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Student ID: 1905078

Model 1:

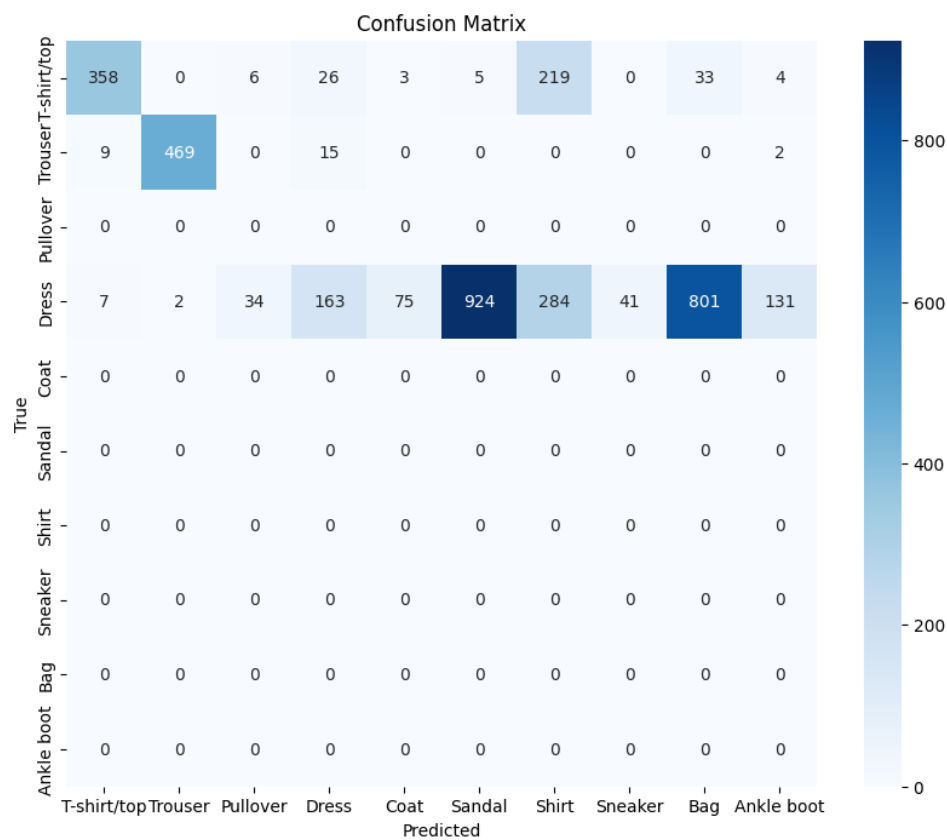
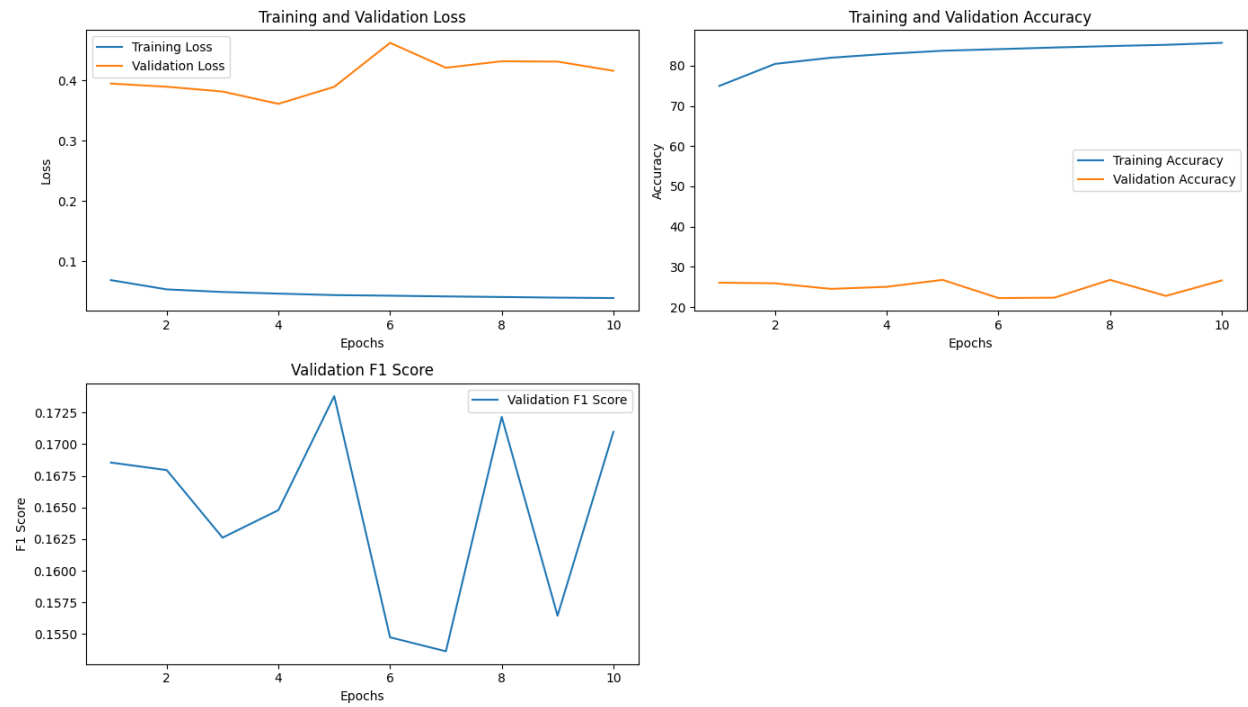
```
FNN([
    DenseLayer(784, 512),
    BatchNormalizationLayer(512),
    ReLU(),
    DropoutLayer(0.5),
    DenseLayer(512, 128),
    ReLU(),
    DropoutLayer(0.25),
    DenseLayer(128, 64),
    ReLU(),
    DenseLayer(64, 10),
    Softmax()
]),
```

Performance metrics per learning rate:

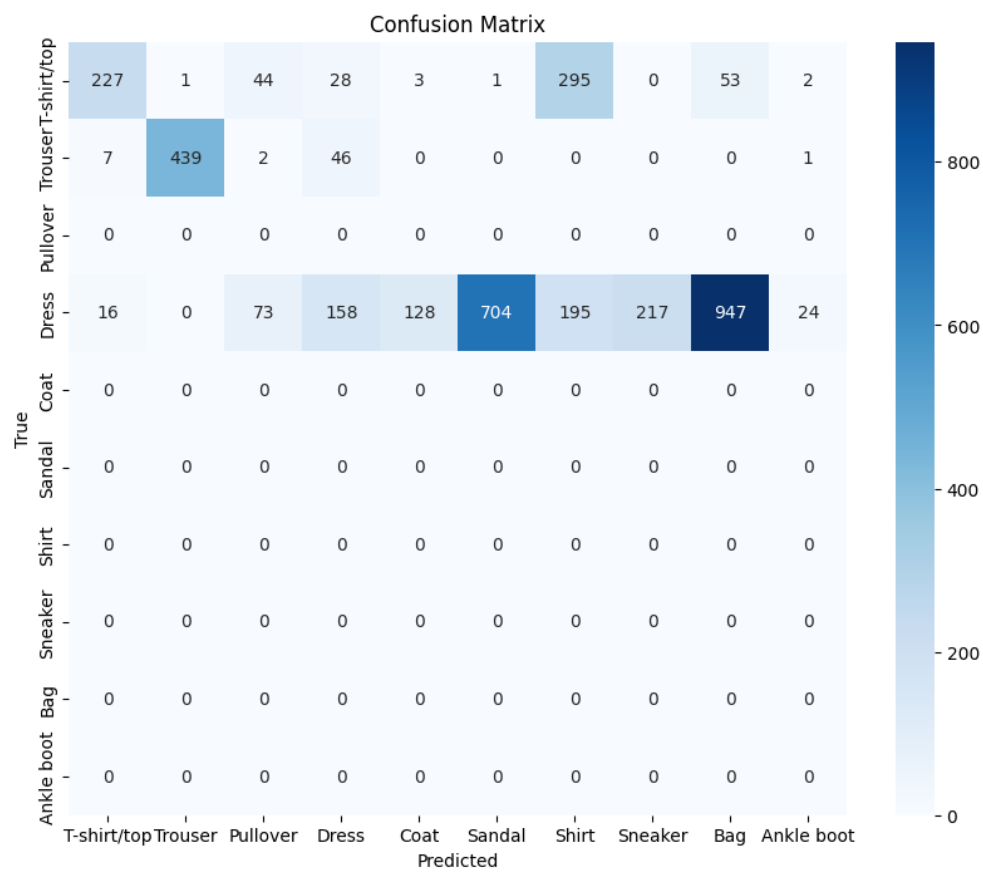
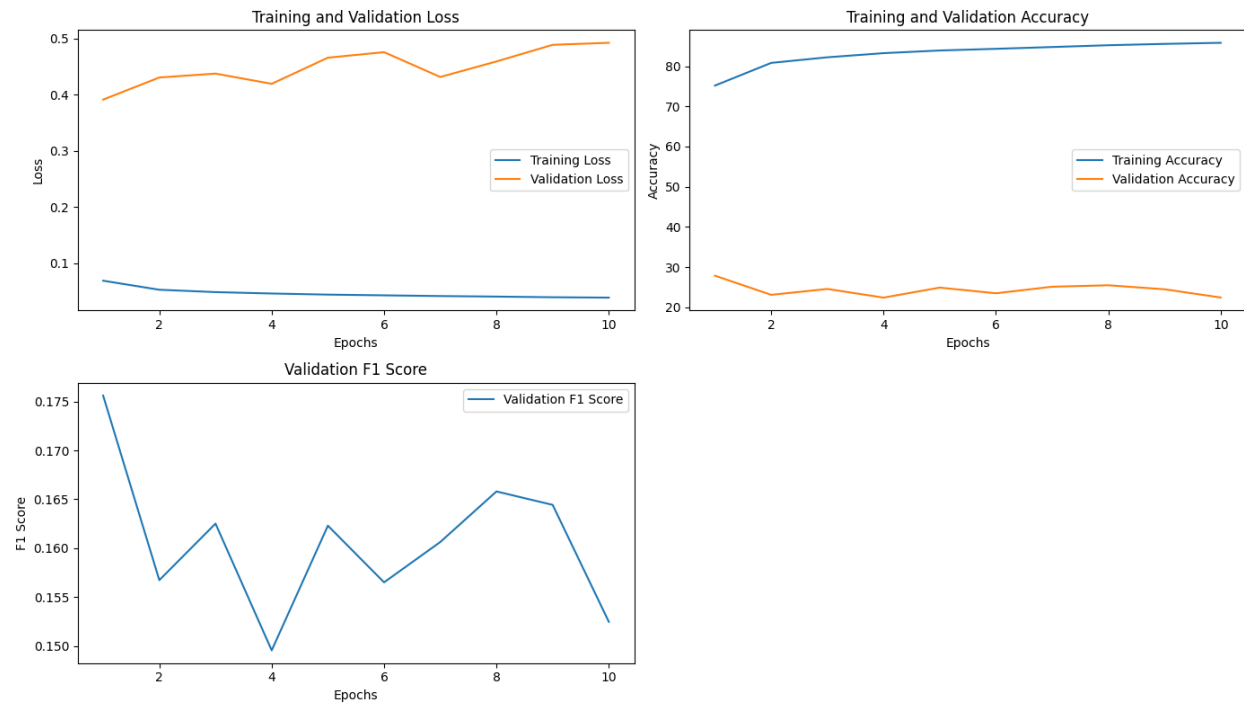
Learning rate	Performance metrics
0.005	Test Accuracy: 29.631680974799224% F1 Score: 0.9707724425887266
0.004	Test Accuracy: 27.416228191636666% F1 Score: 0.9904963041182682
0.003	Test Accuracy: 22.819163666574358% F1 Score: 0.9909706546275394
0.001	Test Accuracy: 26.50235391858211% F1 Score: 0.9838536060279871

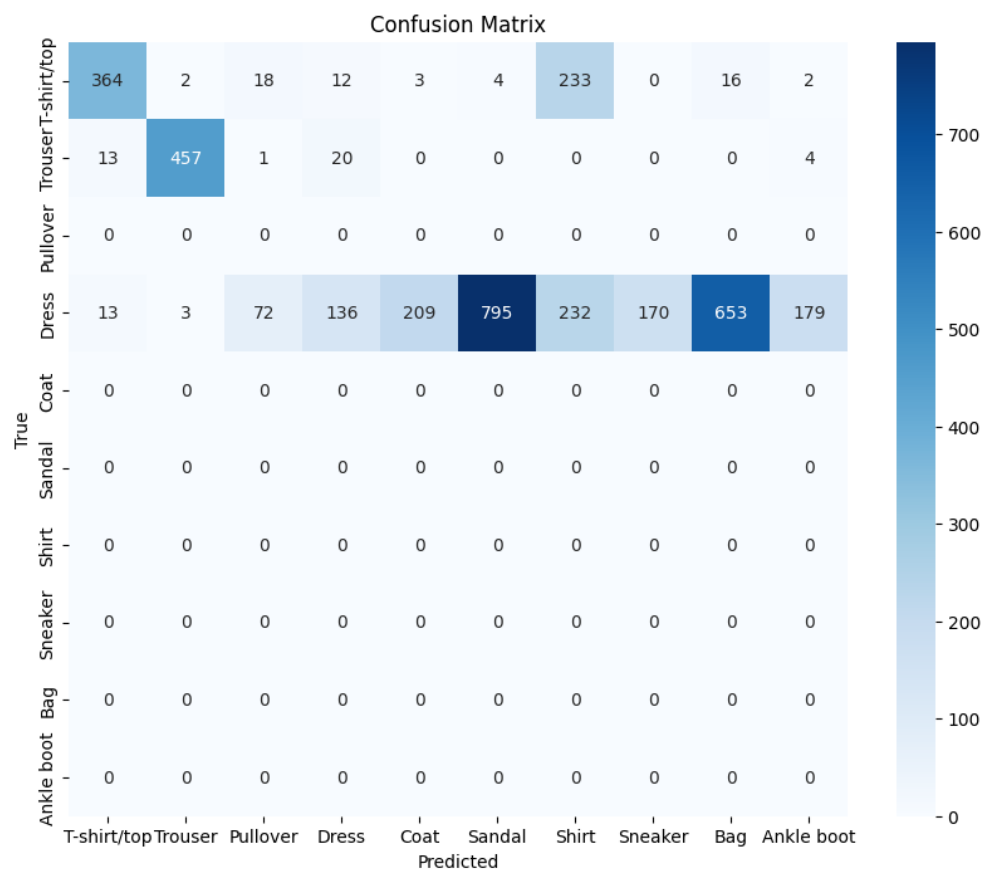
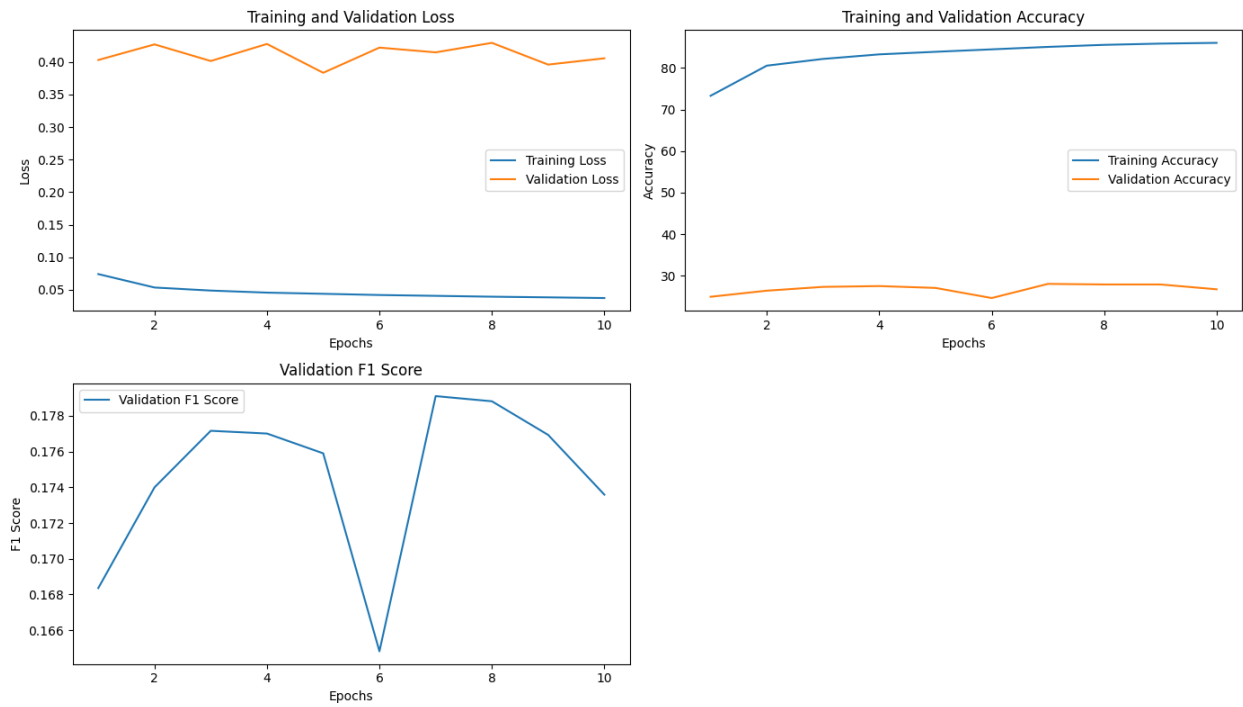
LR: 0.005

LR: 0.004



LR: 0.003



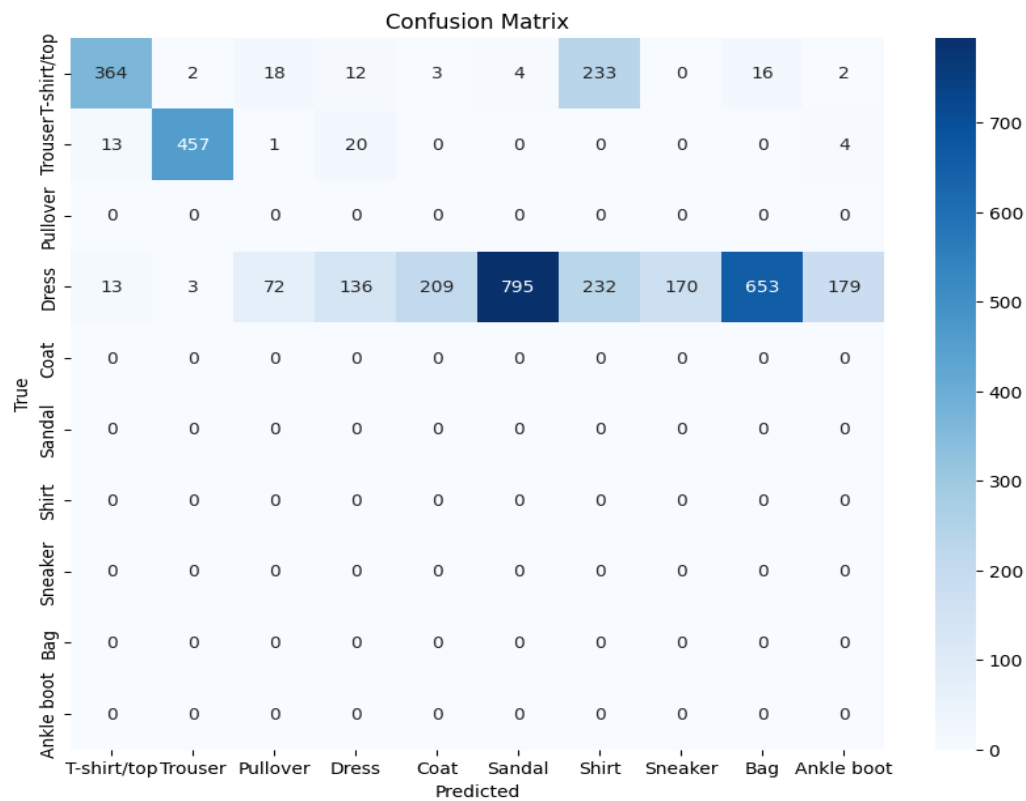
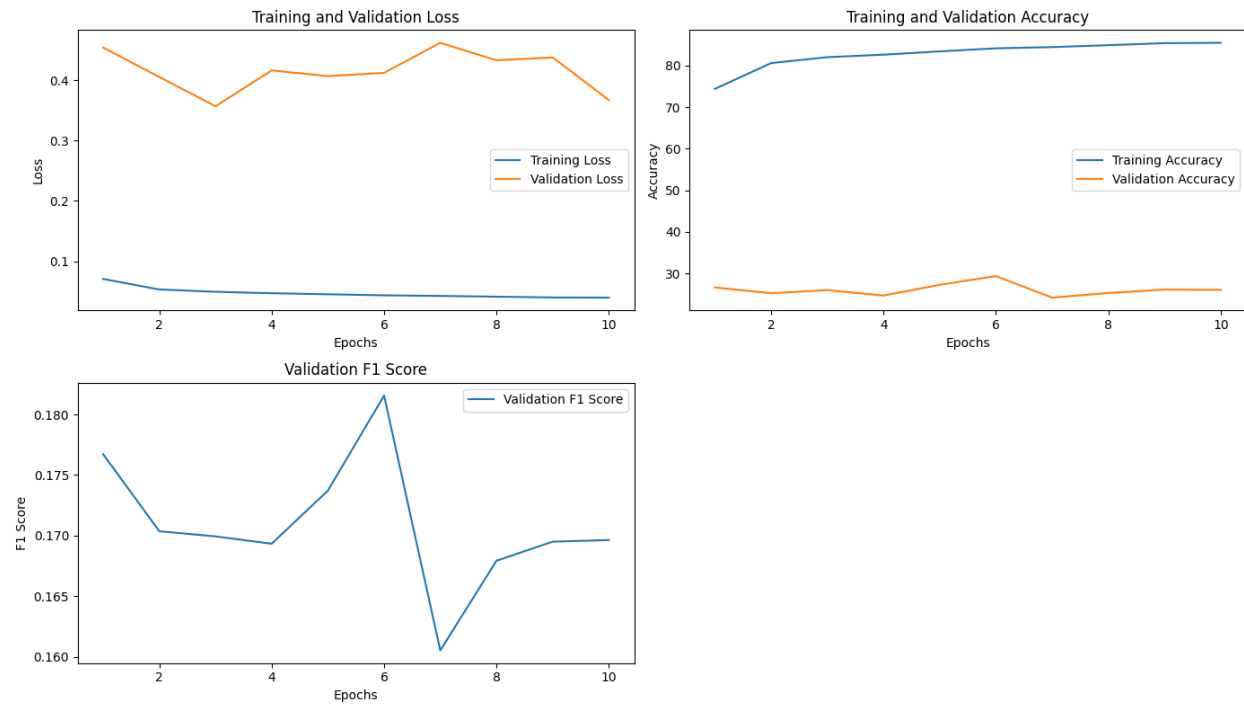
LR: 0.001

Model 2:

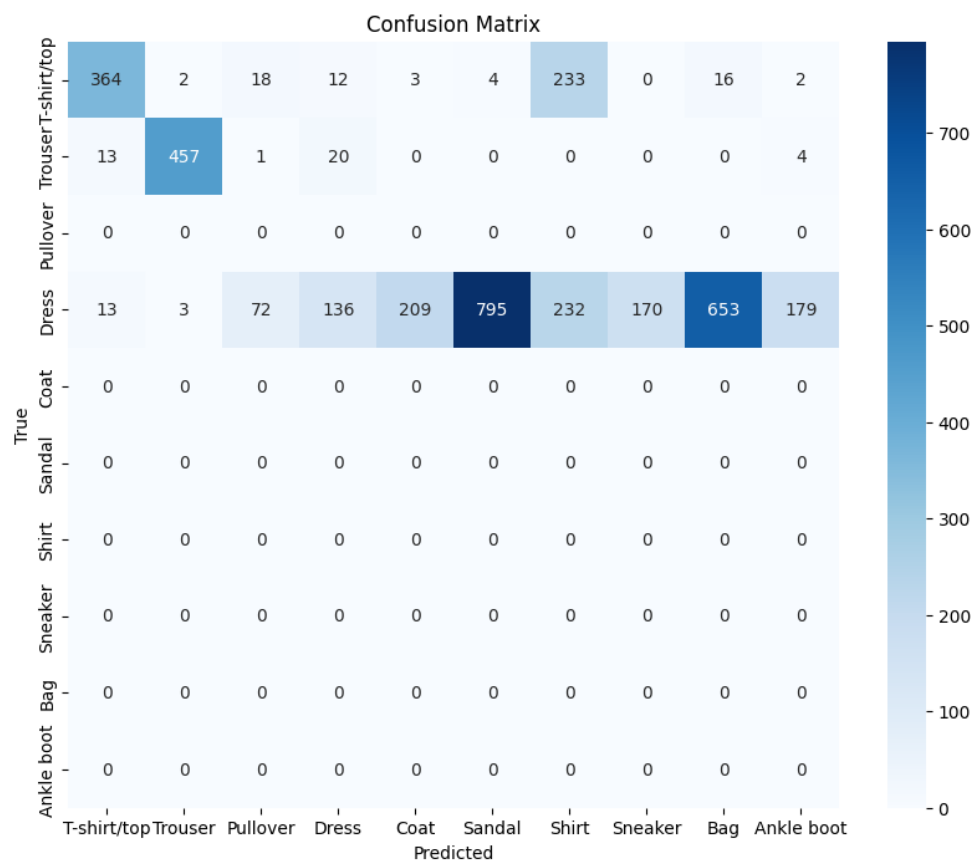
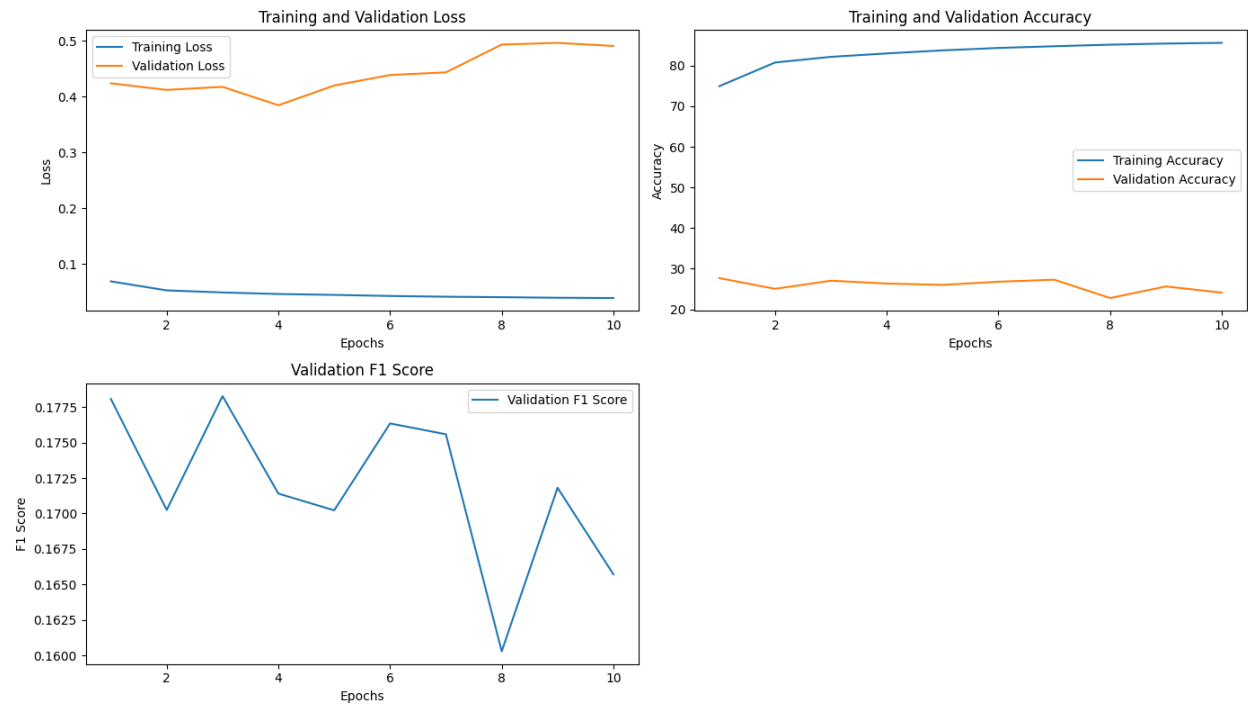
```
FNN([
    DenseLayer(784, 256),
    BatchNormalizationLayer(256),
    ReLU(),
    DropoutLayer(0.4),
    DenseLayer(256, 128),
    ReLU(),
    DropoutLayer(0.3),
    DenseLayer(128, 32),
    ReLU(),
    DenseLayer(32, 10),
    Softmax()
]),
```

Performance metrics per learning rate:

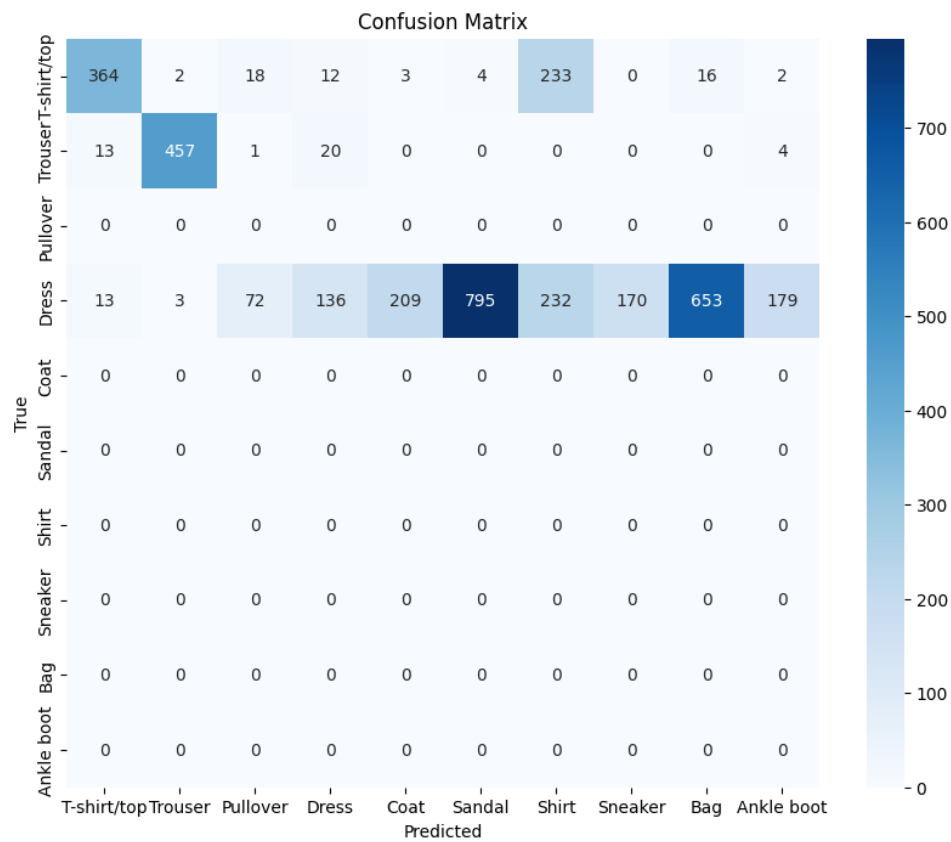
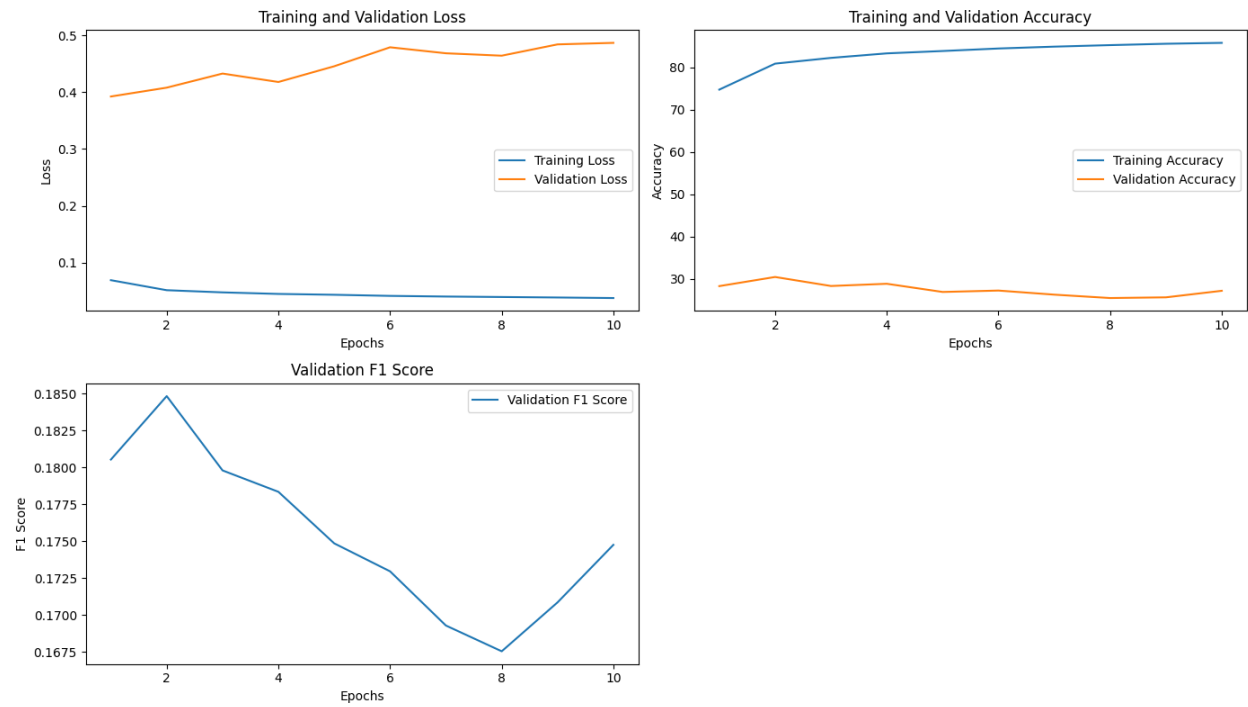
Learning rate	Performance metrics
0.005	Test Accuracy: 26.36388811963445% F1 Score: 0.9840595111583421
0.004	Test Accuracy: 25.366934367211297% F1 Score: 0.978675645342312
0.003	Test Accuracy: 27.416228191636666% F1 Score: 0.9818569903948773
0.001	Test Accuracy: 31.210191082802545% F1 Score: 0.9698924731182796

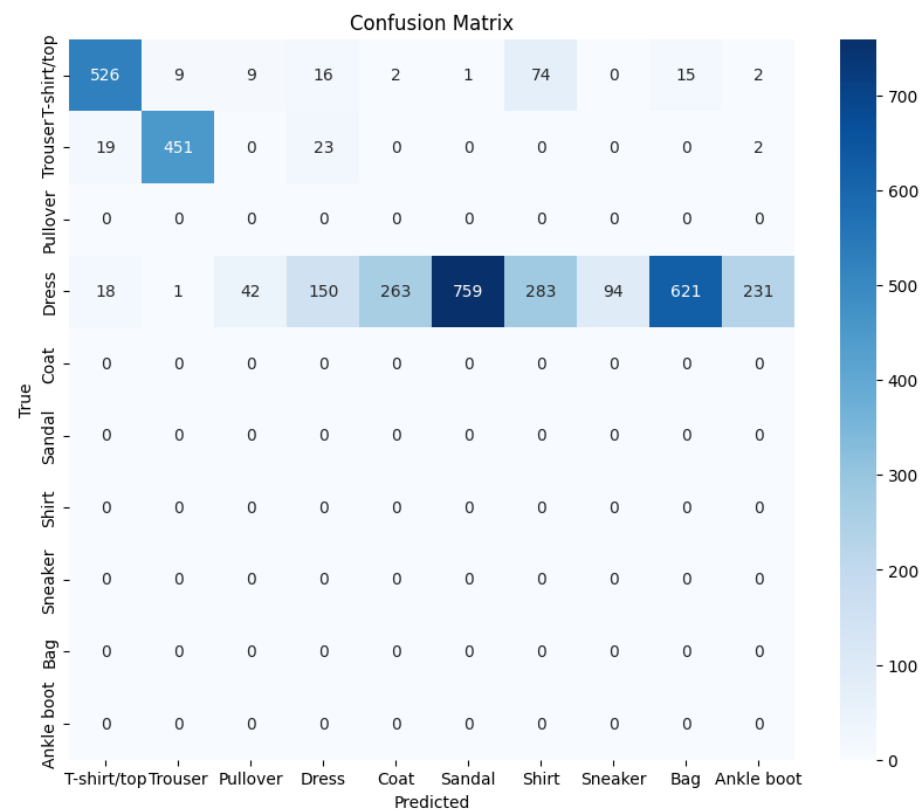
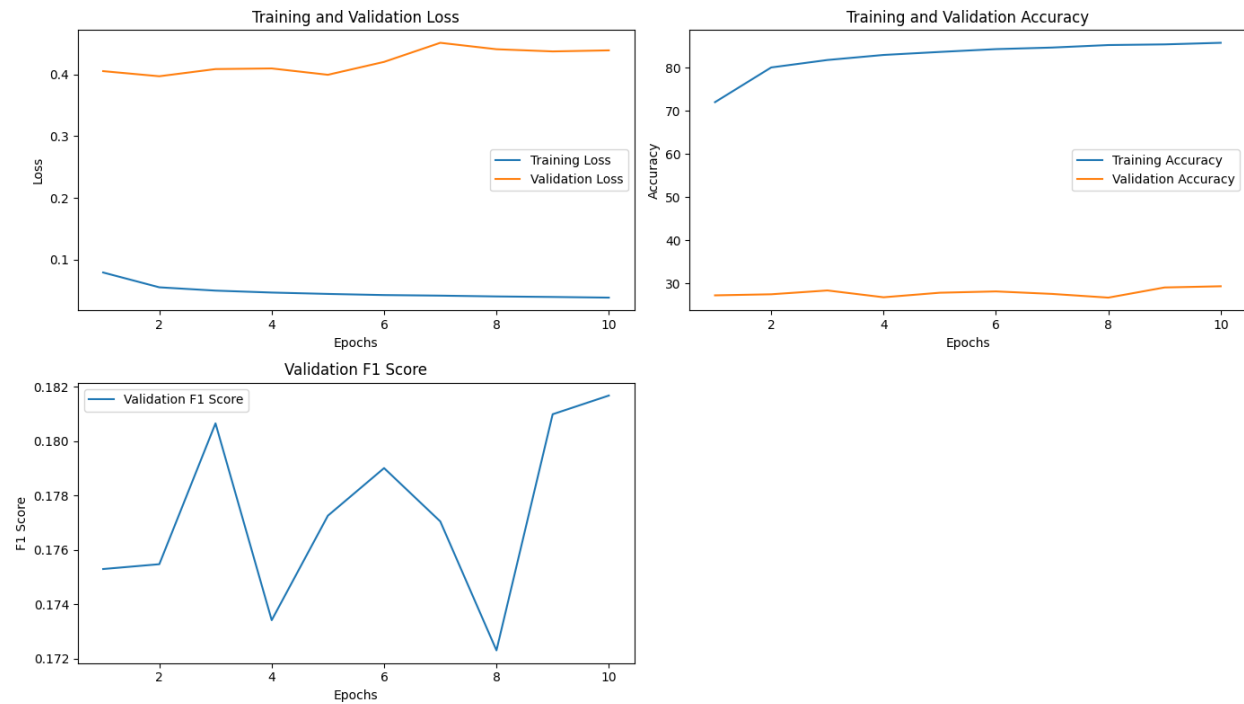
LR:0.005

LR: 0.004



LR: 0.003



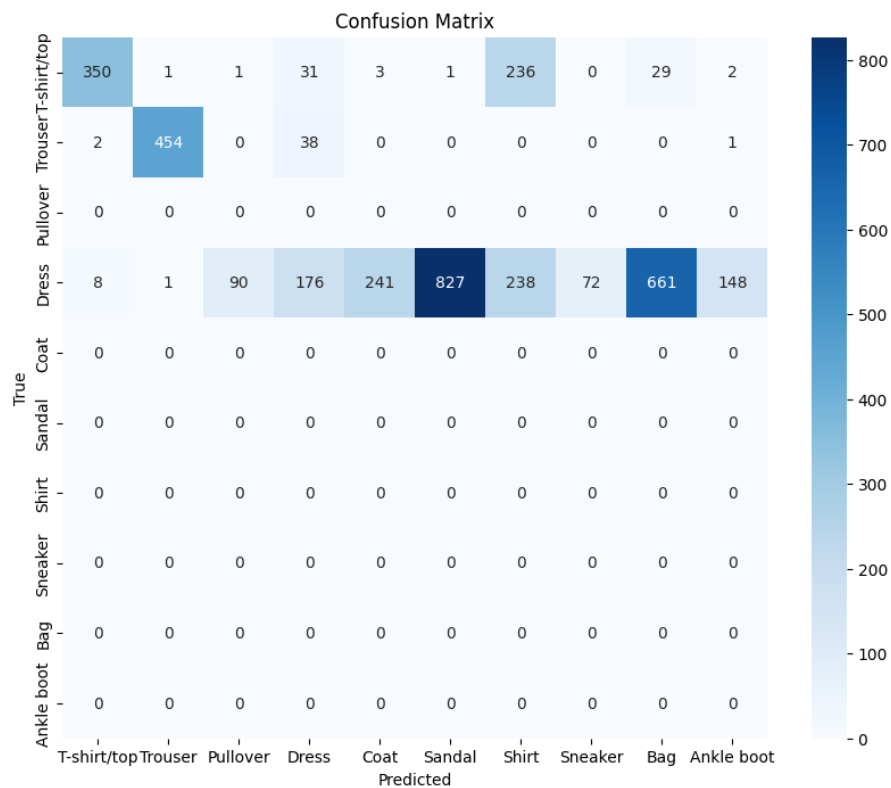
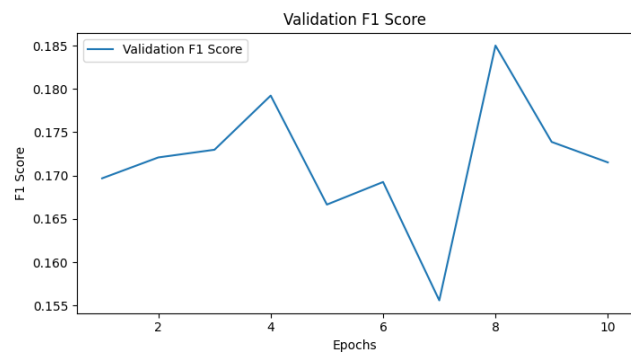
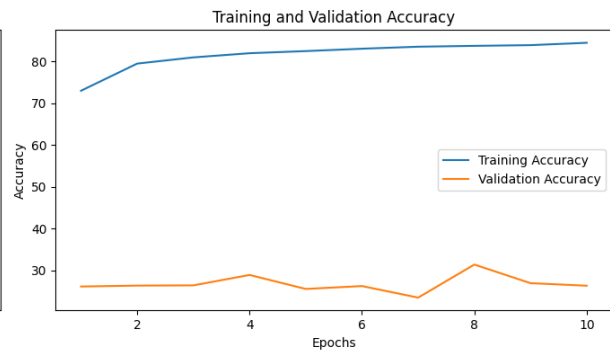
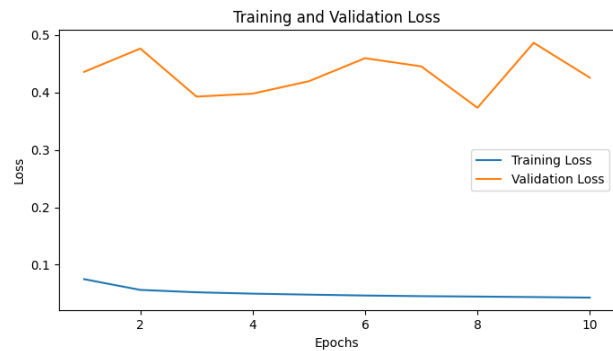
LR: 0.001

Model 3:

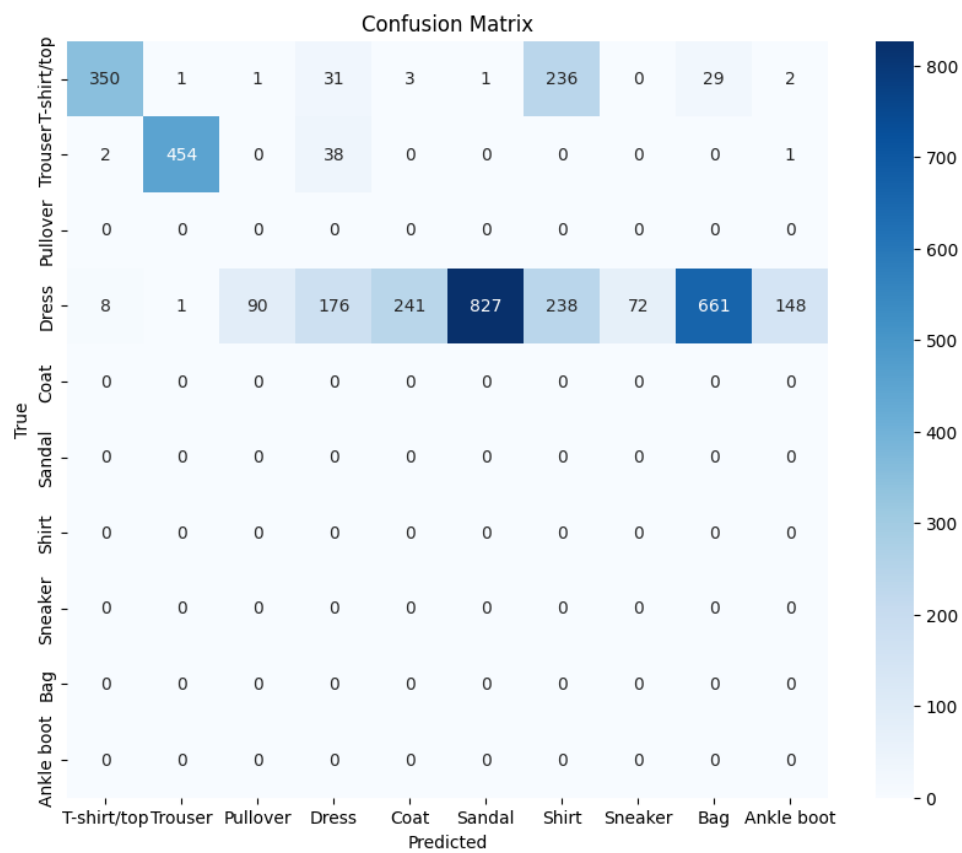
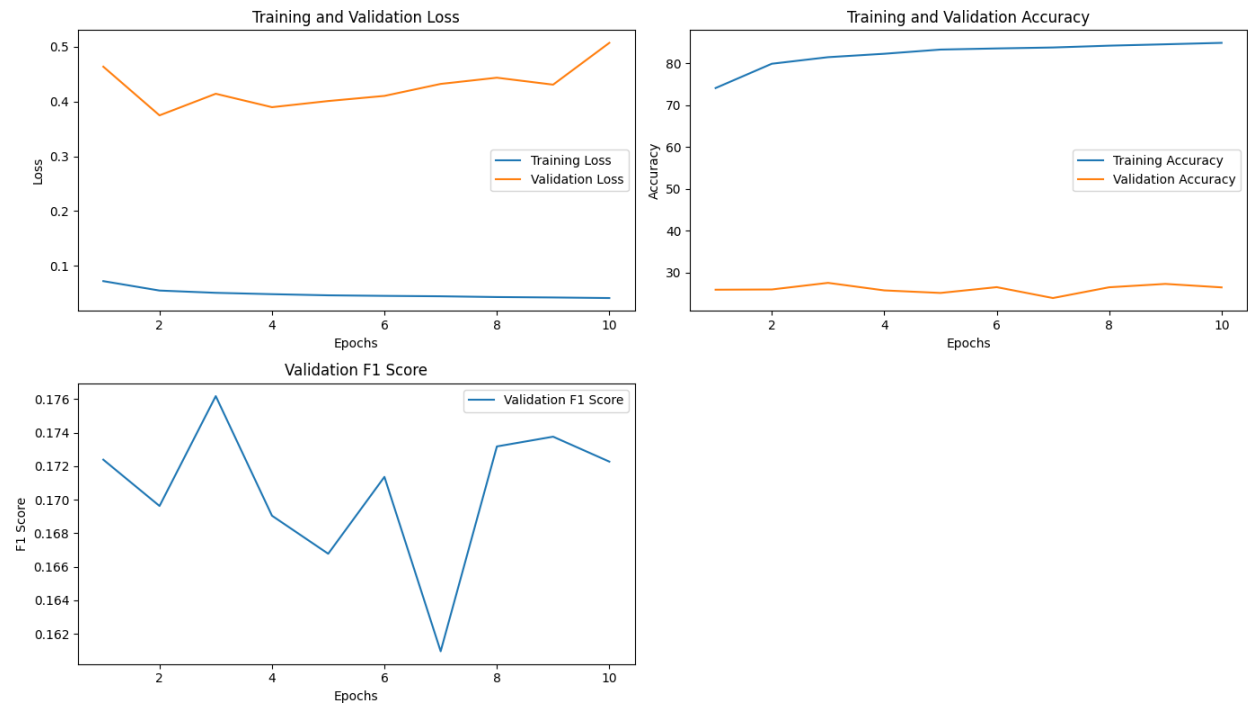
```
FNN([
    DenseLayer(784, 1024),
    BatchNormalizationLayer(1024),
    ReLU(),
    DropoutLayer(0.6),
    DenseLayer(1024, 256),
    ReLU(),
    DropoutLayer(0.35),
    DenseLayer(256, 64),
    ReLU(),
    DenseLayer(64, 10),
    Softmax()
])
```

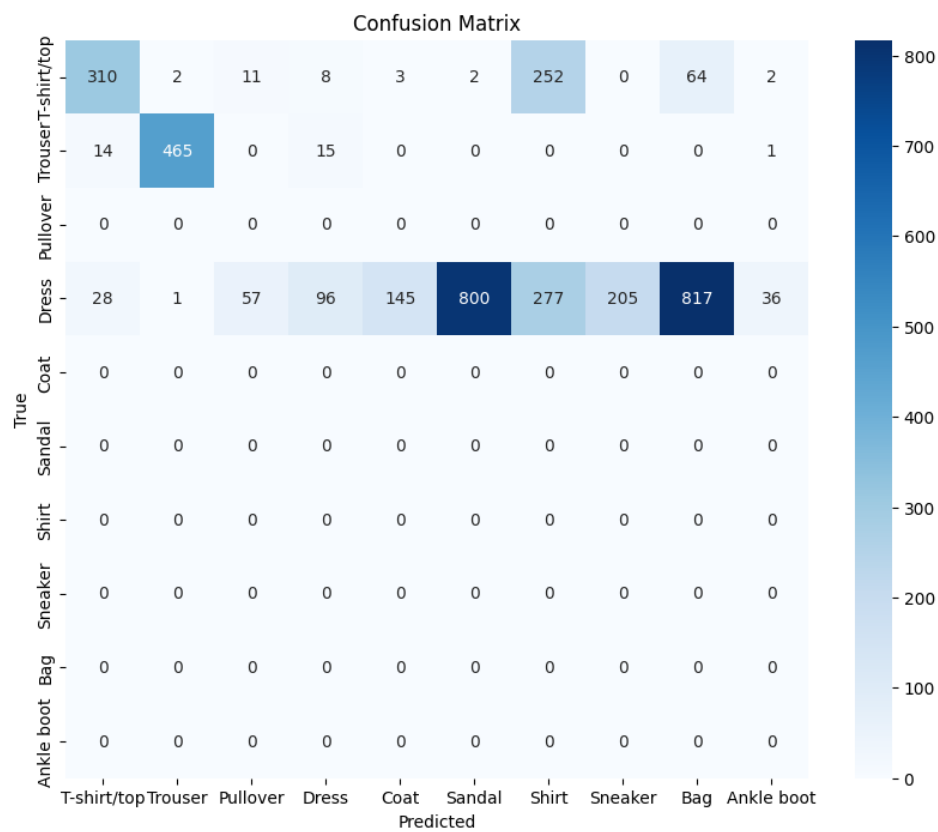
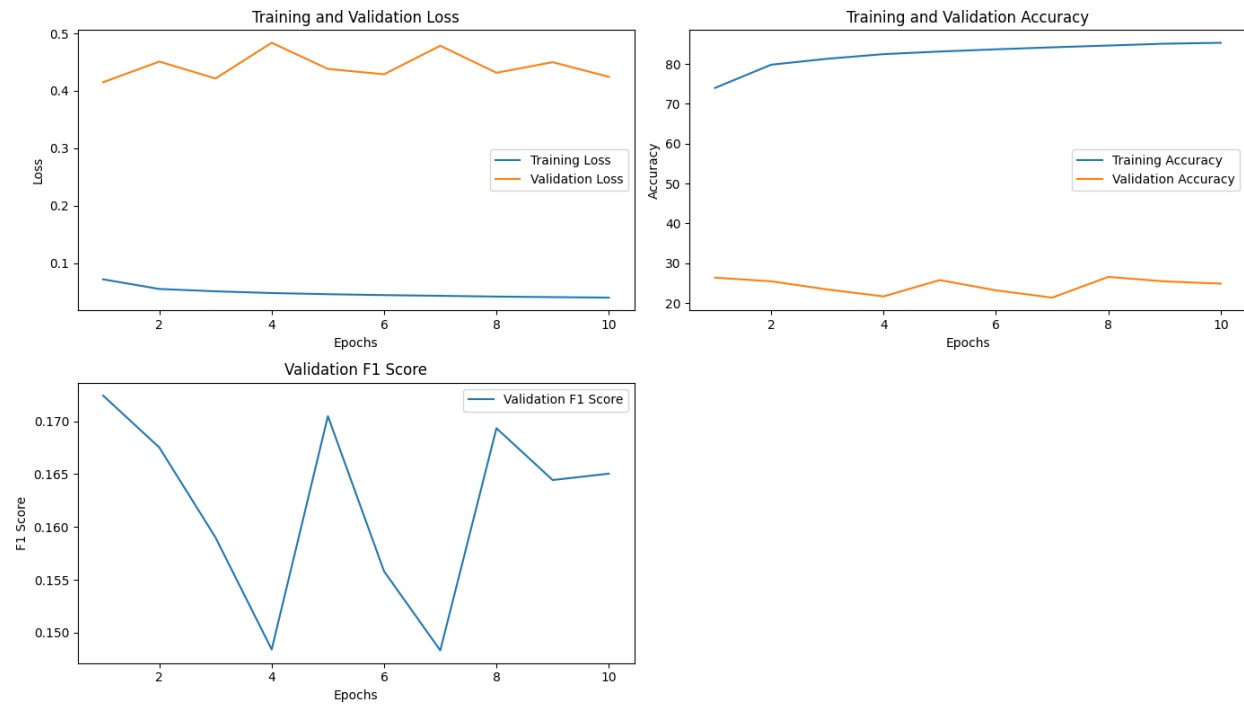
Performance metrics per learning rate:

Learning rate	Performance metrics
0.005	Test Accuracy: 27.139296593741346% F1 Score: 0.9967069154774972
0.004	Test Accuracy: 29.10551093879812% F1 Score: 0.9864559819413092
0.003	Test Accuracy: 24.12074217668236% F1 Score: 0.9830866807610994
0.001	Test Accuracy: 26.474660758792577% F1 Score: 0.9769484083424809

LR:0.005

LR: 0.004



LR:0.003

LR:0.001