Report on Fashion-MNIST

Fig: <u>Validation set accuracy after each backpropagation</u>
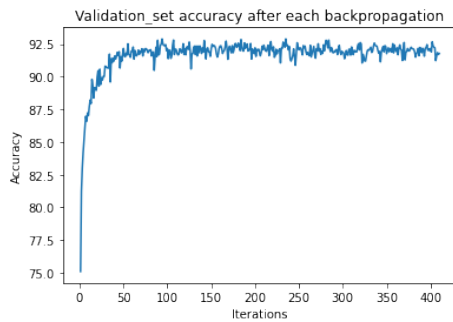

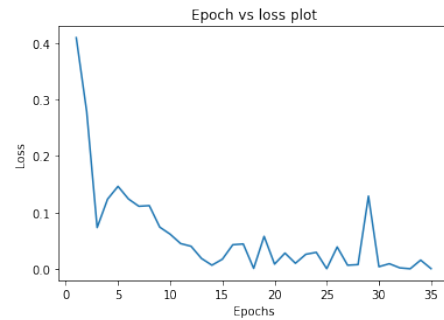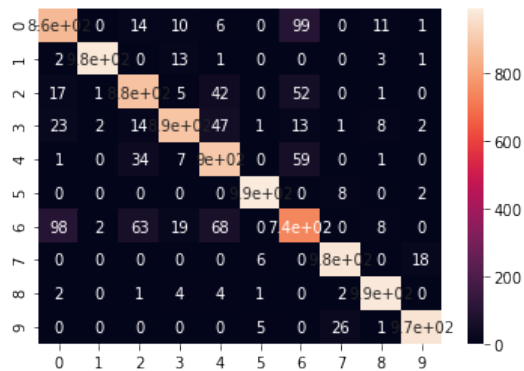Fig: <u>Epoch vs Loss plot</u>

Fig: <u>Heatmap of Confusion matrix</u>

Confusion matrix:

```
Classes:     0      1      2      3      4      5      6      7      8      9
       [[859     0     14    10      6     0     99     0     11      1]
        [   2   980     0     13     1     0      0     0      3      1]
        [  17     1   882      5    42     0     52     0      1      0]
        [  23     2    14    889    47     1     13     1      8      2]
        [   1     0    34      7   898     0     59     0      1      0]
        [   0     0     0      0     0   990      0     8      0      2]
        [  98     2    63     19    68     0    742     0      8      0]
        [   0     0     0      0     0     6      0   976      0     18]
        [   2     0     1      4     4     1      0     2    986      0]
        [   0     0     0      0     0     5      0    26      1    968]]
```

Legend:
0: 'T-shirt/top',**1:** 'Trouser',**2:** 'Pullover',**3:** 'Dress',**4:** 'Coat',**5:** 'Sandal',**6:** 'Shirt',**7:** 'Sneaker',**8:** 'Bag', **9:** 'Ankle-boot'.

Table of information related to predictions on test data:

Classes	T-shirt/top	Trouser	Pullover	Dress	Coat	Sandal	Shirt	Sneaker	Bag	Ankle-boot
Class-wise true distribution	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Class-wise Prediction (test data)	1002	985	1008	947	1066	1003	965	1013	1019	992
Class-wise Correct prediction (test data)	859	980	882	889	898	990	742	976	986	968
Precision	0.857	0.994	0.88	0.94	0.842	0.987	0.769	0.0.963	0.967	0.975
Recall	0.859	0.980	0.882	0.889	0.898	0.99	0.742	0.976	0.986	0.968

Accuracy on test-data = **Nc/N** = 9170/10,000