implemented one-hot encoding.

As such, I applied the following factor to fix that:

```python
if argMax == 9:   # Applying factor
    argMax = 0
else:
    argMax += 1
```

Accuracy:
My model accuracy is phenomenal! To test its accuracy, I trained my model on the first 5,000 examples of the training set, and then ran a test on a copy of the first 5,000 examples in the training set. I set my epochs for 1,000 (But could finish much earlier). After the first epoch I got 76% accuracy and from there, the precision rate climbed gradually (80 on the second, 84 on the third, ~90 after 16 and 100% accuracy after 147 epochs).

...

"That's the beginning
Just one of the clues
You've had your first lesson
In learnin' the blues"

"Learnin' The Blues" , Dolores Silvers, made famous by Frank Sinatra.