**Report**

Hardware Specifications:

3.2 GHZ Intel core i7 processor, 16GB 1600 MHz DDR3 RAM, Intel Iris PRO 1536 MB AMD Radeon R9 M370X 2048 MB

Operating System:

macOS High Sierra Version 10.12.4

Python and Tensorflow Versions:

Python spyder 3.6.3 with Tensorflow 1.8.0

Structure of CNN used:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Conv1 | Conv2 |  |  |  |  |
| Input | 5x5, 32 | 5x5, 64 | Fully |  | Fully |  |
|  | filters | filters |  |  |
|  | Connected | Dropout | Connected | Softmax |
|  | 2x2 | 2x2 |
|  | Flatten Layer | 40% | Layer | output |
| 32x32x3 maxpool | | maxpool | 1024 units |  | No activation |  |
|  | 20% | 20% |  |  |
|  |  |  |  |  |
|  | dropout | dropout |  |  |  |  |

Accuracy, precision, recall and F-1 measure:

Accuracy is 98.354% and

precision recall f1-score support

1. 0.99. 0.99. 0.99. 533
2. 1.00. 0.99. 0.99. 547
3. 1.00. 0.97. 0.98. 577
4. 0.99. 0.98. 0.99. 555
5. 0.99. 0.99. 0.98. 562
6. 1.00. 0.99. 0.99. 523
7. 0.96. 0.99. 0.97. 557
8. 0.99. 0.95. 0.97. 473
9. 0.95 1.00 0.97 534

Average.0.98. 0.98. 0.98. 4861

TEST SET PERFORMANCE

test\_loss\_score= 0.0890937

