

Question 5:

| | Maximum | Average | St. Deviation |
|-----------------|----------------|----------------|----------------------|
| Car Data | 0.947684 | 0.906003 | 0.022146 |
| Pen Data | 0.970000 | 0.957000 | 0.009274 |

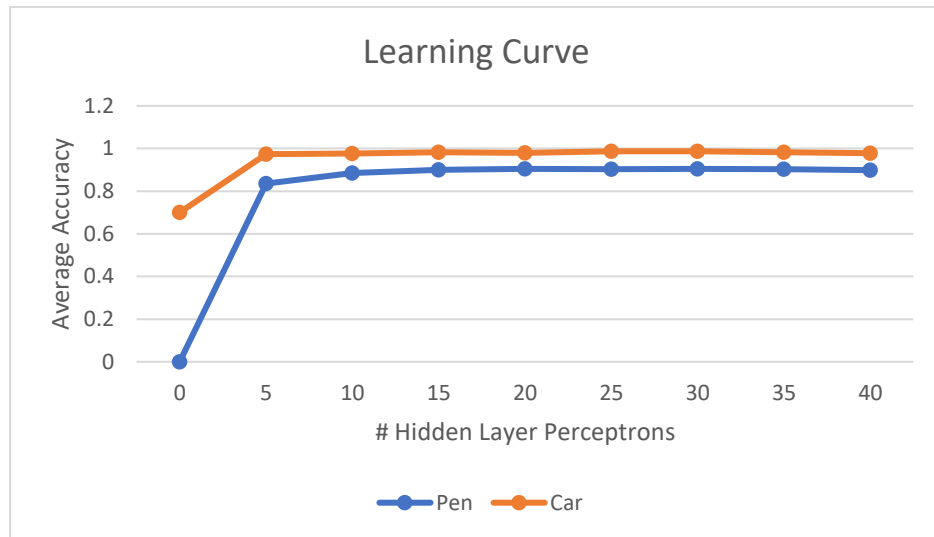
Analysis:

For both examples, we see an average accuracy higher than 90%. We see slightly higher values for maximum and average as well as a closer value for standard deviation for the pen example as compared to the car example. With this, we see that the pen example produces generally higher and more consistent accuracy values between simulations compared to the car example.

Question 6:

| Pen Example Accuracy % Statistics | | | |
|--|----------------|----------------|----------------------|
| Hidden Perceptrons | Maximum | Average | St. Deviation |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.854774 | 0.835678 | 0.016247 |
| 10 | 0.897084 | 0.885477 | 0.006343 |
| 15 | 0.907376 | 0.900515 | 0.005972 |
| 20 | 0.909091 | 0.904574 | 0.002547 |
| 25 | 0.907090 | 0.903545 | 0.002189 |
| 30 | 0.909377 | 0.904002 | 0.006749 |
| 35 | 0.908805 | 0.903602 | 0.003370 |
| 40 | 0.906518 | 0.898056 | 0.008853 |

| Car Example Accuracy % Statistics | | | |
|--|----------------|----------------|----------------------|
| Hidden Perceptrons | Maximum | Average | St. Deviation |
| 0 | 0.700000 | 0.700000 | 0.000000 |
| 5 | 1.000000 | 0.973000 | 0.014000 |
| 10 | 0.990000 | 0.977000 | 0.008124 |
| 15 | 0.990000 | 0.982000 | 0.005099 |
| 20 | 0.990000 | 0.979000 | 0.008000 |
| 25 | 0.995000 | 0.987000 | 0.006782 |
| 30 | 0.995000 | 0.987000 | 0.005099 |
| 35 | 0.990000 | 0.982000 | 0.007483 |
| 40 | 0.985000 | 0.978000 | 0.005099 |



Analysis:

For the Pen and Car examples, we see the average accuracy take a very large bump from initial hidden perceptron usage (0) to 5 hidden perceptrons used towards the average values at higher perceptron usage. Following this first step of 5, we see only minimal changes in the average value, however the maximum values slightly decreasing towards the average values along with the standard deviation converging towards 0 (this is observed within both the Pen and Car examples).