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Project 4

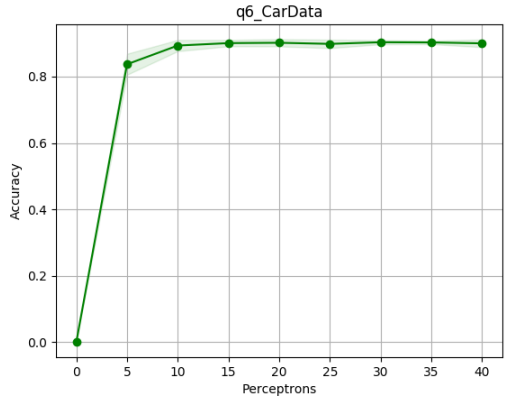
Question 5:

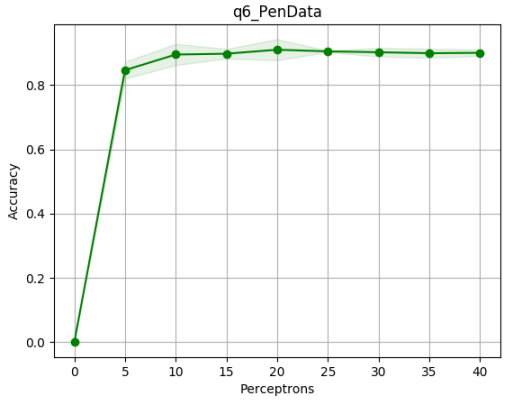
	Pen Data	Car Data
Mean Accuracy	90.68%	97.00%
Standard Deviation	0.18%	0.54%
Max Accuracy	90.99%	98.00%

Question 6:

Perp	Pmax	Pavg	Pstd	Cmax	Cavg	Cstd
0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5	87.05%	84.63%	1.32%	85.13%	83.72%	1.58%
10	92.62%	89.49%	1.65%	90.14%	89.35%	0.84%
15	90.85%	89.74%	0.75%	90.62%	90.09%	0.48%
20	94.20%	90.99%	1.65%	90.59%	90.19%	0.55%
25	90.62%	90.47%	0.12%	90.68%	89.86%	0.63%
30	90.82%	90.20%	0.68%	90.68%	90.35%	0.31%
35	90.39%	89.90%	0.72%	90.59%	90.29%	0.26%
40	90.62%	90.02%	0.51%	90.62%	90.02%	0.57%

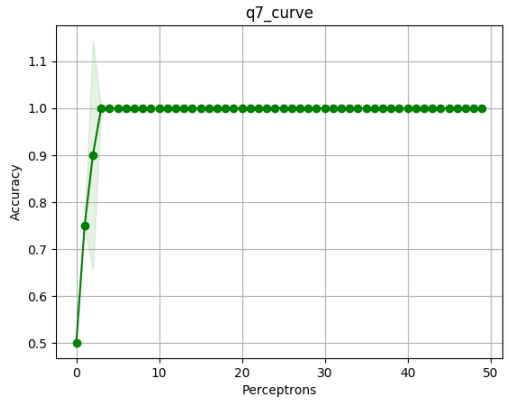
Increased # of Perceptrons is correlated with increases in Max and Average accuracy, and decreases in Standard Deviation of accuracy





Increasing the # of Perceptrons clearly has an immediate positive effect on accuracy, but gains diminish as more Perceptrons are added.

Question 7



At first I had difficulty getting this to work, as I was expecting a model with many Perceptrons to learn XOR immediately after training it on 4 examples of every possible XOR input and output.

After experimentation, I found that accuracy could be increased by any of three things:

1) Increasing the training dataset size
2) Increasing maxItr so the model would train longer
3) Increasing the number of Perceptrons

Question 8

I trained a model on the famous Iris Dataset, which contains 3 labeled species of flowers and measurements for the lengths and widths of their petals and sepals.

Mean : 93.86%
StDev : 00.49%
Max : 94.66%