Analysis of NN (Q 5&6)

Q 5:

Testing on Pen Dataset

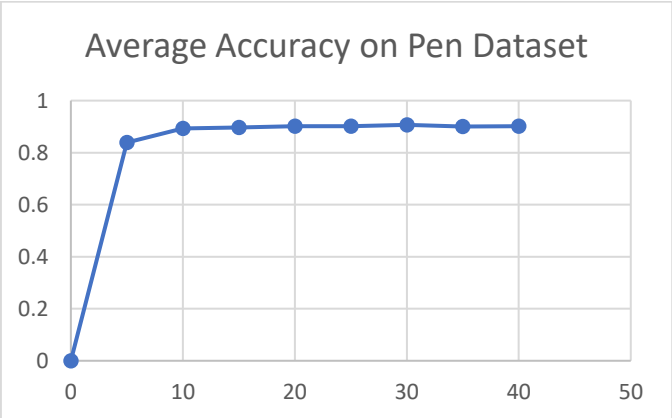
Maximum Accuracy: 0.908805031447
Average Accuracy: 0.899828473413
Standard Deviation: 0.0083593673562

Testing on Car Dataset

Maximum Accuracy: 0.884816753927
Average Accuracy: 0.868979057592
Standard Deviation: 0.0116293436027

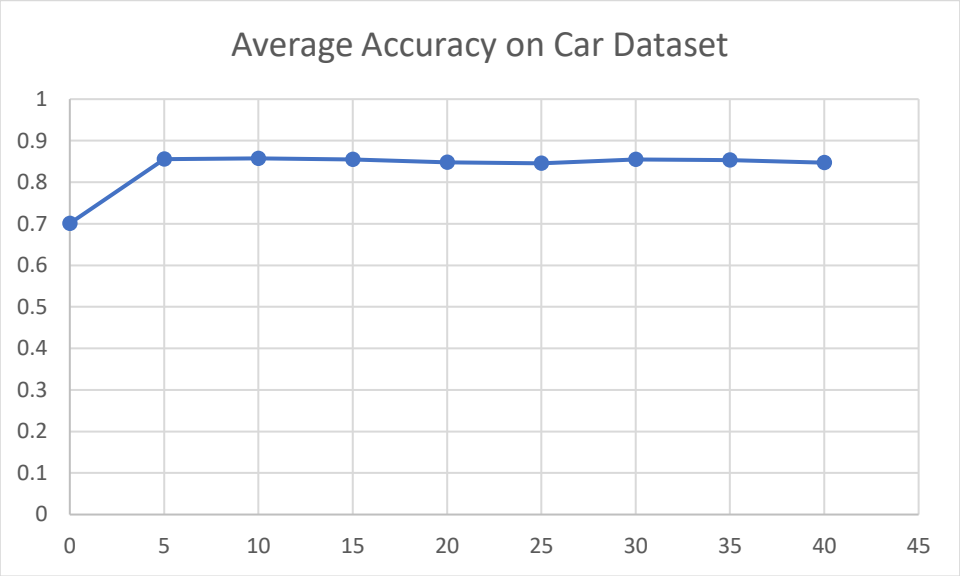
Q 6:

Pen Dataset			
Number of Perceptrons	**Maximum Accuracy**	**Average Accuracy**	**Standard Deviation**
0	0	0	0
5	0.85849	0.838879	0.01395434
10	0.903659	0.893367	0.01112354
15	0.908805	0.8968553	0.0080339
20	0.906518	0.90125786	0.0049336
25	0.907947	0.901658	0.006801244
30	0.9096626	0.90680388	0.002258252
35	0.90594624	0.9006861	0.0059794
40	0.90365923	0.901658	0.002146939



The neural network can't make any right prediction with 0 perceptrons. And the accuracy increases with increasing number of perceptrons. I don't see the test accuracy go down considerably anywhere on this plot, so there is no overfitting. Also, we should use a simpler model to explain our data rather than a complex model.

Car Dataset			
Number of Perceptrons	**Maximum Accuracy**	**Average Accuracy**	**Standard Deviation**
0	0.7009162	0.70091623	0
5	0.8887434	0.85589	0.0214412
10	0.861256544	0.8574607	0.003024664
15	0.8651832	0.854712	0.00759839
20	0.876963351	0.84790575	0.0190245
25	0.862565	0.8458115	0.0168974
30	0.87172774	0.855104712	0.00943498
35	0.86191099	0.853272251	0.008813479
40	0.85929319	0.846989529	0.00644425



The neural network can still make decent predictions with 0 perceptrons. And the accuracy increases with increasing number of perceptrons. I don't see the test accuracy go down considerably anywhere on this plot, so there is no overfitting. Also, we should use a simpler model to explain our data rather than a complex model.