

### Hyperparameter Optimization

Here is a screenshot of the last 18 iterations and final result. There were 243 in total.

```
Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0
l2 strength: 0
Accuracy: 0.822

Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0
l2 strength: 0.01
Accuracy: 0.8155833333333333

Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0
l2 strength: 0.05
Accuracy: 0.7761666666666667

Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.01
l2 strength: 0
Accuracy: 0.6331666666666667

Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.01
l2 strength: 0.01
Accuracy: 0.6459166666666667

Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.01
l2 strength: 0.05
Accuracy: 0.6068333333333333
```

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 20  
l1 strength: 0.05  
l2 strength: 0  
Accuracy: 0.10358333333333333

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 20  
l1 strength: 0.05  
l2 strength: 0.01  
Accuracy: 0.10358333333333333

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 20  
l1 strength: 0.05  
l2 strength: 0.05  
Accuracy: 0.10358333333333333

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 30  
l1 strength: 0  
l2 strength: 0  
Accuracy: 0.822

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 30  
l1 strength: 0  
l2 strength: 0.01  
Accuracy: 0.8155833333333333

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 30  
l1 strength: 0  
l2 strength: 0.05  
Accuracy: 0.7761666666666667

Learning Rate: 0.01  
Batch Size: 128  
Num Epochs: 30  
l1 strength: 0.01  
l2 strength: 0  
Accuracy: 0.6331666666666667

```
Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.01
l2 strength: 0.01
Accuracy: 0.6459166666666667
```

```
Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.01
l2 strength: 0.05
Accuracy: 0.6068333333333333
```

```
Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.05
l2 strength: 0
Accuracy: 0.10358333333333333
```

```
Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.05
l2 strength: 0.01
Accuracy: 0.10358333333333333
```

```
Learning Rate: 0.01
Batch Size: 128
Num Epochs: 30
l1 strength: 0.05
l2 strength: 0.05
Accuracy: 0.10358333333333333
```

```
Learning Rate Best: 0.01
Batch Size Best: 32
Num Epochs Best: 30
l1 strength Best: 0
l2 strength Best: 0
Accuracy Best: 0.8571666666666666
```

**Last 20 batches**

Accuracy: 0.8611  
CE Loss: 0.38770660850128513  
Accuracy: 0.8615  
CE Loss: 0.3867786992724467  
Accuracy: 0.8618  
CE Loss: 0.3856351471144491  
Accuracy: 0.8623  
CE Loss: 0.3847217931522033  
Accuracy: 0.8631  
CE Loss: 0.3837969669627116  
Accuracy: 0.8632  
CE Loss: 0.382886964762837  
Accuracy: 0.8633  
CE Loss: 0.3820628650698212  
Accuracy: 0.8638  
CE Loss: 0.3813071642831592  
Accuracy: 0.8638  
CE Loss: 0.3804278613175318  
Accuracy: 0.863  
CE Loss: 0.3797023339202961  
Accuracy: 0.8638  
CE Loss: 0.37910321328883595  
Accuracy: 0.8638  
CE Loss: 0.37847957871188853  
Accuracy: 0.8644  
CE Loss: 0.37773813256420413  
Accuracy: 0.8645  
CE Loss: 0.3767481003213562  
Accuracy: 0.8649  
CE Loss: 0.37635082187098645  
Accuracy: 0.865  
CE Loss: 0.3758356645677834  
Accuracy: 0.8648  
CE Loss: 0.37535250944967474  
Accuracy: 0.8648  
CE Loss: 0.3748439022646795  
Accuracy: 0.8649  
CE Loss: 0.374540869260335  
Accuracy: 0.8658  
CE Loss: 0.3739551422531664  
Accuracy: 0.8656  
CE Loss: 0.3737288371812997  
Accuracy: 0.8658  
CE Loss: 0.37251690935938986  
Accuracy: 0.8676  
CE Loss: 0.37215863339116  
Accuracy: 0.8683  
CE Loss: 0.37205495009676565  
Accuracy: 0.8679  
CE Loss: 0.37194589799196465  
Accuracy: 0.8682  
CE Loss: 0.37159322004598555  
Accuracy: 0.8681  
CE Loss: 0.37159322004598555  
Accuracy: 0.8681