

**CSE 472**

**Machine Learning Sessional**

**Offline 3 Report**

Submitted by:

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Roll: 1905014

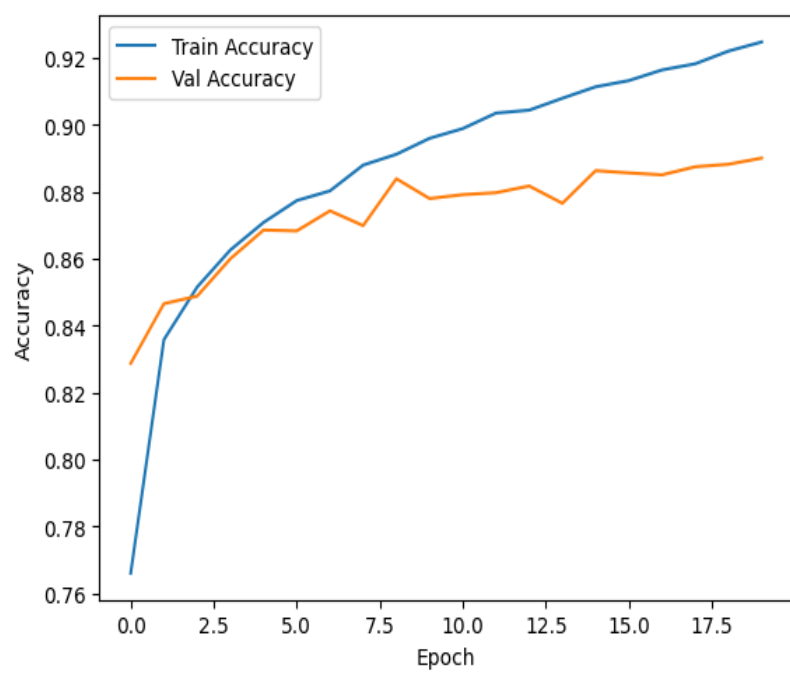
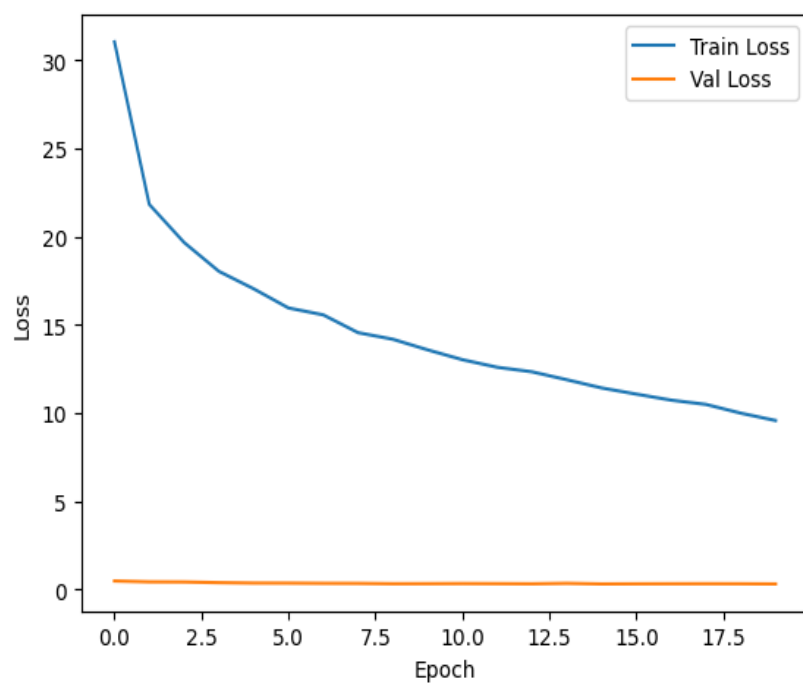
Section: A1

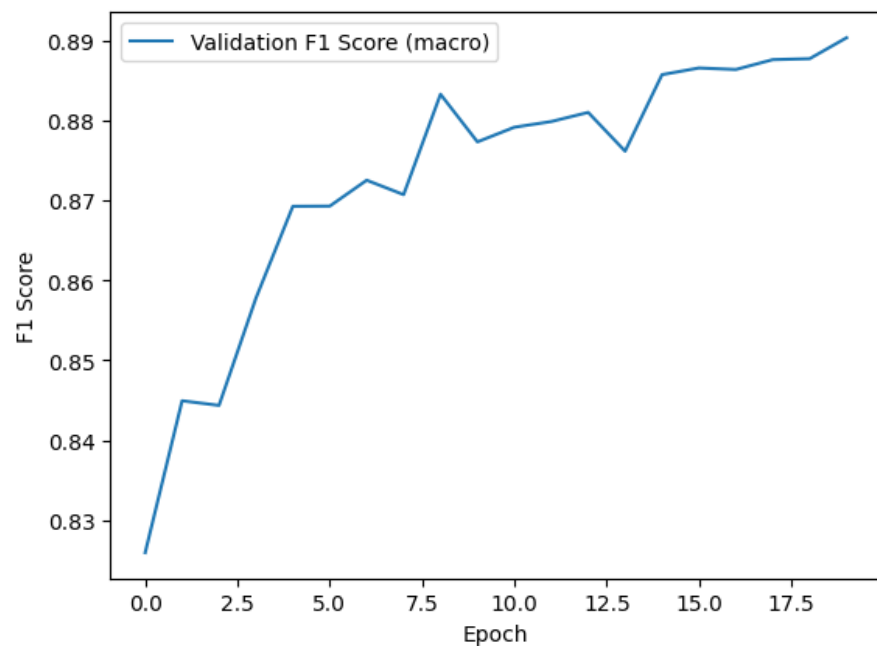
To run the code:

- Go to the end of the ipynb file
- Click on 'Testing Block' and click on "Execute above cells" to get the graphs of different learning rates and models.
- Execute the 'Testing Block' to run the best-chosen model on test dataset.
- To only run the 'Testing Block' without needing to train the models, click on the 'Choose best model and pickle dump' block. Click on "Execute above cells". Then execute the 'Testing Block'.

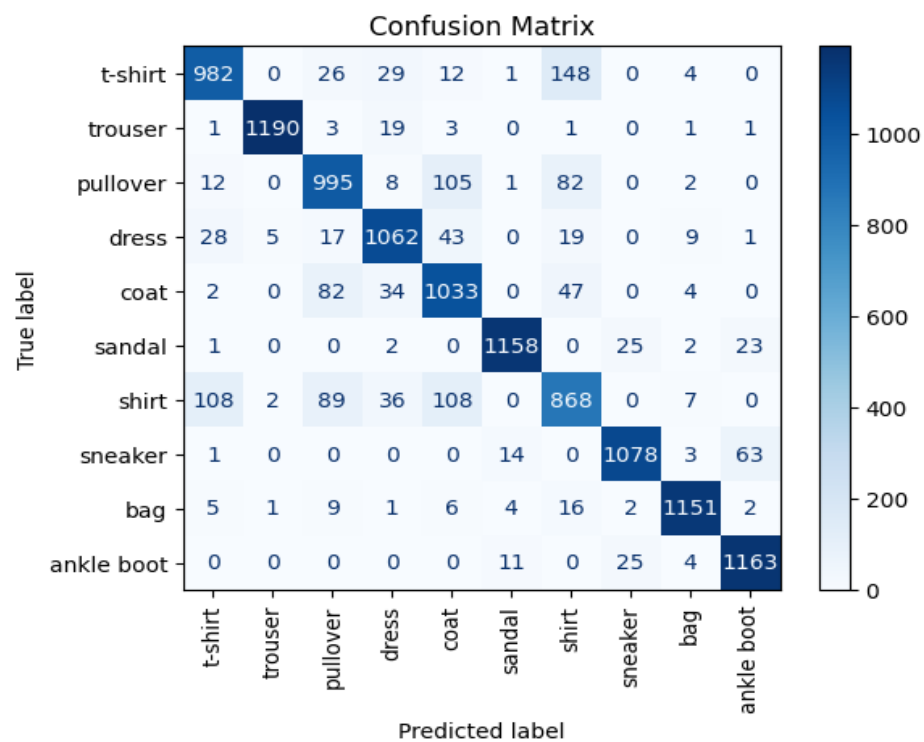
Learning rate: 0.005

1<sup>st</sup> model

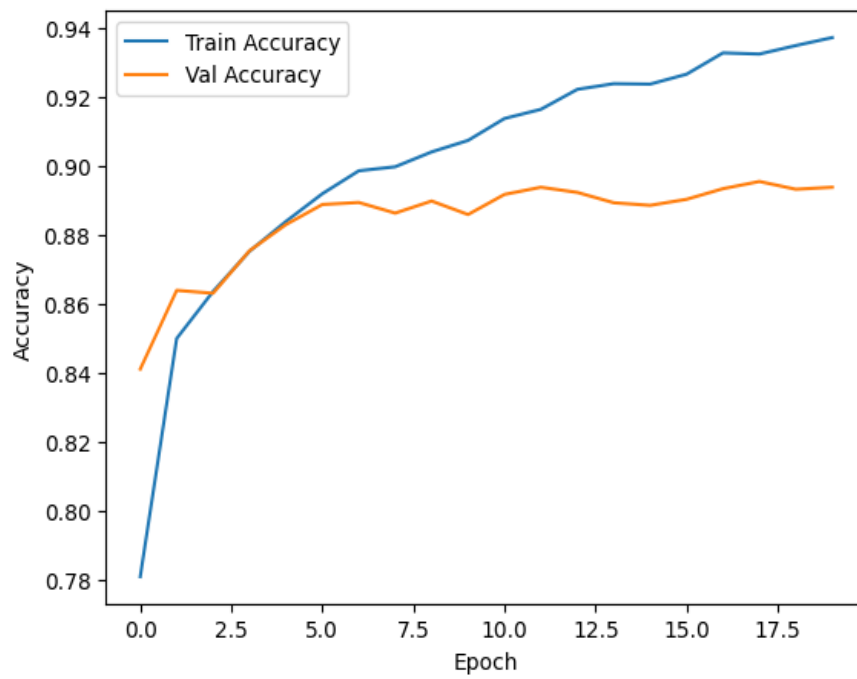
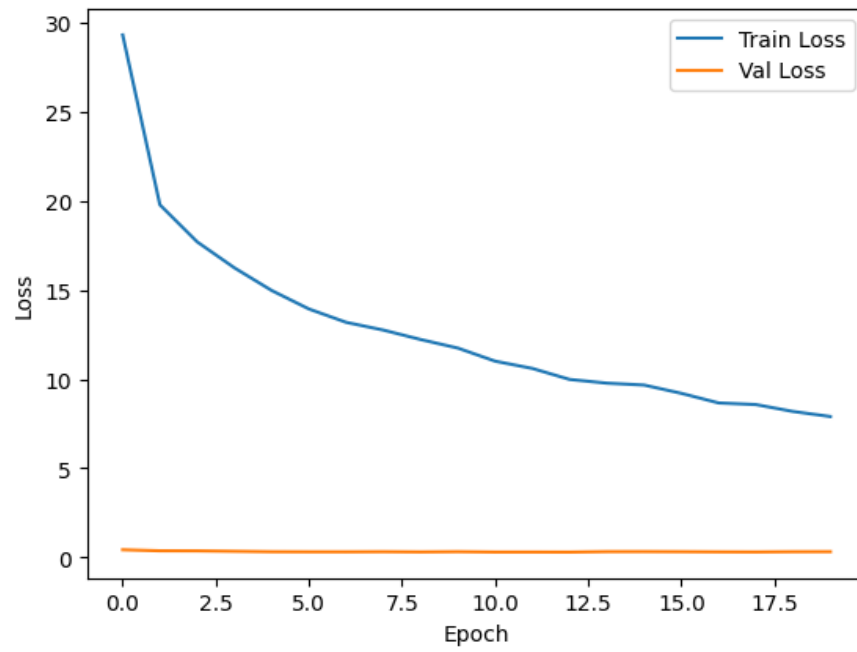


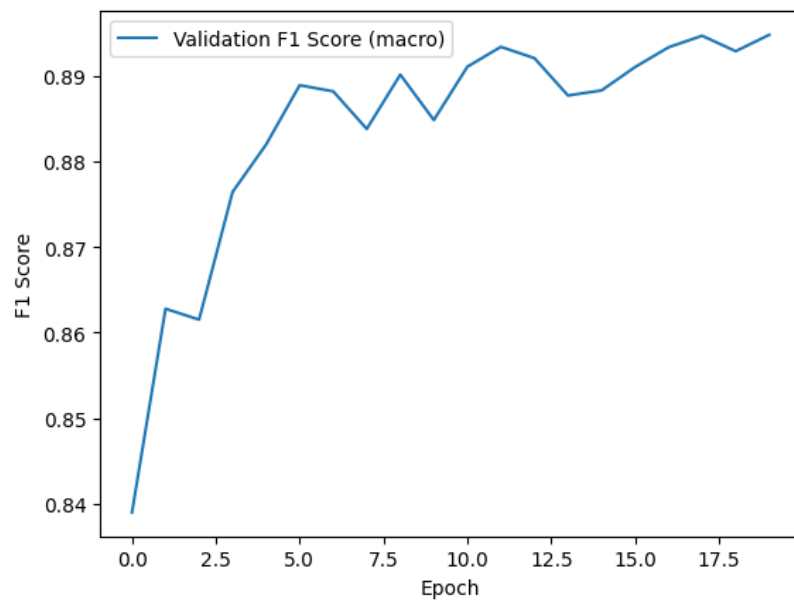


Best f1-score: 0.89

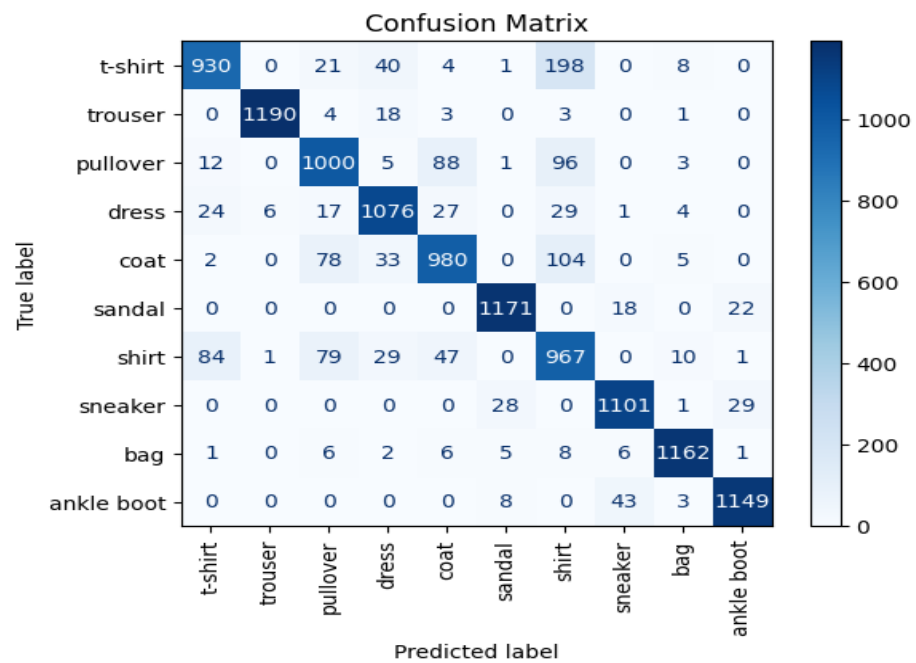


## 2<sup>nd</sup> Model:

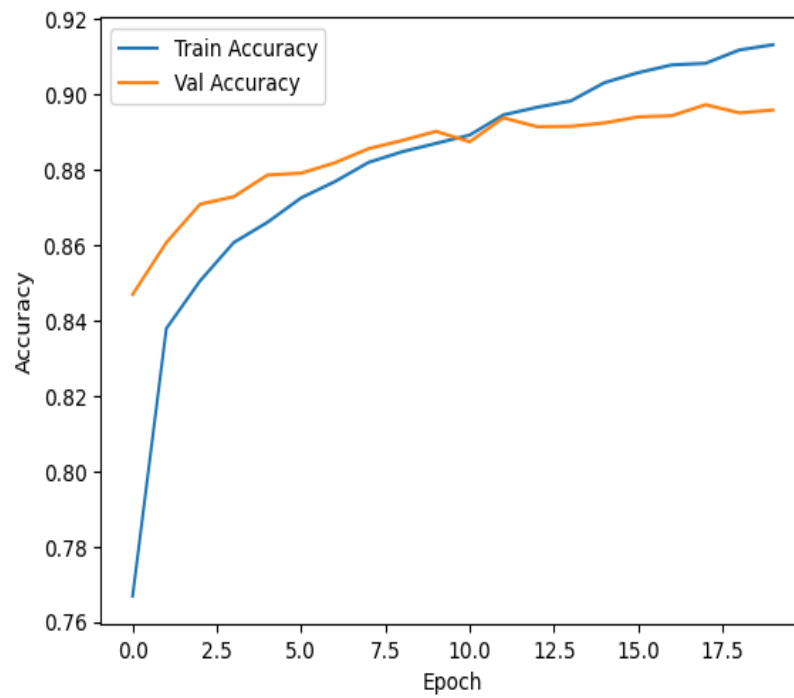
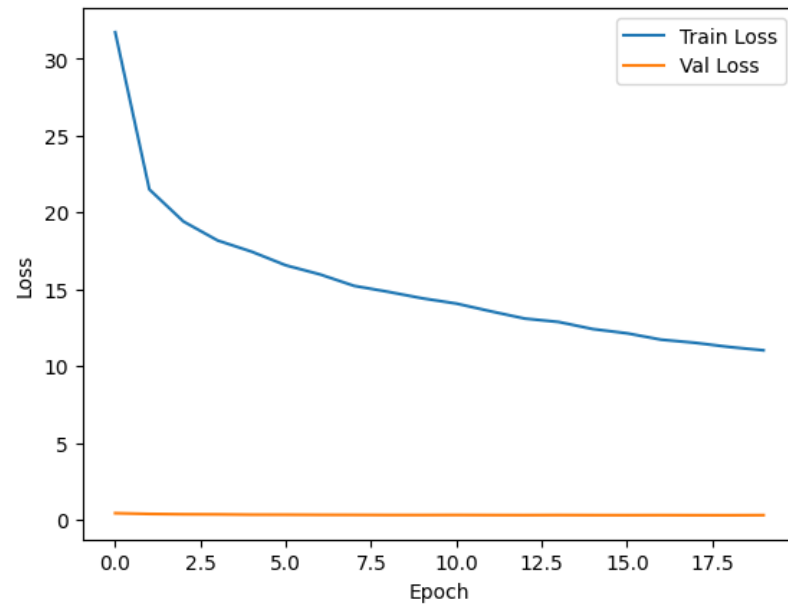


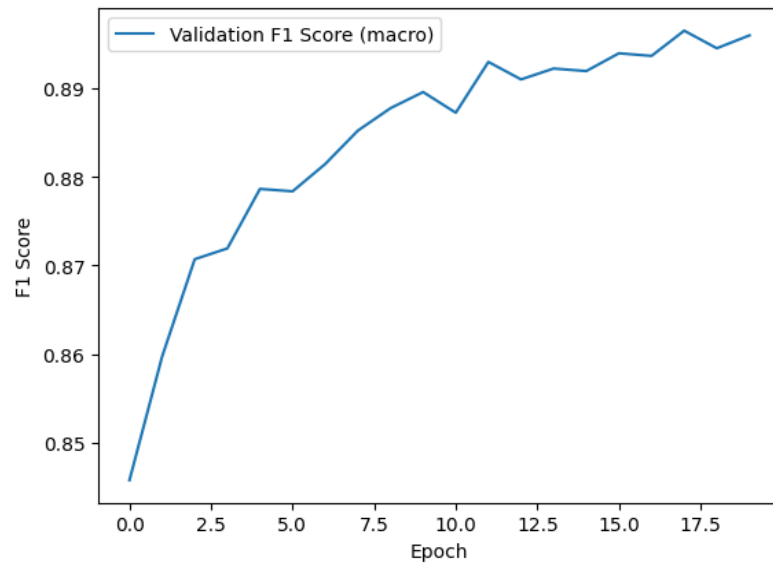


Best f1-score: 0.895

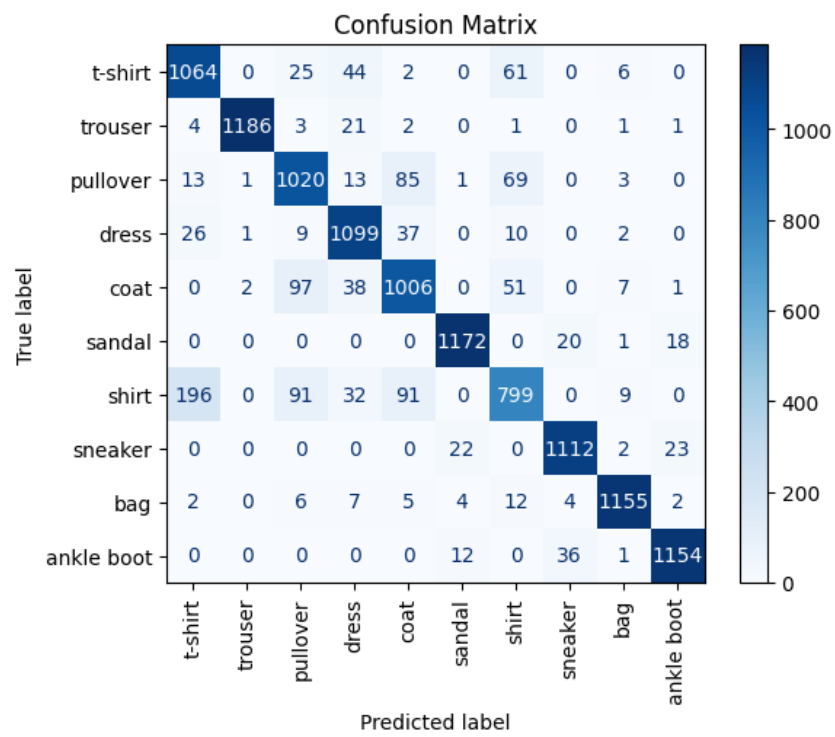


### 3<sup>rd</sup> Model:





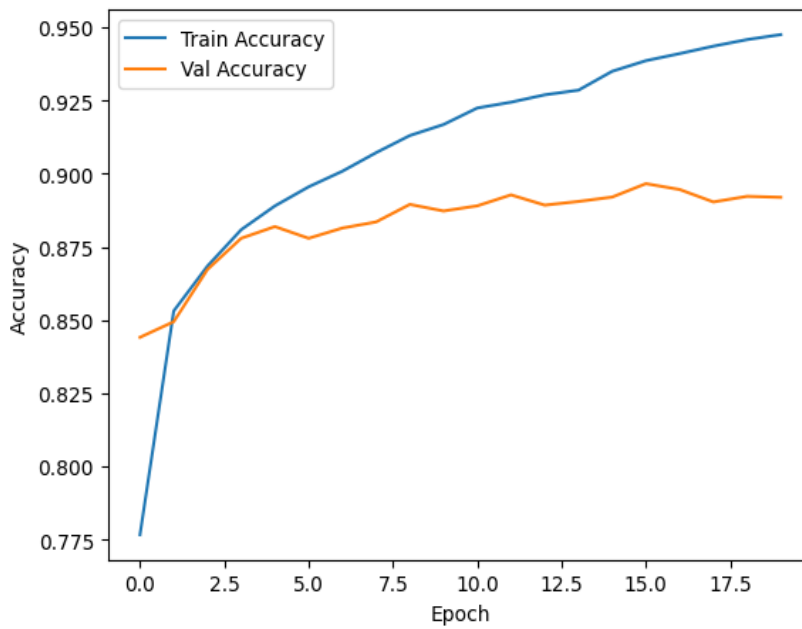
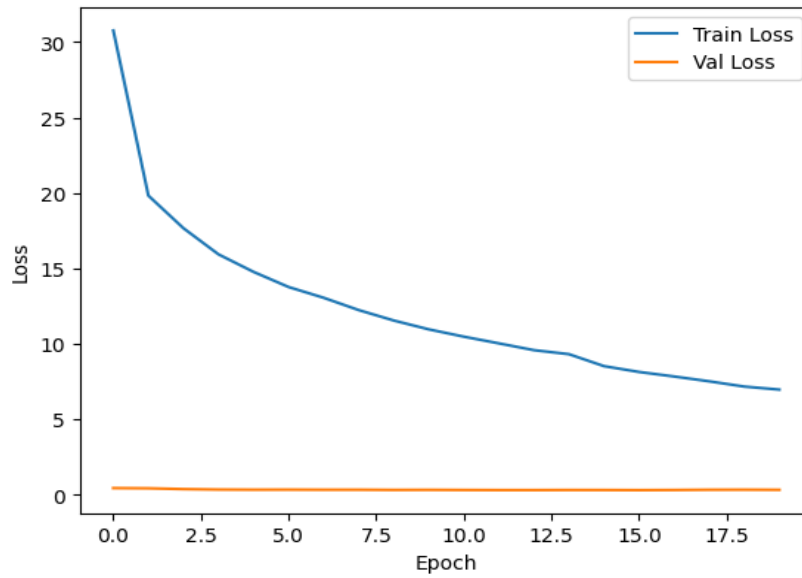
Best f1-score: 0.8965

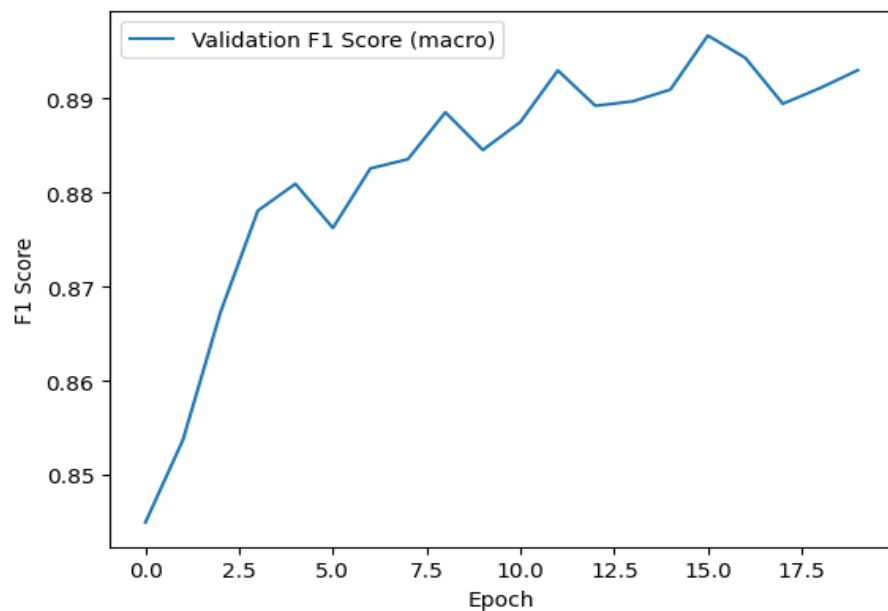




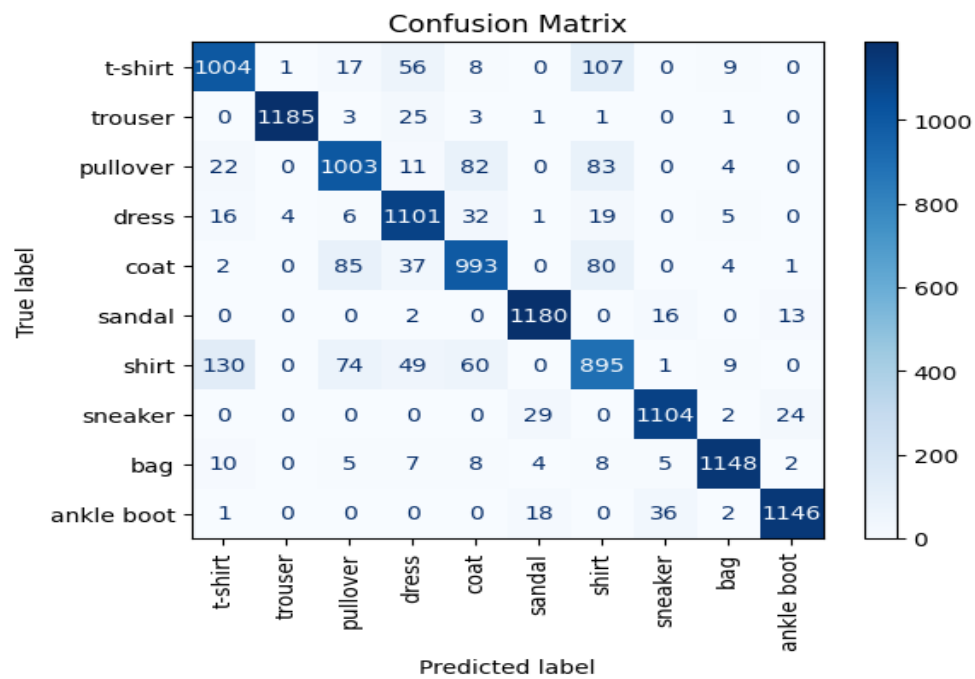
Learning rate: 0.001

1<sup>st</sup> Model:

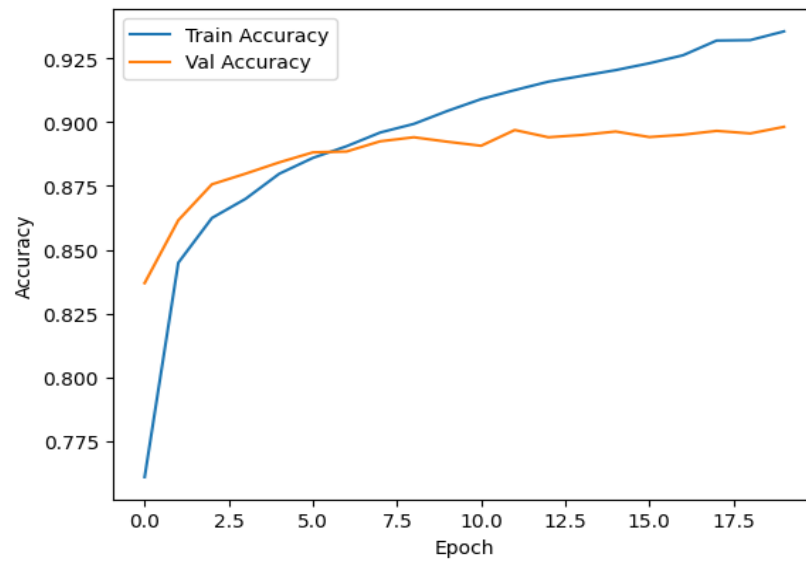
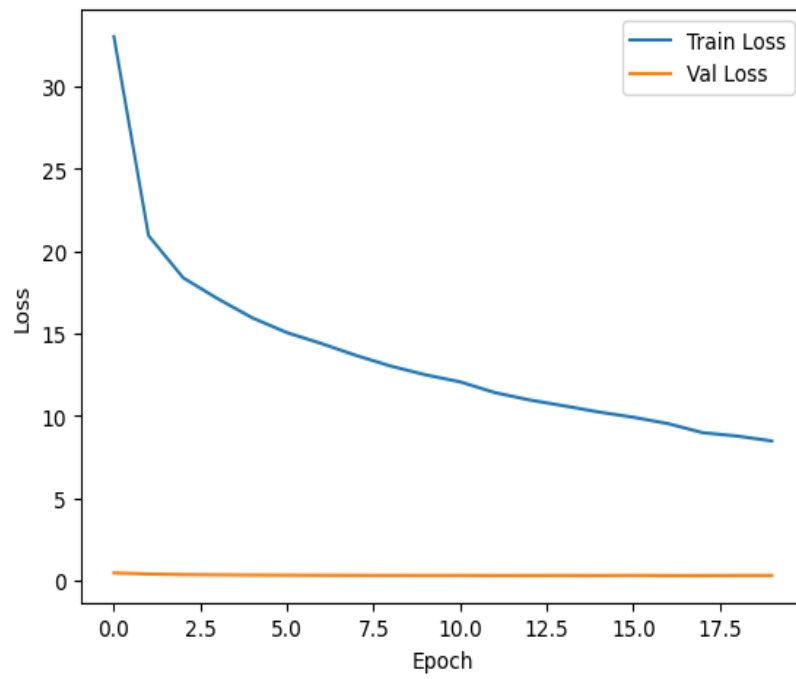


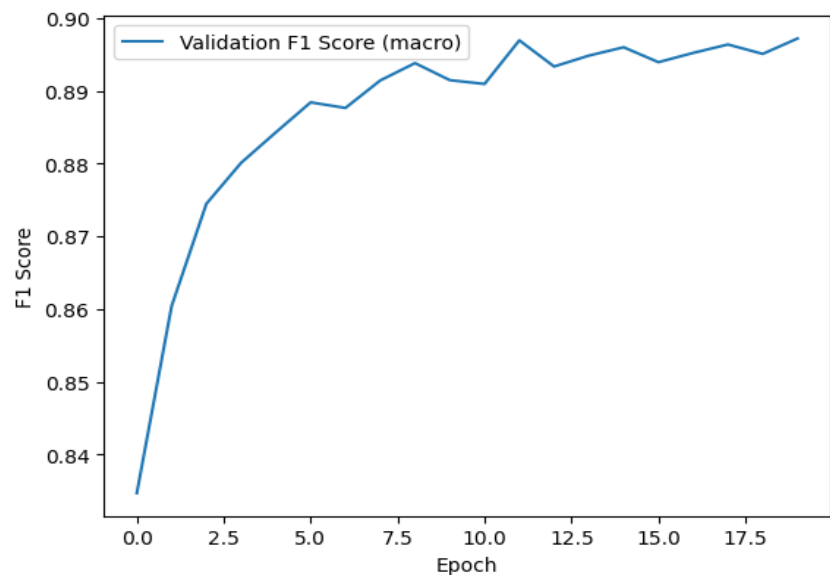


Best f1-score: 0.8967

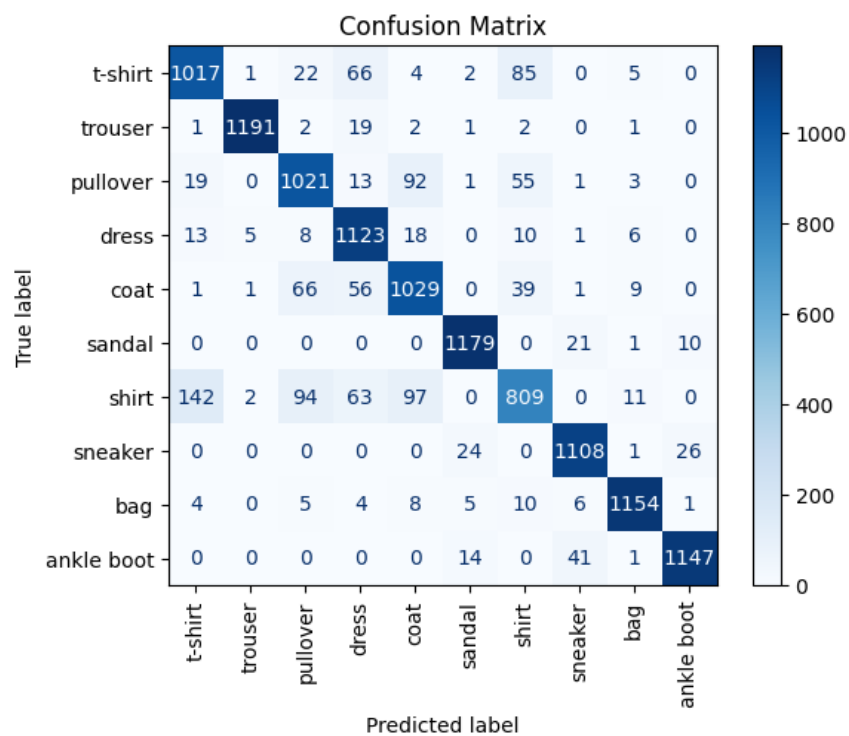


## 2<sup>nd</sup> Model: (Best Model)

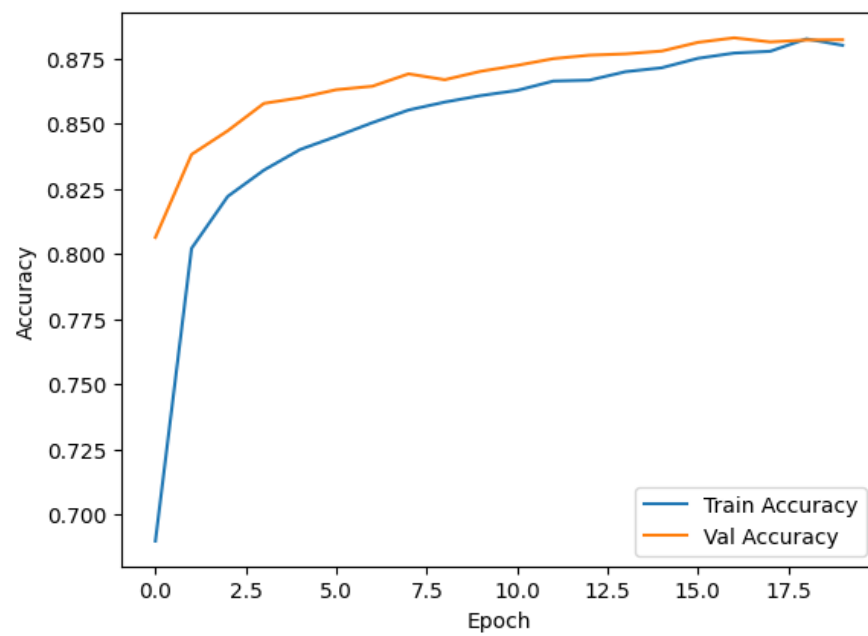
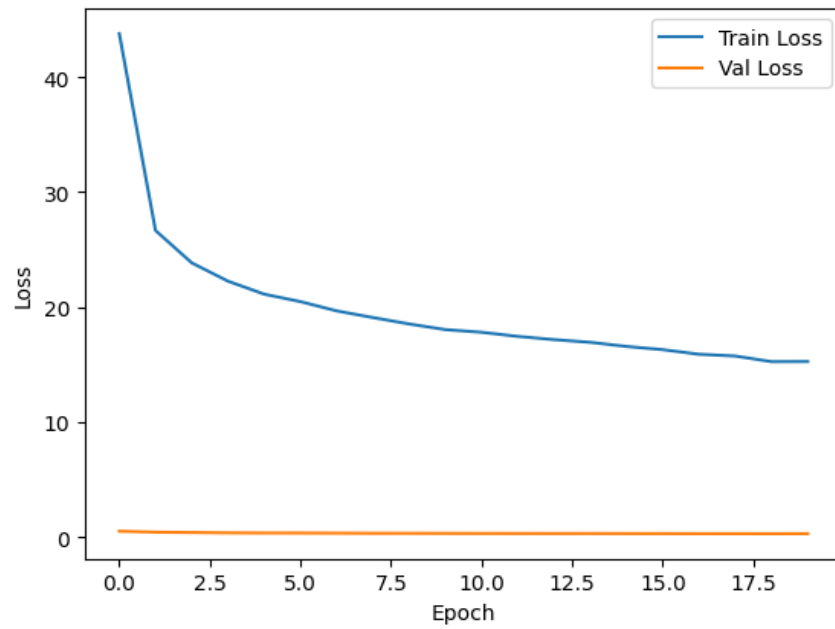


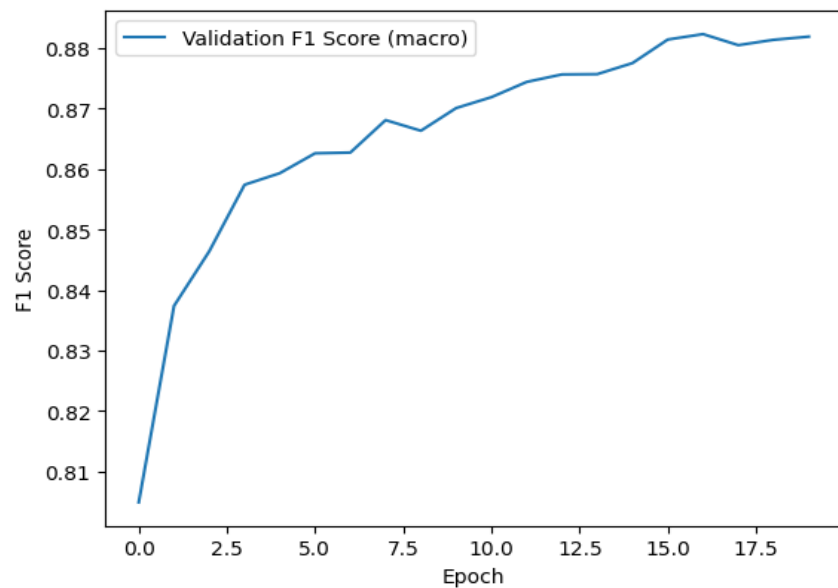


**Best f1-score: 0.8972**

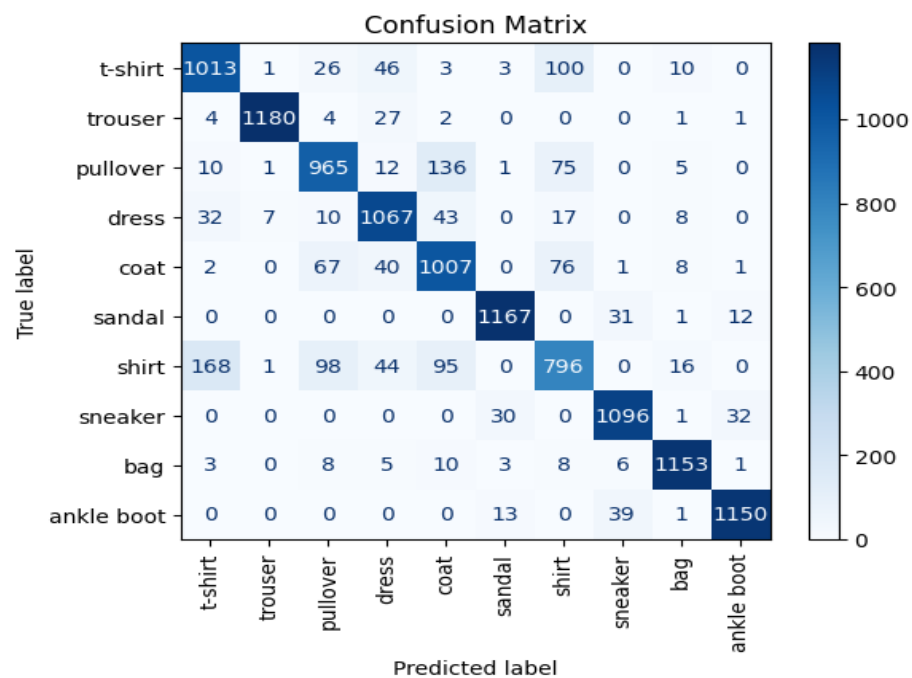


3<sup>rd</sup> Model:



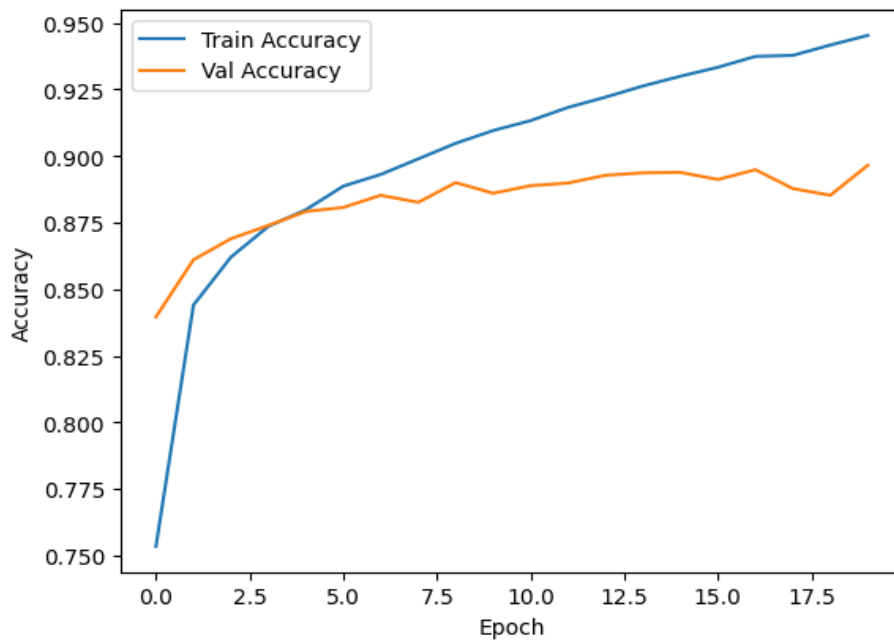
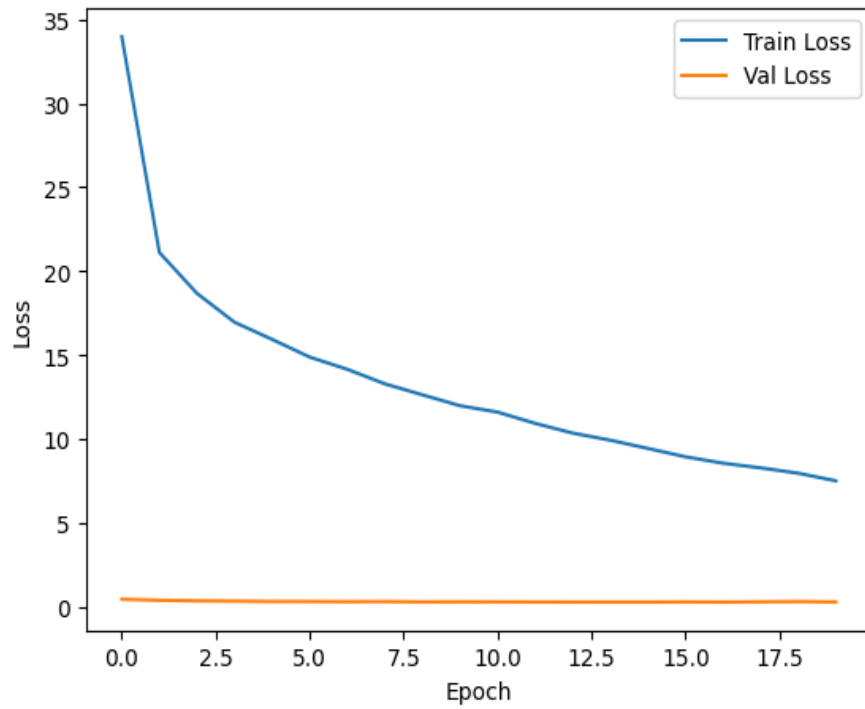


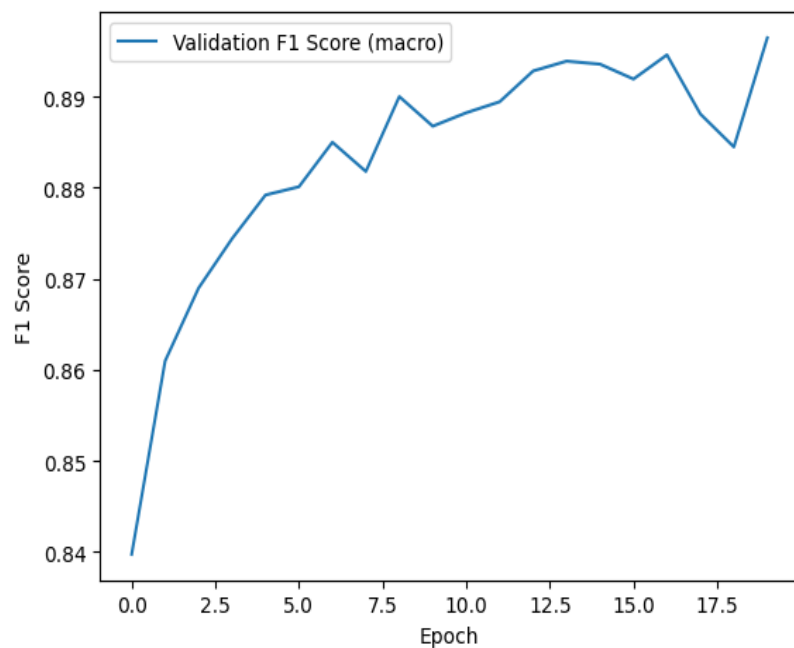
Best f1-score: 0.882



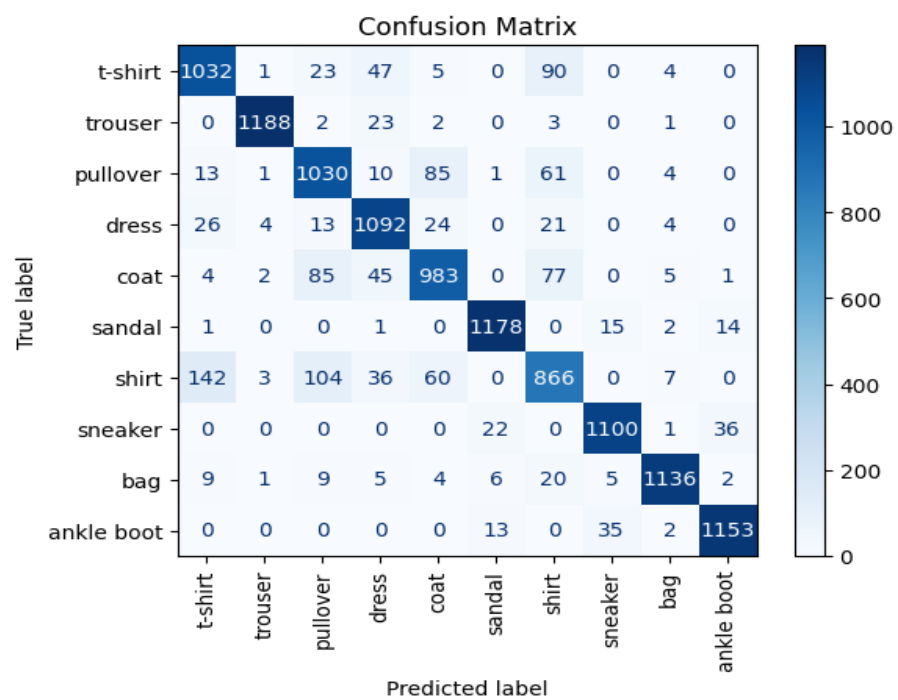
Learning rate: 0.0005

1<sup>st</sup> Model:



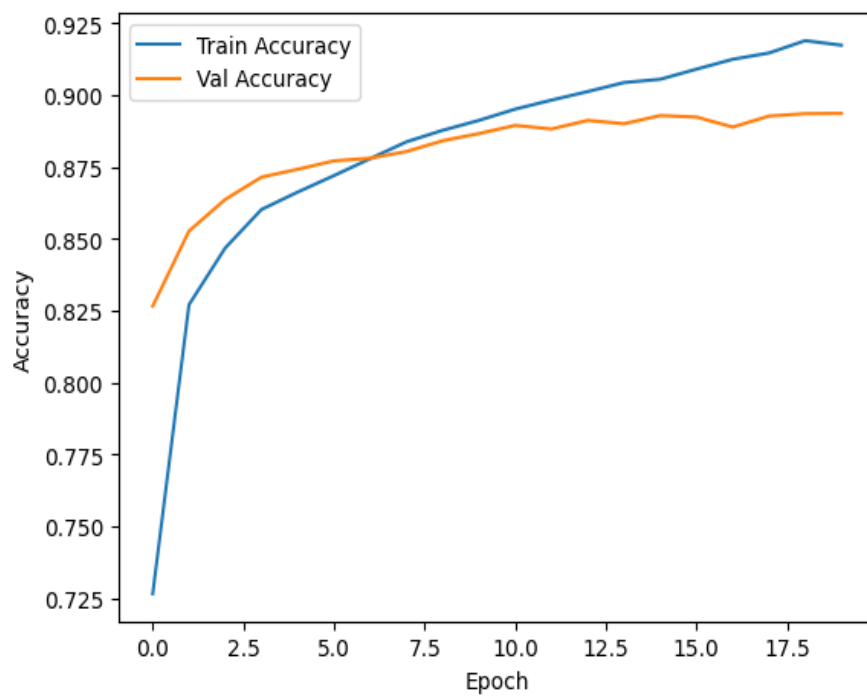
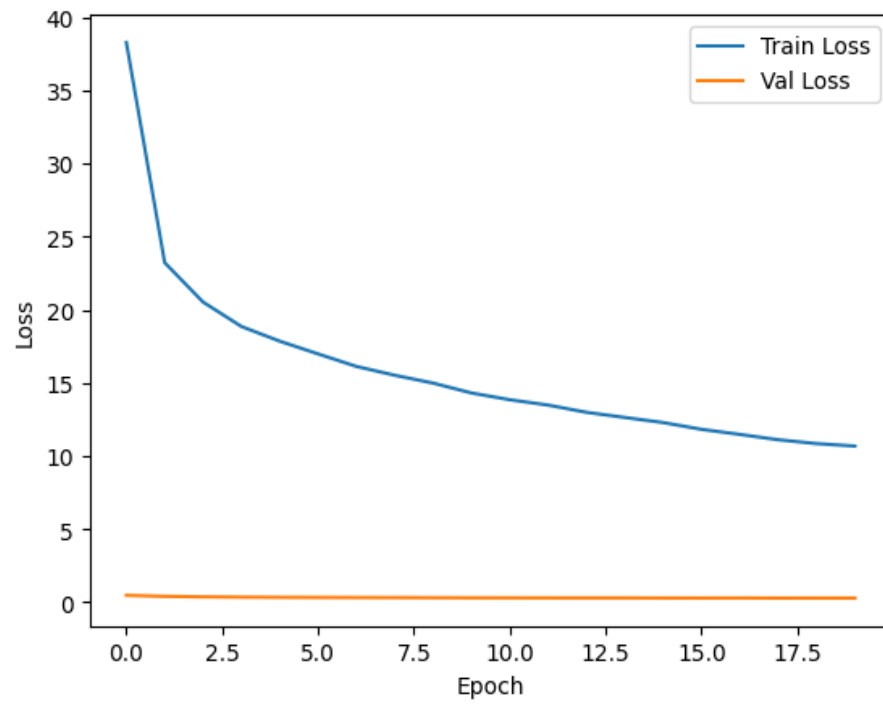


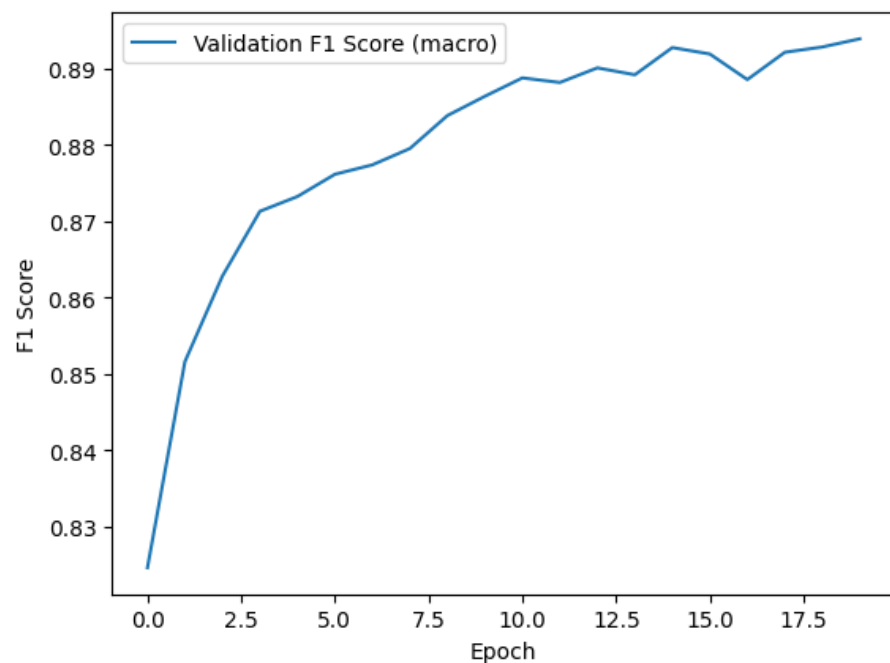
Best f1-score: 0.8965



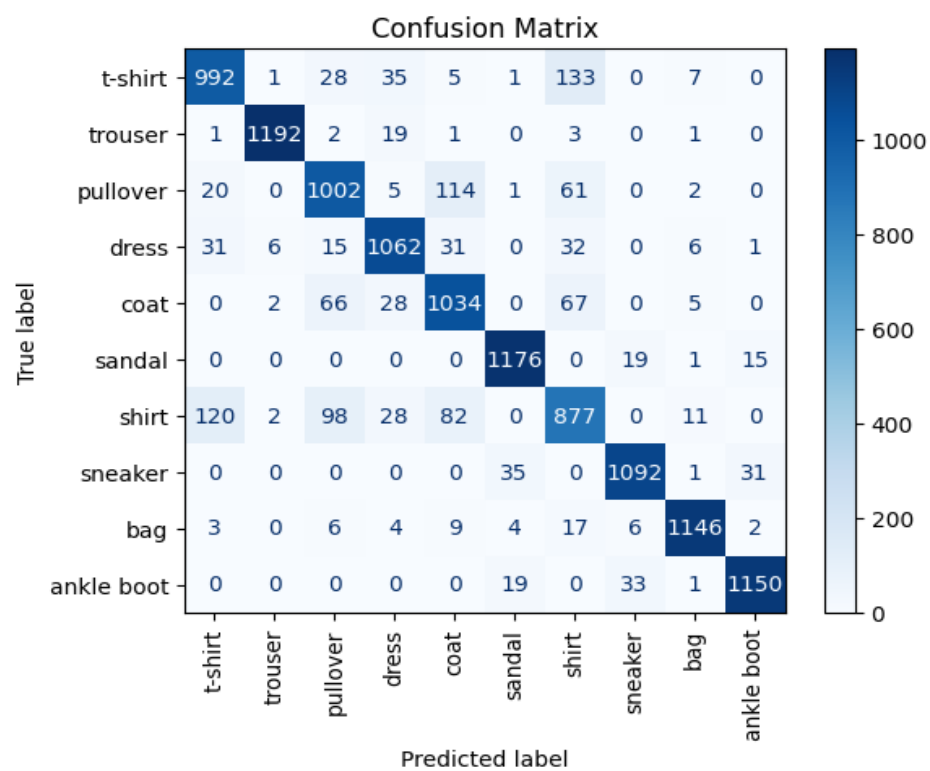


## 2<sup>nd</sup> Model:

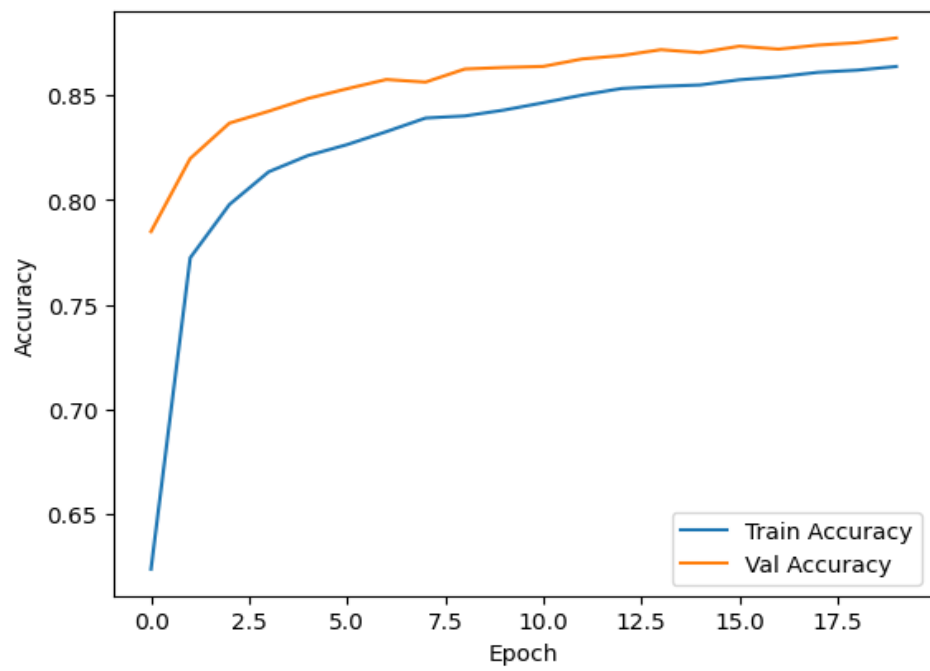
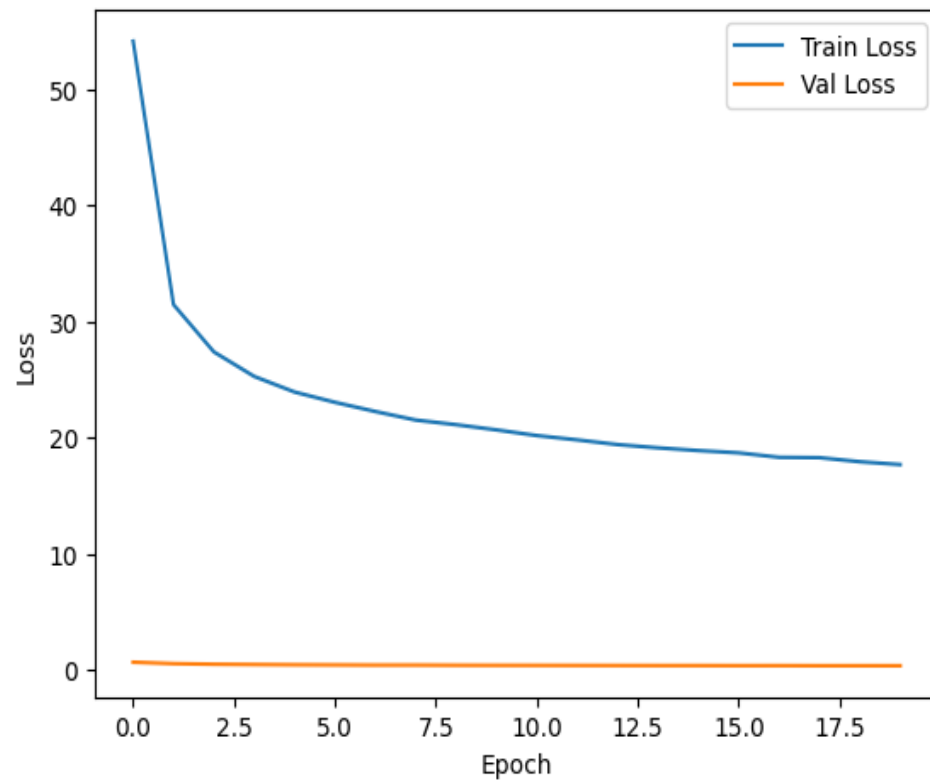


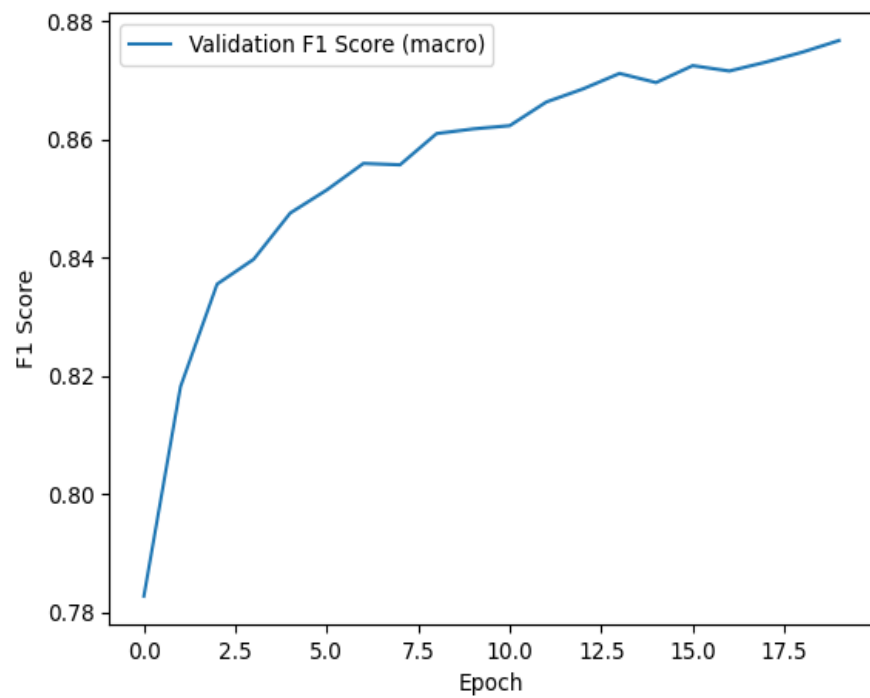


Best f1-score: 0.894

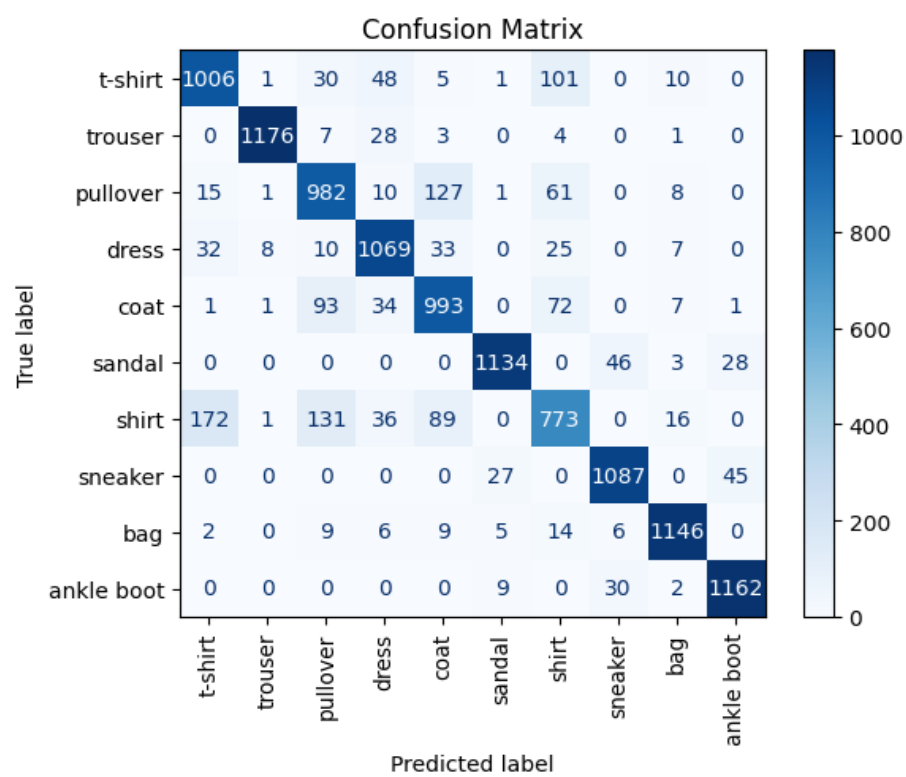


3<sup>rd</sup> Model:



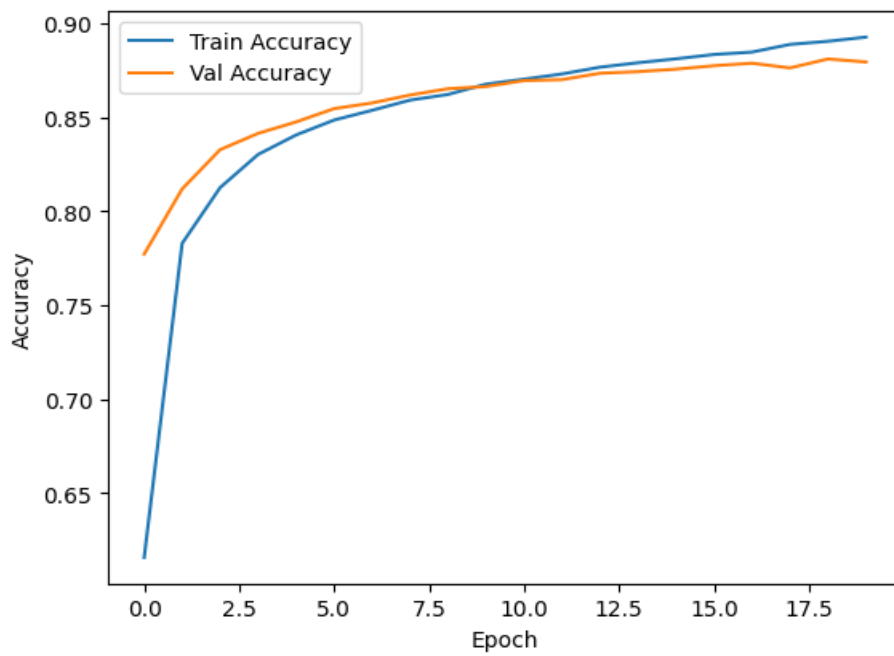
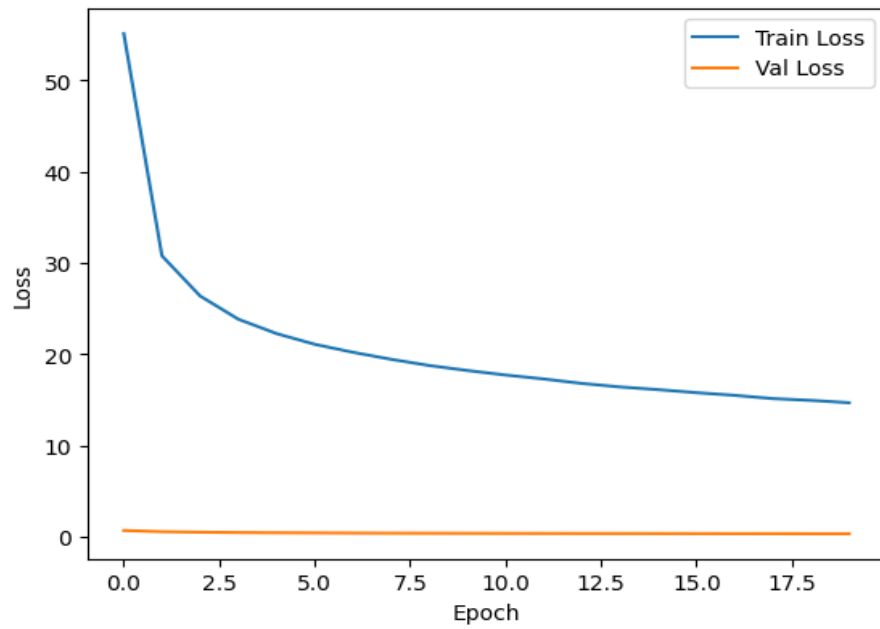


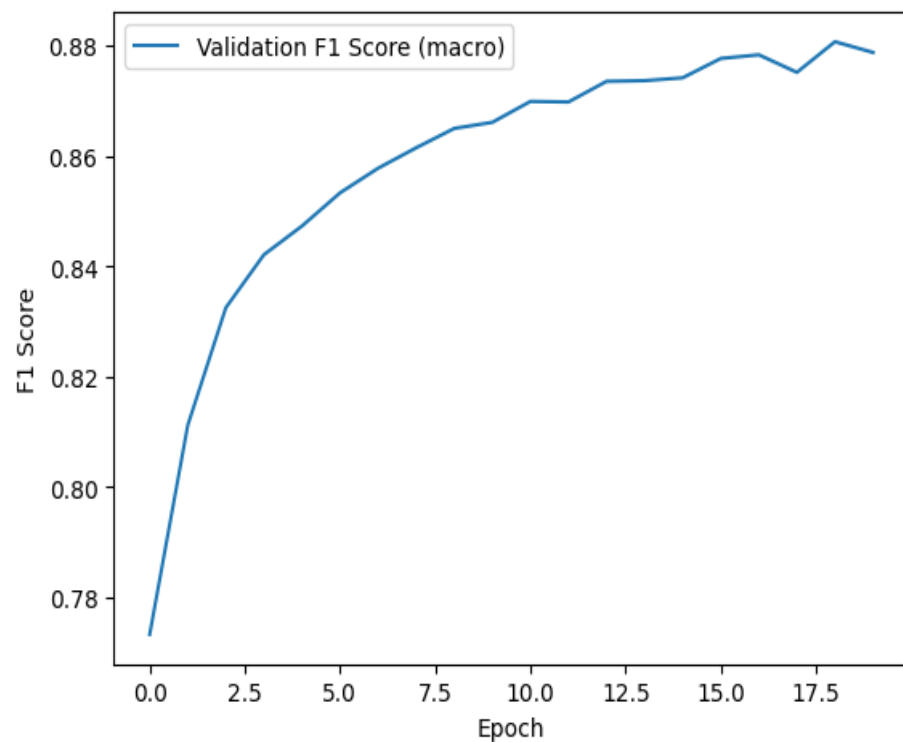
Best f1-score: 0.877



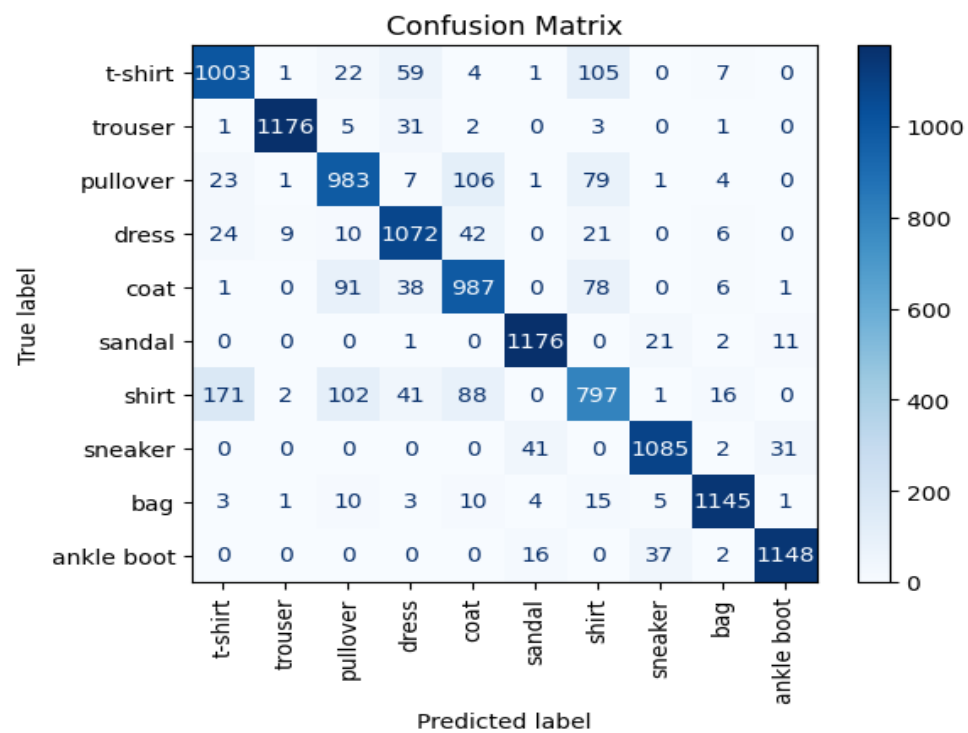
Learning rate: 0.0001

1<sup>st</sup> Model:

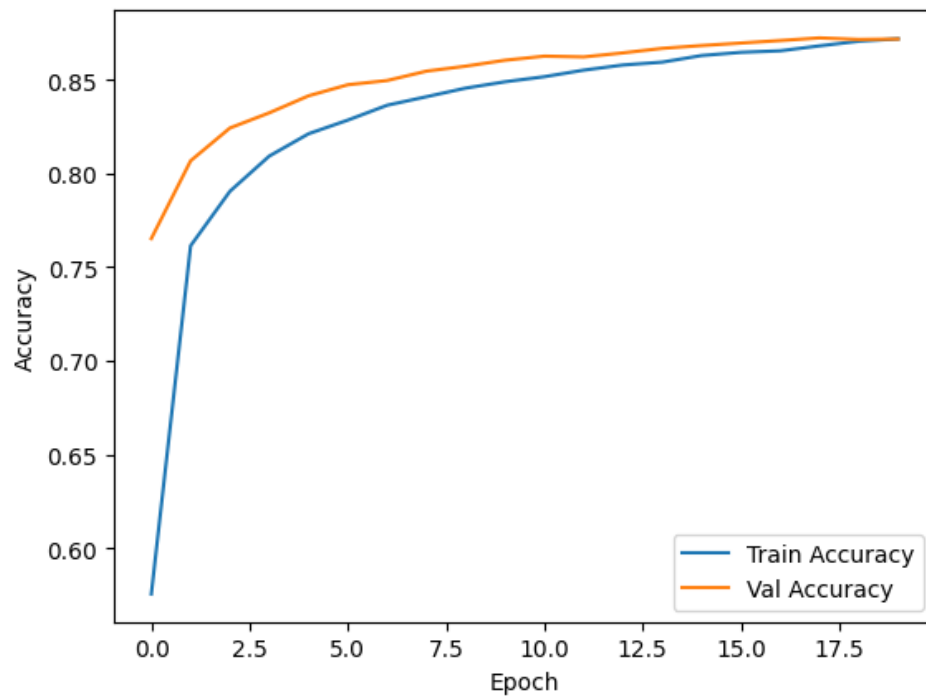
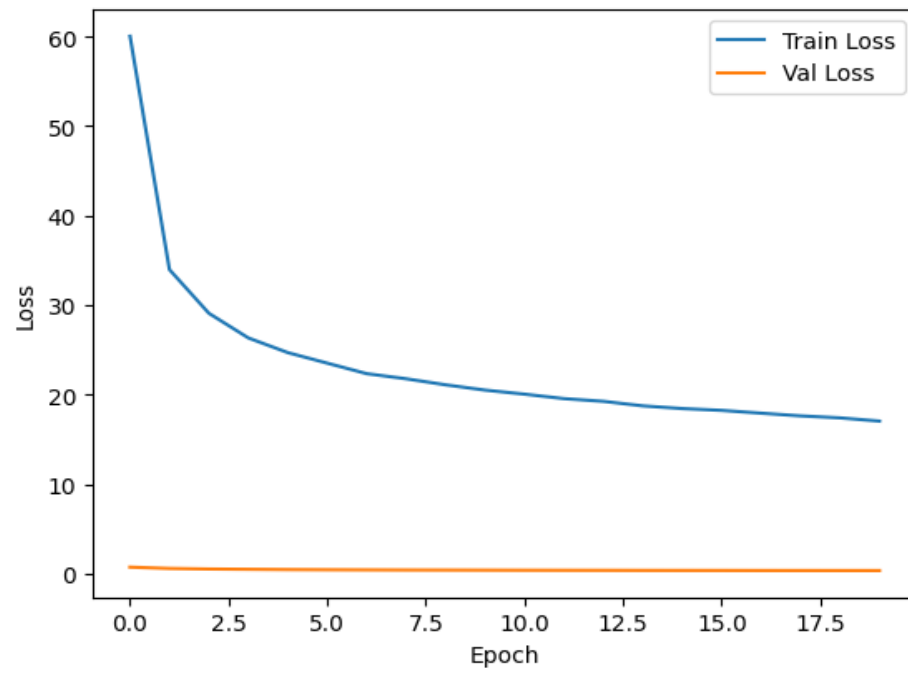


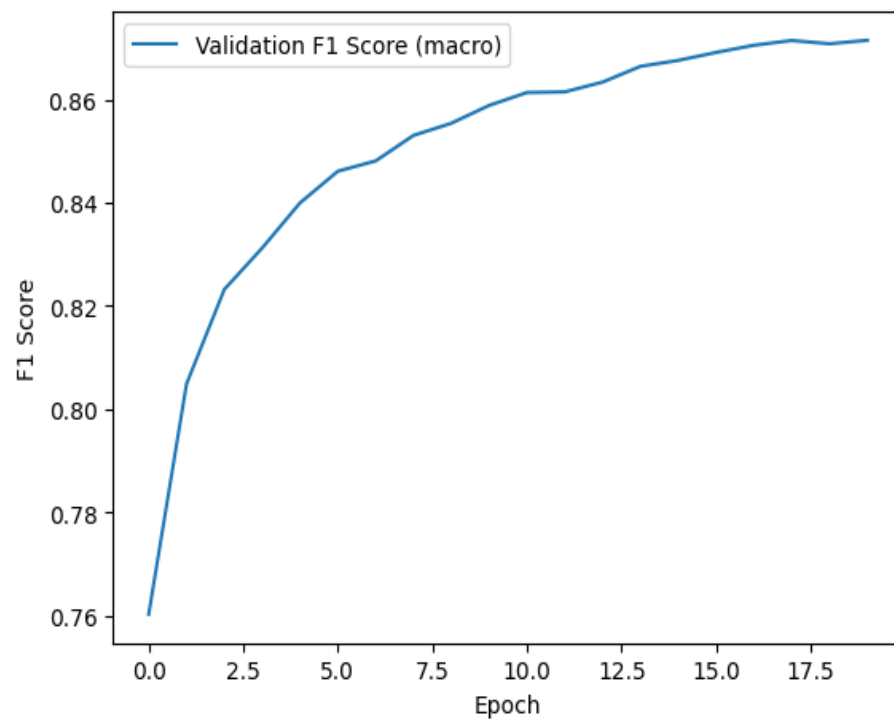


Best f1-score: 0.881

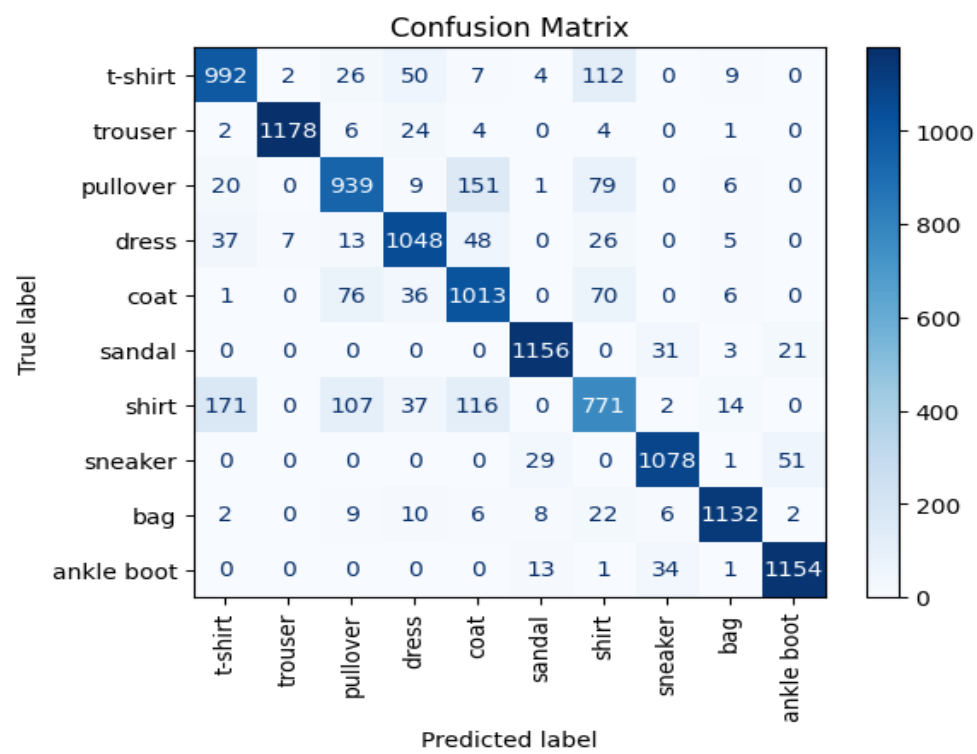


2<sup>nd</sup> Model:



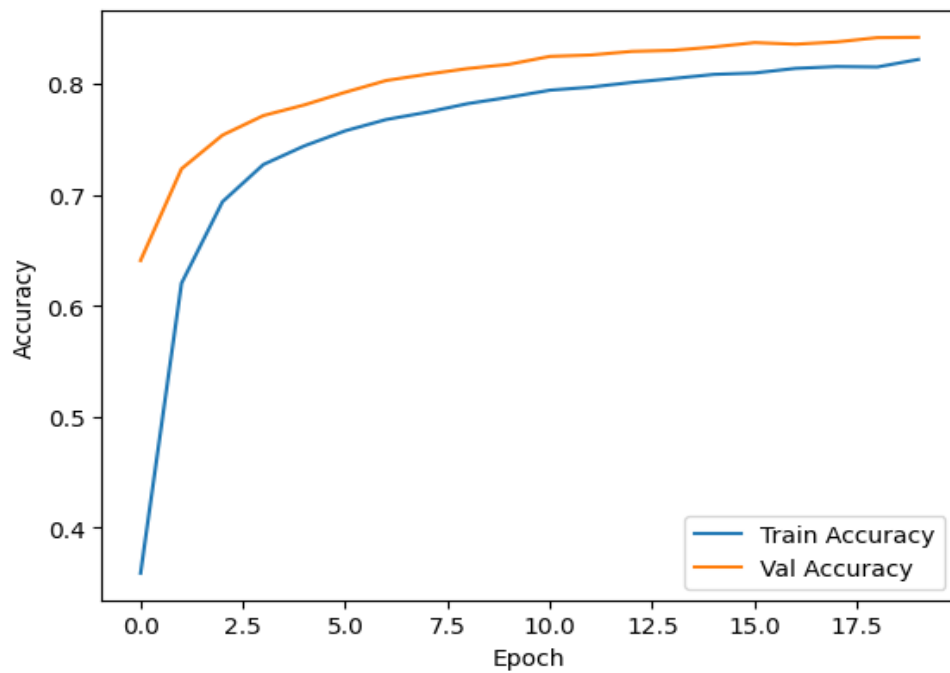
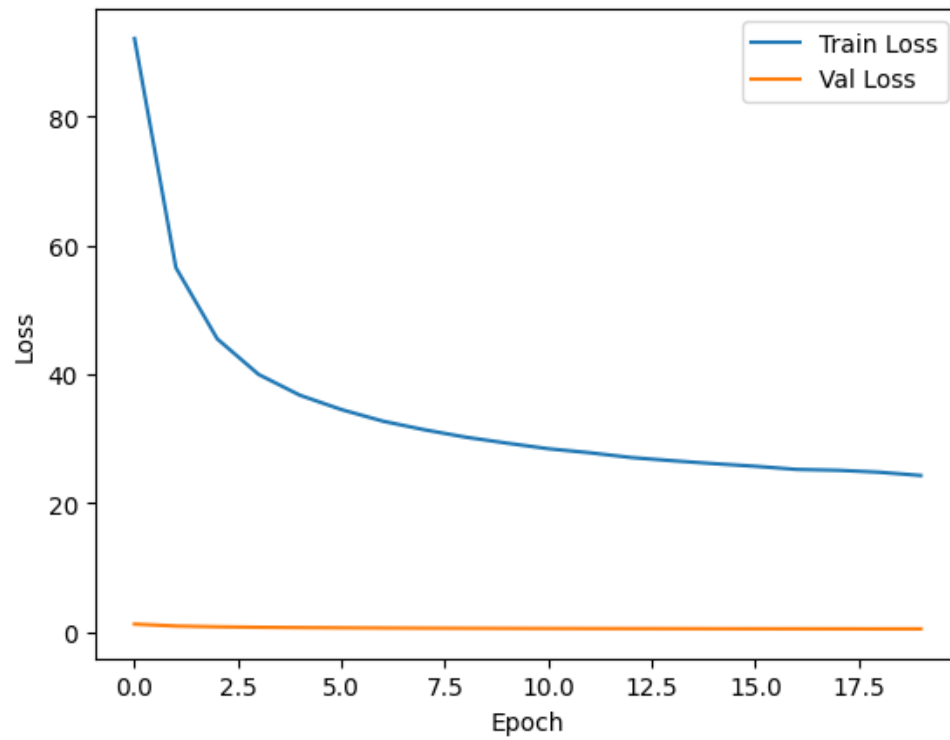


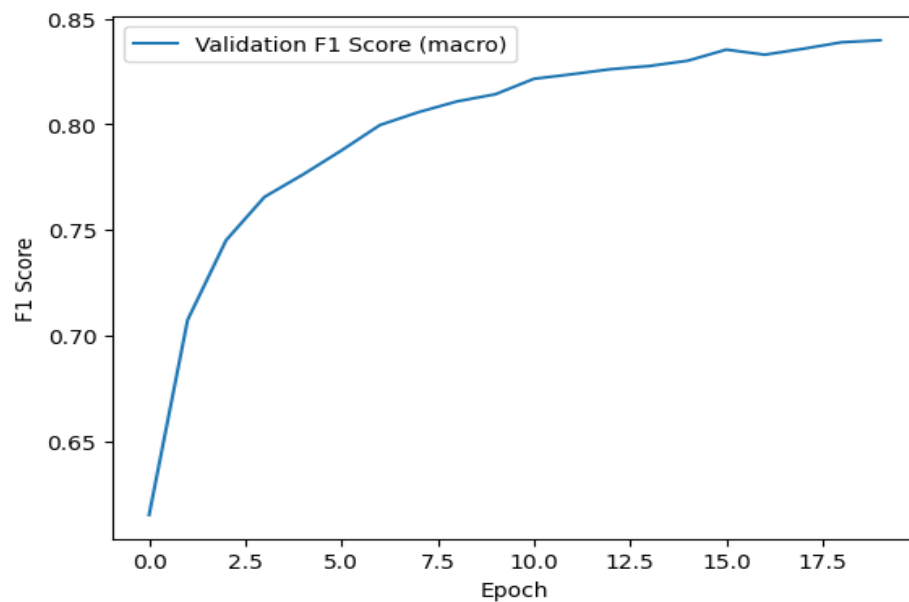
Best f1-score: 0.8715



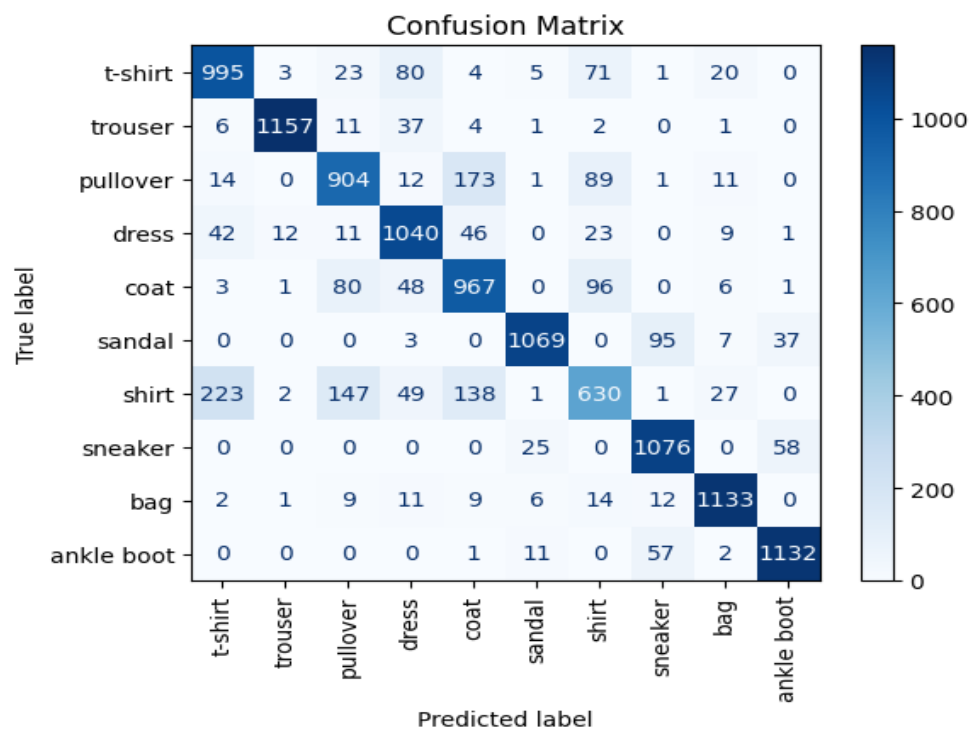


3<sup>rd</sup> Model:





Best f1-score: 0.84



**Best f-1: 0.8972, Best Learning Rate: 0.001, Best Model no.: 2**

## Test Results:

Test accuracy:86.81

Test f1 score:0.867

Test confusion matrix:

