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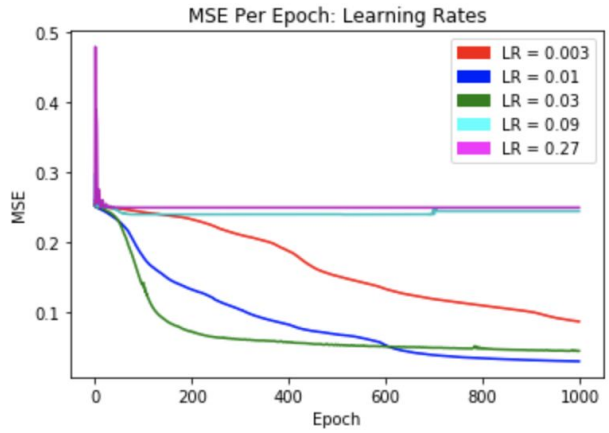
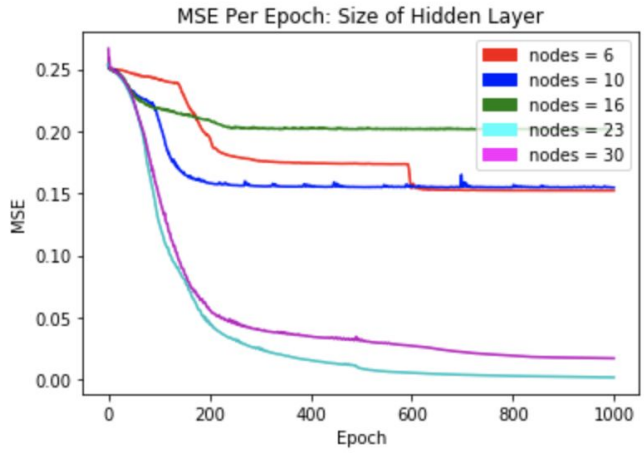
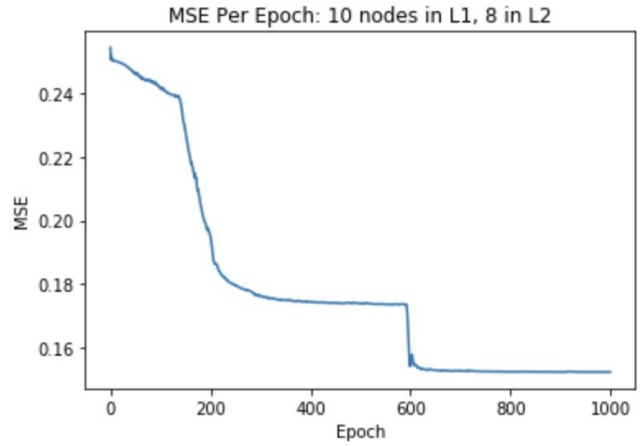
COVID 19: Machine Learning & Data Analytics
Homework 4

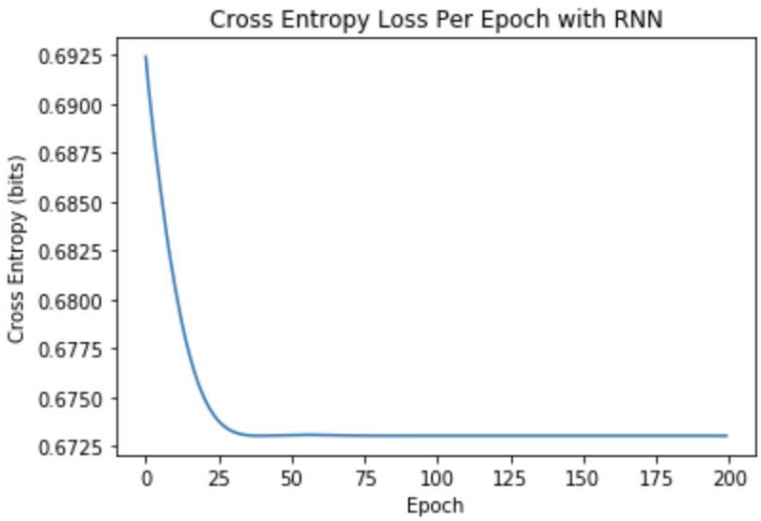
After training my initial neural network using different learning rates, hidden nodes, and hidden layers, I generated the following loss curves:







And my RNN yielded the following results:



With the following test sequence:

In [158]:
```
# Now that we have trained the network, if all is good we should be able to classify
# a sequence of many lengths using forward predict. Try it out below and see for yourself!
print("Test 1:", mynet.forward_predict(torch.FloatTensor([1,0,0,1,0,1,1,0,0,0,1])))
print("Test 2:", mynet.forward_predict(torch.FloatTensor([1,0,0,0,0,0,0,1,1])))
print("Test 3:", mynet.forward_predict(torch.FloatTensor([1,1,1,1,0,0])))
print("Test 4:", mynet.forward_predict(torch.FloatTensor([1,1,1,1,0,1,1])))
print("Test 5:", mynet.forward_predict(torch.FloatTensor([1,0,1,0,0,0,1,1,1])))
```

```
Test 1: tensor([[0.2972, 0.7028]], grad_fn=<SoftmaxBackward>)
Test 2: tensor([[0.2974, 0.7026]], grad_fn=<SoftmaxBackward>)
Test 3: tensor([[0.7027, 0.2973]], grad_fn=<SoftmaxBackward>)
Test 4: tensor([[0.2974, 0.7026]], grad_fn=<SoftmaxBackward>)
Test 5: tensor([[0.2974, 0.7026]], grad_fn=<SoftmaxBackward>)
```