Question 5:

|  |  |  |
| --- | --- | --- |
|  | Car Data | Pen Data |
| Average | 0.840837696335 | 0.904288164666 |
| Standard Deviation | 0.0165584969643 | 0.00371156829437 |
| Maximum | 0.871073298429 | 0.907947398513 |

Question 6:

Pen Data:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Average | Standard Deviation | Maximum |
| 0 | 0.0 | 0.0 | 0.0 |
| 5 | 0.841452258433 | 0.0137953070569 | 0.857632933105 |
| 10 | 0.885134362493 | 0.00427633206434 | 0.890508862207 |
| 15 | 0.898341909663 | 0.00803839949379 | 0.905660377358 |
| 20 | 0.903659233848 | 0.00279517588601 | 0.908519153802 |
| 25 | 0.903487707261 | 0.00360976423503 | 0.909090909091 |
| 30 | 0.905202973128 | 0.00397606372801 | 0.909376786735 |
| 35 | 0.901257861635 | 0.00388457124104 | 0.906803887936 |
| 40 | 0.904002287021 | 0.00236709451624 | 0.907375643225 |

Car Data:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Average | Standard Deviation | Maximum |
| 0 | 0.70222513089 | 0.0 | 0.70222513089 |
| 5 | 0.868193717277 | 0.0135051643088 | 0.884816753927 |
| 10 | 0.871858638743 | 0.015516959122 | 0.889397905759 |
| 15 | 0.856151832461 | 0.0079337080946 | 0.864528795812 |
| 20 | 0.846204188482 | 0.0136402256232 | 0.86387434555 |
| 25 | 0.853141361257 | 0.00644691641677 | 0.861256544503 |
| 30 | 0.851439790576 | 0.0133160928988 | 0.865183246073 |
| 35 | 0.843848167539 | 0.0126469867321 | 0.862565445026 |
| 40 | 0.840968586387 | 0.0113127175059 | 0.85667539267 |

Both the Car data set and the Pen data set show a large increase in accuracy from 0 to 5 hidden nodes. Pen Data peaks at 30 hidden nodes with 0.905 accuracy, and levels out at around 0.90 accuracy. Car Data peaks at 10 hidden nodes with 0.87 accuracy, and then decreases and remains stable at about 0.85 accuracy.