Hw6 Report

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1 Problem 1

I measured time with the unix cmd time method the measurements here are the "real" measurement

Net	Layers	epochs	Time (m)	accuracy
1	2	30	56	0.9896
2	2	30	46	0.9988
3	3	30	54	0.998
4	4	30	66	0.9984
5	1	10	41	0.9926

The thing that was a real bummer was that the one layer convolutional layer was so much slower to train. I believe that the reason it is primarily so slow is because of the large size of the fully connected layer. I was quite surprised that the value of the one layer convolutional net was roughly the same as the others even though it's value had not changed at all. There must be something wrong with my enviorment because I can only seem to load one CNN at at time for the testing. I got the accuracy above by running one at at time. Are CNN's worth it? Most definitely in comparison with ANNs. These are already more accurate than the ANN that I trained before.

2 Problem 2

With just 50 episodes

Layers	Activation	Reward	Average X
2	relu	-4.58	-104
3	relu	-8.6	-187
4	relu	-5.3	-162
4	tanh	-12.5	-192
4	softmax	-12.5	-195

The best was actually the simplest in this case. The architecture that Dr. K gave us. I should run this experiment over and over again to get rid of the chance that there's some special case initialization helping, but it's currently 10 minutes to deadline.I was quite disappointed with how these were turning out

given that in class it seemed to be better at learning, so I ran some of them for longer.

With 150 episodes

Layers	Activation	Reward	Average X
2	relu	52.9	-34
3	relu	13	-60

The others are running at the time of submitting this.