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# Deep Learning Assignment 1

## Q.4

Data:

Train: 48,000

Validation: 12,000

Test: 10,000

Number of Classes: 10

Model Configuration:

Layer dimensions=[768(input),20,7,5,10]

Learning rate=0.009

Number of iterations=9400

Number of epochs (each iteration)= 99

Batch size=512

Seed=22

Evaluation:

Accuracy:

Train: 92.94%

Validation: 92.36%

Test: 92.31%

Cost value:

|  |  |  |  |
| --- | --- | --- | --- |
| **cost** | **iteration** | **cost** | **iteration** |
| 2.187095 | 0 | 0.473917 | 4700 |
| 2.039472 | 100 | 0.300606 | 4800 |
| 1.878282 | 200 | 0.390598 | 4900 |
| 1.802324 | 300 | 0.296929 | 5000 |
| 1.6982 | 400 | 0.295949 | 5100 |
| 1.602288 | 500 | 0.40732 | 5200 |
| 1.588186 | 600 | 0.352173 | 5300 |
| 1.431978 | 700 | 0.325286 | 5400 |
| 1.364278 | 800 | 0.262426 | 5500 |
| 1.254855 | 900 | 0.291265 | 5600 |
| 1.246804 | 1000 | 0.334132 | 5700 |
| 1.176493 | 1100 | 0.293184 | 5800 |
| 1.16805 | 1200 | 0.273886 | 5900 |
| 1.048262 | 1300 | 0.258051 | 6000 |
| 1.024765 | 1400 | 0.272956 | 6100 |
| 0.970236 | 1500 | 0.287249 | 6200 |
| 0.879455 | 1600 | 0.264287 | 6300 |
| 0.834981 | 1700 | 0.274941 | 6400 |
| 0.863266 | 1800 | 0.262383 | 6500 |
| 0.774816 | 1900 | 0.30315 | 6600 |
| 0.739657 | 2000 | 0.319309 | 6700 |
| 0.796648 | 2100 | 0.344616 | 6800 |
| 0.658149 | 2200 | 0.260573 | 6900 |
| 0.752707 | 2300 | 0.341143 | 7000 |
| 0.647671 | 2400 | 0.283169 | 7100 |
| 0.599898 | 2500 | 0.284457 | 7200 |
| 0.62333 | 2600 | 0.329253 | 7300 |
| 0.604397 | 2700 | 0.290969 | 7400 |
| 0.530167 | 2800 | 0.23874 | 7500 |
| 0.563578 | 2900 | 0.292598 | 7600 |
| 0.467343 | 3000 | 0.254825 | 7700 |
| 0.520957 | 3100 | 0.251649 | 7800 |
| 0.485448 | 3200 | 0.252451 | 7900 |
| 0.470714 | 3300 | 0.281231 | 8000 |
| 0.461531 | 3400 | 0.259745 | 8100 |
| 0.51017 | 3500 | 0.33517 | 8200 |
| 0.453205 | 3600 | 0.273357 | 8300 |
| 0.371685 | 3700 | 0.208608 | 8400 |
| 0.307252 | 3800 | 0.186411 | 8500 |
| 0.477955 | 3900 | 0.334929 | 8600 |
| 0.404767 | 4000 | 0.262755 | 8700 |
| 0.379179 | 4100 | 0.251907 | 8800 |
| 0.337293 | 4200 | 0.213447 | 8900 |
| 0.418341 | 4300 | 0.313056 | 9000 |
| 0.322363 | 4400 | 0.196393 | 9100 |
| 0.334545 | 4500 | 0.224162 | 9200 |
| 0.450247 | 4600 | 0.315838 | 9300 |

