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**QUESTION 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **ACCURACY** | Maximum | Average | Standard Deviation |
| Pen Data | 0.905660377358 | 0.901715265866 | 0.00311803275116 |
| Car Data | 0.99 | 0.986 | 0.00374165738677 |

**QUESTION 6**

**PEN DATA**

|  |  |  |  |
| --- | --- | --- | --- |
| Perceptrons | Maximum | Average | Standard Deviation |
| 0 | 0.0 | 0.0 | 0.0 |
| 5 | 0.8530588907947398 | 0.835620354488279 | 0.011963219443139626 |
| 10 | 0.8987993138936535 | 0.8857632933104631 | 0.010782704476755584 |
| 15 | 0.9073756432246999 | 0.8997712978845055 | 0.006180777808475744 |
| 20 | 0.9068038879359634 | 0.9027444253859349 | 0.003075809641237925 |
| 25 | 0.9059462550028587 | 0.8988564894225272 | 0.007235359300485267 |
| 30 | 0.9093767867352773 | 0.8990851915380217 | 0.006990862927751579 |
| 35 | 0.9070897655803316 | 0.9020011435105776 | 0.007367439070483535 |
| 40 | 0.9082332761578045 | 0.9008576329331046 | 0.005076723357443839 |

**CAR DATA**

|  |  |  |  |
| --- | --- | --- | --- |
| Perceptrons | Maximum | Average | Standard Deviation |
| 0 | 0.67 | 0.67 | 0.0 |
| 5 | 0.98 | 0.969 | 0.014966629547095779 |
| 10 | 0.995 | 0.9810000000000001 | 0.008602325267042634 |
| 15 | 0.985 | 0.9810000000000001 | 0.0020000000000000018 |
| 20 | 0.99 | 0.9789999999999999 | 0.006633249580710806 |
| 25 | 0.985 | 0.9789999999999999 | 0.00489897948556636 |
| 30 | 0.975 | 0.969 | 0.00489897948556636 |
| 35 | 0.985 | 0.977 | 0.006000000000000005 |
| 40 | 0.98 | 0.976 | 0.0020000000000000018 |

Analysis:

From the result, we can conclude that the neural network for pen data cannot work with 0 perceptron in use; the neural network will work with 0 perceptron for car data. Moreover, both pen data and car data have a big increases in accuracy in between 0 perceptron usage and 5 perceptrons usage. From 5 perceptrons to 10 perceptrons usage in pen data, we can see a noticeable increase in terms of accuracy. It then starts to stabilize in between 10 – 40 perceptrons usage. For car data, we can see that it stabilizes in between 5 – 40 perceptrons usage. However, we do notice that there are some very little fluctuation in terms of accuracy in between those stable period (10 to 40 in pen data and 5 to 40 in car data).