

November 24, 2020
CS 3600
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Project 4

Q5:

Iteration	Pen Results Accuracy	Car Results Accuracy
1	0.906232133	0.97
2	0.889365352	0.98
3	0.905088622	0.975
4	0.902229846	0.975
5	0.906232133	0.975

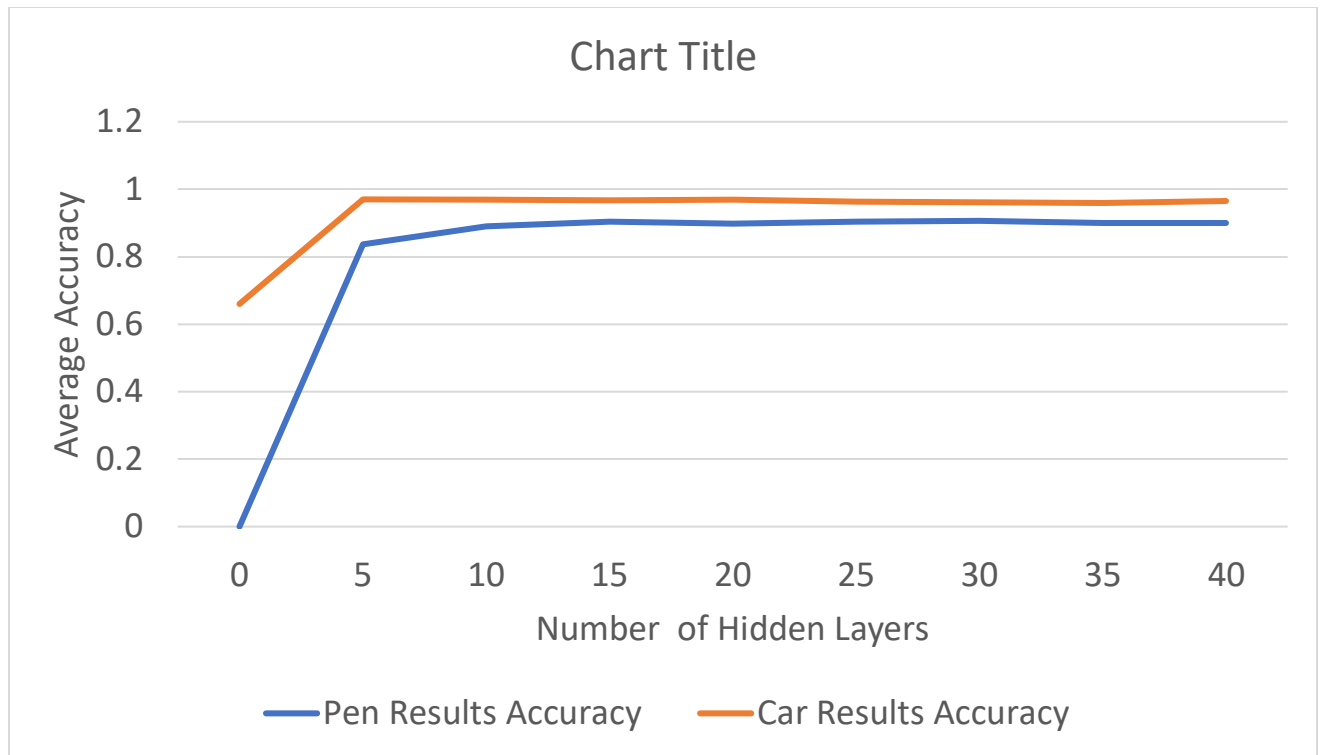
	Pen Results Accuracy	Car Results Accuracy
AVERAGE	0.901829617	0.975
STDV	0.007157225	0.003535534
MAX	0.906232133	0.98

Q6:

Hidden Layers	Iteration	Pen Results Accuracy	Car Results Accuracy
0	1	0	0.66
0	2	0	0.66
0	3	0	0.66
0	4	0	0.66
0	5	0	0.66
5	1	0.849628359	0.98
5	2	0.847913093	0.96
5	3	0.810463122	0.975
5	4	0.830188679	0.965
5	5	0.846483705	0.97
10	1	0.880503145	0.965
10	2	0.882790166	0.975
10	3	0.878502001	0.97
10	4	0.929674099	0.965
10	5	0.883361921	0.97
15	1	0.905088622	0.975
15	2	0.905088622	0.97
15	3	0.899085192	0.975
15	4	0.901372213	0.96
15	5	0.90651801	0.96
20	1	0.905660377	0.965
20	2	0.889365352	0.95
20	3	0.900800457	0.975
20	4	0.905946255	0.965
20	5	0.889937107	0.99
25	1	0.906232133	0.96
25	2	0.897941681	0.955
25	3	0.905946255	0.965
25	4	0.901372213	0.965
25	5	0.907375643	0.97
30	1	0.907375643	0.965
30	2	0.904802744	0.965
30	3	0.909376787	0.96
30	4	0.901943968	0.945
30	5	0.908519154	0.97
35	1	0.905946255	0.965
35	2	0.904230989	0.955
35	3	0.901943968	0.95
35	4	0.902801601	0.96
35	5	0.884219554	0.965
40	1	0.904802744	0.95
40	2	0.889365352	0.97
40	3	0.903659234	0.965
40	4	0.905088622	0.965

Pen Results Accuracy			
Hidden Layers	AVERAGE	STDV	MAX
0	0	0	0
5	0.836935	0.0167	0.8496
10	0.890966	0.0217	0.9297
15	0.903431	0.0031	0.9065
20	0.898342	0.0082	0.9059
25	0.903774	0.004	0.9074
30	0.906404	0.003	0.9094
35	0.899828	0.0089	0.9059
40	0.900743	0.0066	0.9051

Car Results Accuracy			
Hidden Layers	AVERAGE	STDV	MAX
0	0.66	0	0.66
5	0.97	0.0079	0.98
10	0.969	0.0042	0.975
15	0.968	0.0076	0.975
20	0.969	0.0147	0.99
25	0.963	0.0057	0.97
30	0.961	0.0096	0.97
35	0.959	0.0065	0.965
40	0.965	0.0094	0.975



Discussion:

From the graph above we can notice that for both data sets there is big positive correlation between number of hidden layers and accuracy of the model when we first start increasing the number of layers (starting from zero). But we can also notice that after a certain amount of hidden layers our accuracy hits a plateau (in this case at 5 hidden layers for Car data set and 10 for Pen data set). We could say that the above mentioned numbers of hidden layers are the most optimal for each model respectively.