Lab 3 Report

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9/25/17

1 Training the CNN Architecture

1.1 Code to run on architecture

```
for i in range(20000):
    batch = mnist.train.next_batch(50)
    if i%100 == 0:
        train_accuracy = accuracy.eval(feed_dict={
            x:batch[0], y_: batch[1], keep_prob: 1.0})
        print("step %d, training accuracy %g"%(i, train_accuracy))
    train_step.run(feed_dict={x: batch[0], y_: batch[1], keep_prob: 0.5})
```

1.2 Part 1

It took a little over 38 minutes to train the convolutional neural network. Its final accuracy was 1.

1.3 Part 2

```
W_conv1 = tf.Variable(tf.truncated_normal([5, 5, 1, 5], stddev=0.1))
b_conv1 = tf.Variable(tf.constant(0.1, shape=[5]))
# need 5 biases for 5 outputs
```

I changed the number of feature maps in the first layer to 5. It now took a little over 18 minutes to train the CNN. Its final accuracy was 1.