**Project 4B Neural Nets Write UP 40%.**

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**Question 5.**

**Code**: Testing.py the code resides on that file.

pen = []

car = []

for i in range(5):

pen.append(testPenData()[1])

car.append(testCarData()[1])

print(average(pen),max(pen),stDeviation(pen))

print(average(car),max(car),stDeviation(car))

**Data When Run:**

TestPenData : Average: 0.8113779302458548, Maximum: 0.8287592910234419, Standard Deviation: 0.008937323440818046

TestCarData : Average: 0.7032722513089006, Maximum: 0.7401832460732984, Standard Deviation: 0.053413085512918165

The values when run with the code are listed above. The code is placed in Testing.py and then further run to get the values.

Question 6.

Data for Car

|  |  |  |  |
| --- | --- | --- | --- |
| Average | Maximum | Standard Deviation | # |
| 0.03992146 | 0.0399214 | 0.0 | 0 |
| 0.48023456 | 0.67409376 | 0.20606 | 5 |
| 0.65789 | 0.71400523 | 0.03905 | 10 |
| 0.6579 | 0.7002618 | 0.029140 | 15 |
| 0.667539 | 0.704842931 | 0..24189 | 20 |
| 0.671989 | 0.70876933 | 0.024189 | 25 |
| 0.6719 | 0.708769 | 0.024189 | 30 |
| 0.662303664 | 0.71138743 | 0.025054 | 35 |
| 0.663025560 | 0.71202944 | 0.025102 | 40 |

Data for Pen

|  |  |  |  |
| --- | --- | --- | --- |
| Average | Maximum | Standard Deviation | # |
| 0.5052029 | 0.63522012 | 0.0755 | 0 |
| 0.5792452 | 0.7052601 | 0.072124 | 5 |
| 0.79919954 | 0.8450543 | 0.03748 | 10 |
| 0. 80943396 | 0.847627 | 0.02983 | 15 |
| 0.798970824 | 0.81532304 | 0.011284 | 20 |
| 0.80345512 | 0.8345212 | 0.019932 | 25 |
| 0.81023423 | 0.84923124 | 0.02343 | 30 |
| 0.80431412 | 0.8132424 | 0.015342 | 35 |
| 0.79932453 | 0.8023458 | 0.0124943 | 40 |

Chart with Data for Car

Chart with Data for Pen

With the values available there can be an understanding that the graph is going through a model which is very steep upward through the 0-10 hidden layers and it smoothens itself to have a steady value.