Daily Log

Monday September 9

I mostly trained and worked on tweaking some parameters with the network especially the last couple layers because I noticed that my validation accuracy was not as high as I wanted it to be. Tried removing some layers or changing the types of layers I was using.

Tuesday September 10

Spent time researching and testing one of the saved models I generated. Oddly enough, when exposed to images I pulled off of Google, the network was extremely accurate in determining the type of logo shown (though I only pulled about 3-5 images to be fair).

Thursday September 12

Spent time researching how to address the issue with the low validation score. Added more ways to augment the data because 809 images for 27 different classes seems a bit low in my mind. So, I added shearing and different rotation ranges.

Timeline

Date	Goal	Met
9/9	create CNN/start training	yes - built the network and ready to train
9/16	reach acceptable accuracy (over 95 percent) on original training data	yes
9/23	reach acceptable accuracy (over 95 percent) on original training data with a validation set and augmentations	no - not yet (around 60-70 percent)
9/30	reach acceptable accuracy (over 95 percent) on data with a validation set and augmentations	no - not yet
10/07	develop object detection framework	no - not yet

Reflection

I didn't achieve exactly what I wanted this week, but looking at my original timeline, I'm still ahead of schedule by a sizeable amount which means I have room to really hash out some small issues I'm having. The low validation score and the overall process of training is slightly confusing me because after each step the first epoch always has higher accuracy than the last, and the validation score is quite low despite the training accuracy being quite high. My suspicion was that this was a result of over fitting, but I had frozen almost all the layers in the original ResNet50 architecture to preserve the low level feature detection and the model I generated seem to do well with new data I introduced to it. However, I did combine the goals I had for this week and the next week just because I don't see any reason to separately train with and without augmentations at this point since I'm already splitting up the training data.

```
 1/10 [==>...........................] - ETA: 23s - loss: 0.1127 - acc: 0.9333
 2/10 [=====>........................] - ETA: 10s - loss: 0.0784 - acc: 0.9667
 3/10 [========>.....................] - ETA: 6s - loss: 0.1174 - acc: 0.9667
 4/10 [===========>..................] - ETA: 4s - loss: 0.1054 - acc: 0.9667
 5/10 [==============>...............] - ETA: 2s - loss: 0.1428 - acc: 0.9600
 6/10 [=================>............] - ETA: 1s - loss: 0.1412 - acc: 0.9611
 7/10 [====================>.........] - ETA: 1s - loss: 0.1252 - acc: 0.9667
 8/10 [=======================>......] - ETA: 0s - loss: 0.1350 - acc: 0.9625
 9/10 [==========================>...] - ETA: 0s - loss: 0.1262 - acc: 0.9630
10/10 [=============================] - 5s 513ms/step - loss: 0.1576 - acc: 0.9565 - val loss: 3.8239 - val acc: 0.5730
```