TOPICS IN PATTERN RECOGNITION ASSIGNMENT 3
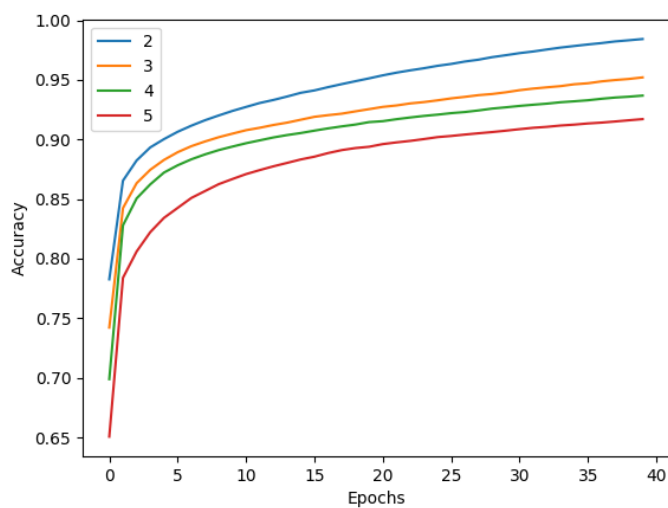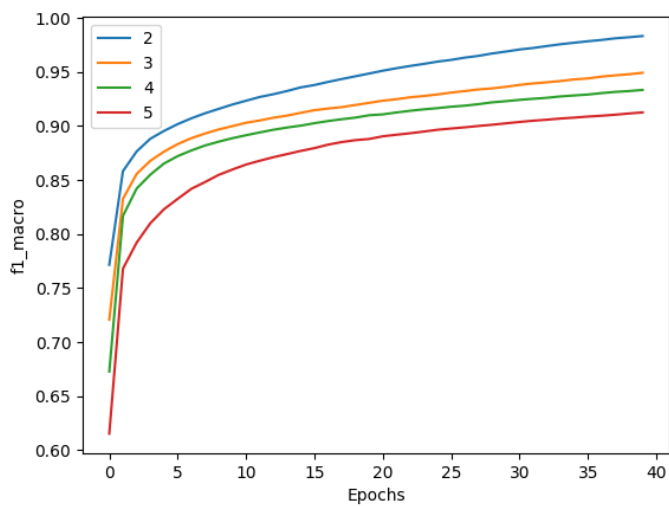
MANASVI AGGARWAL

SR NO. 16223

1 PART 1 FASHION-MNIST DATASET:

1.1 TASK 1:

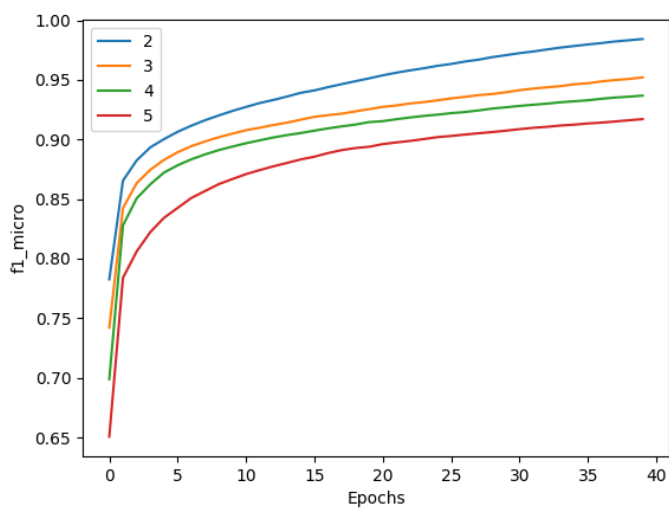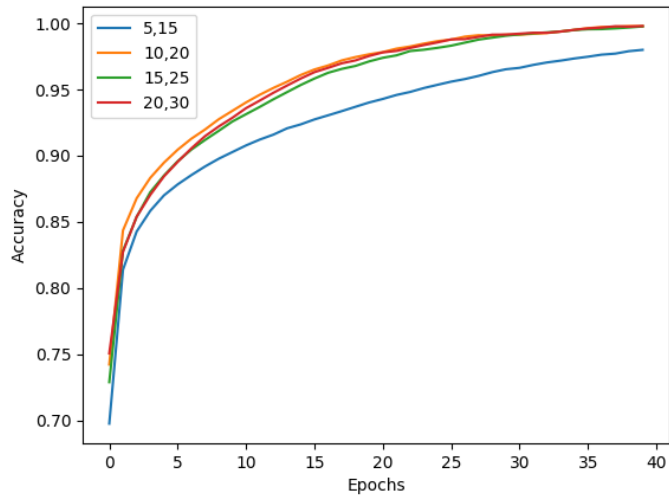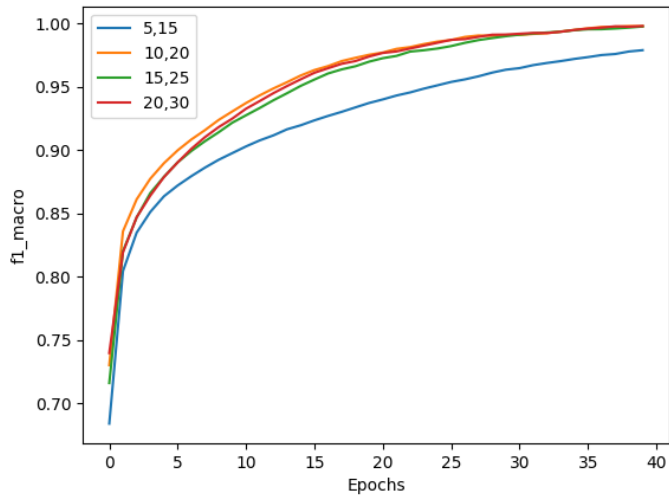DIFFERENT NUMBER OF LAYERS

ACCURACY

F1-MACRO-SCORE

F1-MICRO-SCORE

1.2 TASK 2:
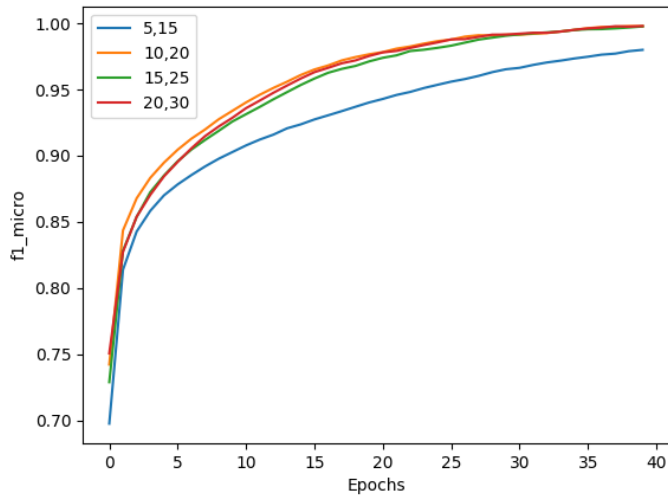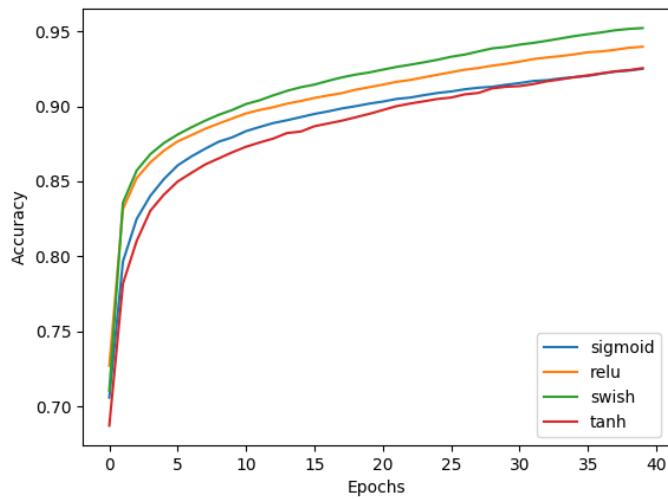
VARYING NUMBER OF NEURONS

ACCURACY

F1-MACRO-SCORE

3
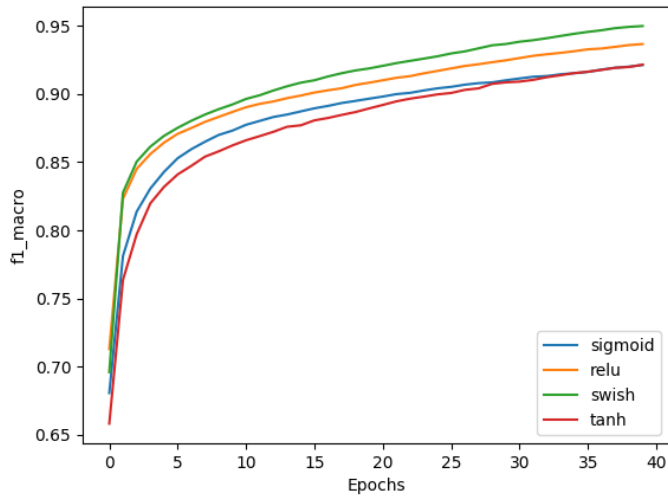
F1-MICRO-SCORE

1.3 TASK 3:
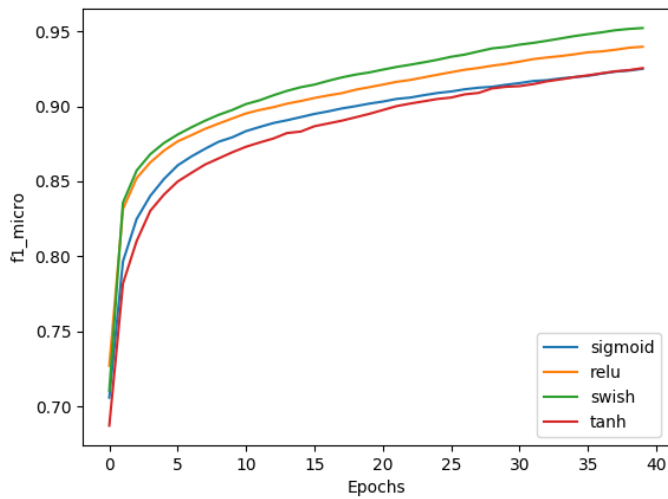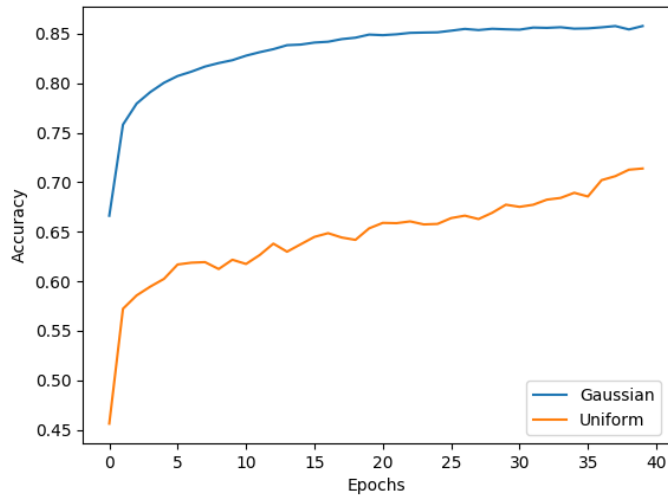
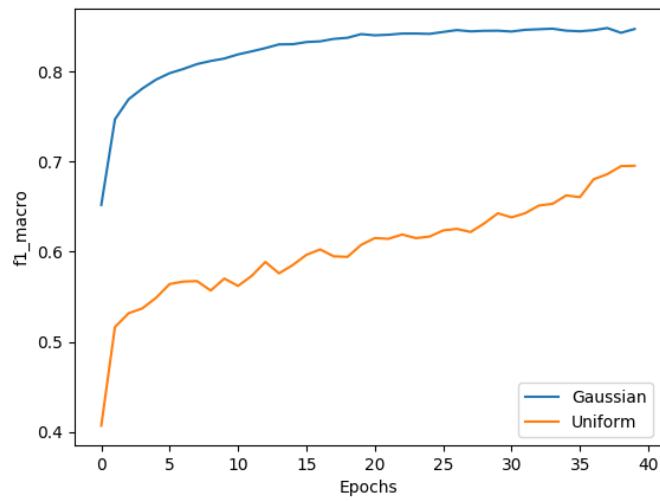VARYING ACTIVATION FUNCTIONS

ACCURACY
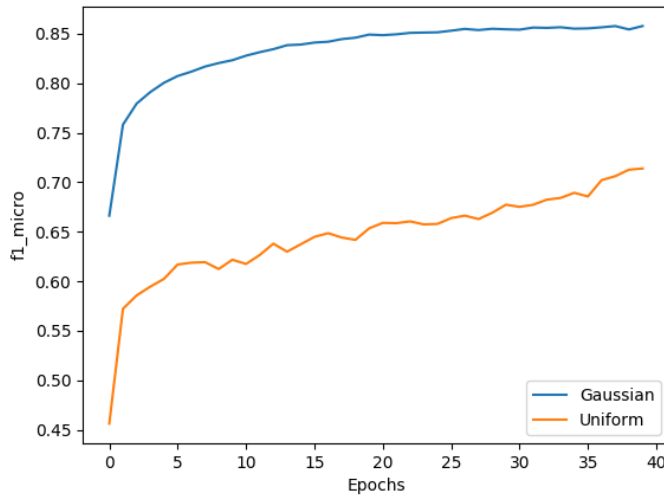
F1-MACRO-SCORE

F1-MICRO-SCORE

1.4 TASK 4:

TESTING DIFFERENT INITIALIZATION

ACCURACY

F1-MACRO-SCORE

F1-MICRO-SCORE

1.5 TASK 5:

I have saved all the embedding and corresponding accuracies in the text files separately for every percent of train/test data as mentioned in question.

ACCURACY FOR 10% TRAIN-DATA: 88.7865
ACCURACY FOR 20% TRAIN-DATA: 87.8854
ACCURACY FOR 30% TRAIN-DATA: 88.4190
ACCURACY FOR 40% TRAIN-DATA: 88.2333
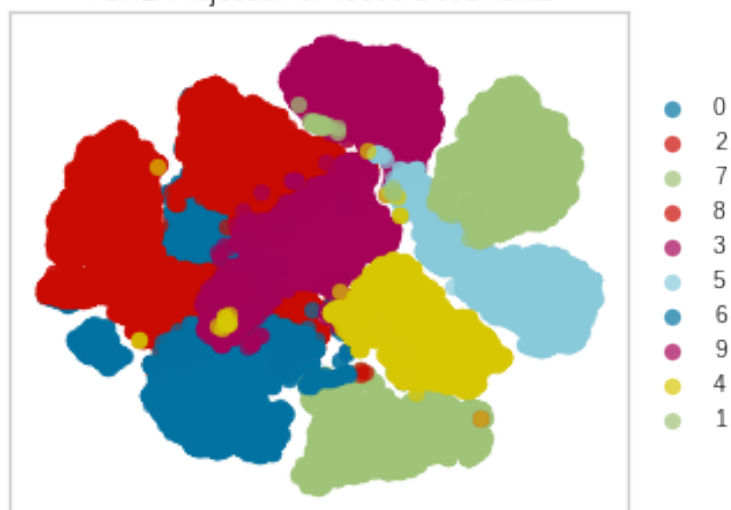ACCURACY FOR 50% TRAIN-DATA: 83.9081

1.6 TASK 6:

FOR DIFFERENT PERCENT

TSNE Projection of 54000 Documents

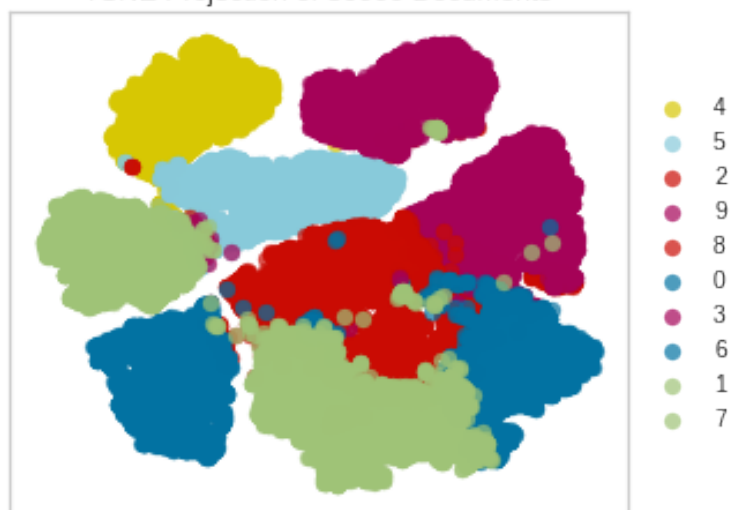PERCENT: 10

TSNE Projection of 48000 Documents
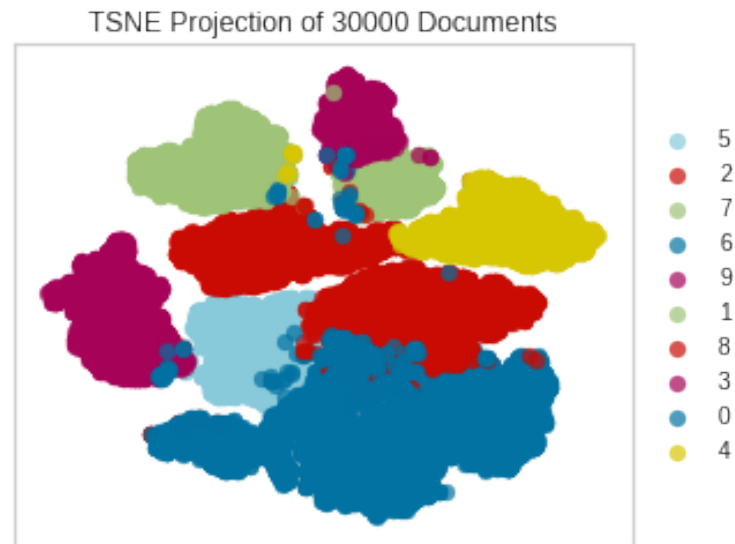
PERCENT: 20

8

TSNE Projection of 42000 Documents

PERCENT: 30

TSNE Projection of 36000 Documents
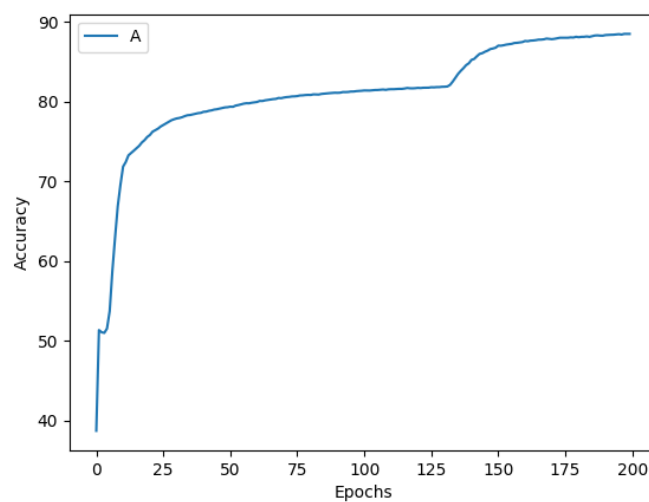

PERCENT: 40

TSNE Projection of 30000 Documents

PERCENT: 50

For FASHION-MNIST dataset the data points are clustered in different clusters as expected and as we train our model on more and more data we see that clusters are more separated.
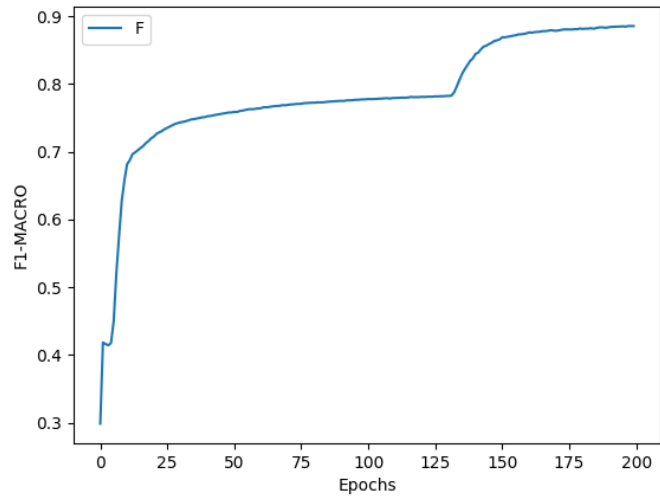
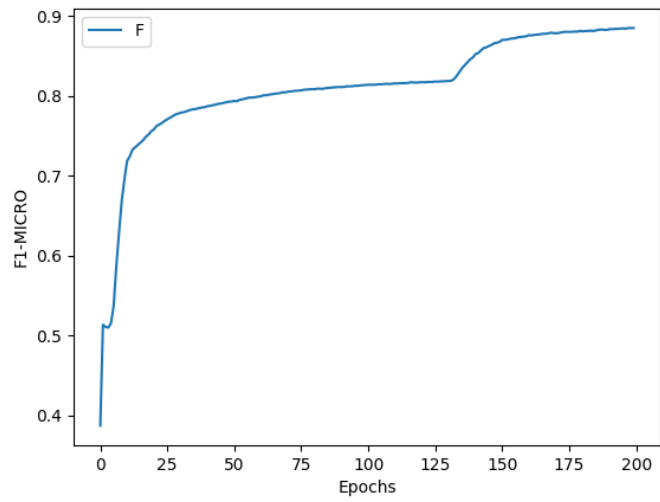## 1.7 TASK 7:
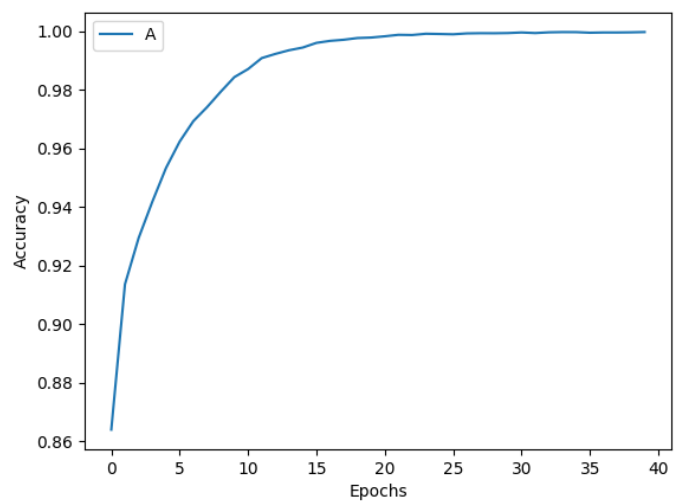
COMPARE OUR MLP AND OUR CNN

1) MLP GRAPHS:

ACCURACY

F1-MACRO-SCORE
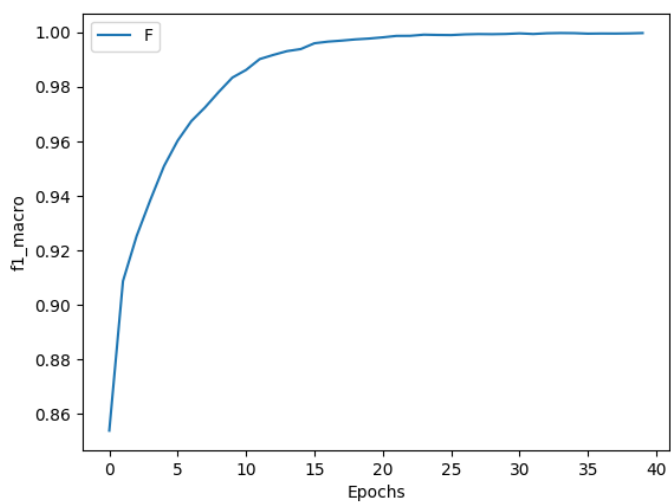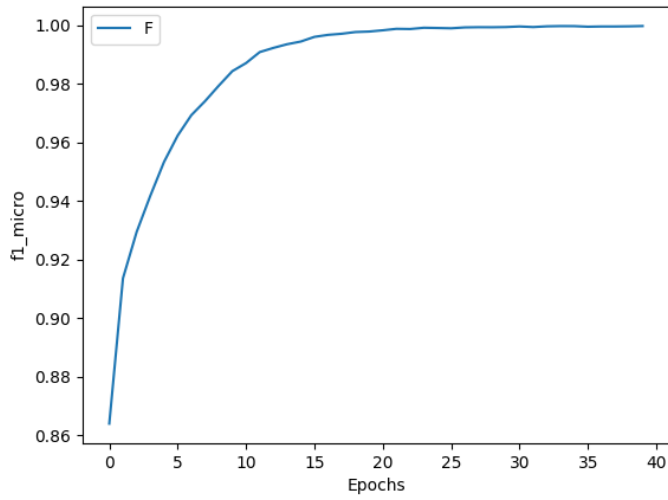

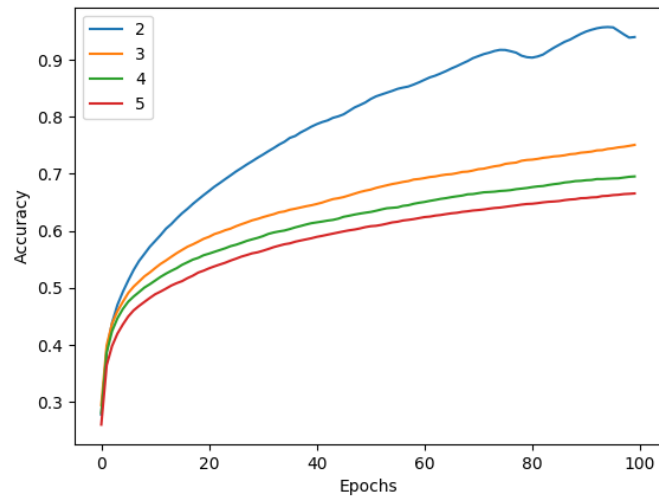F1-MICRO-SCORE

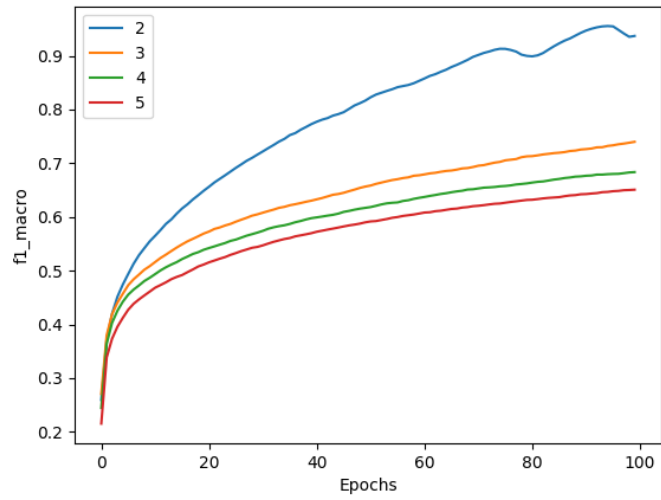2) CNN GRAPHS:

ACCURACY

F1-MACRO-SCORE

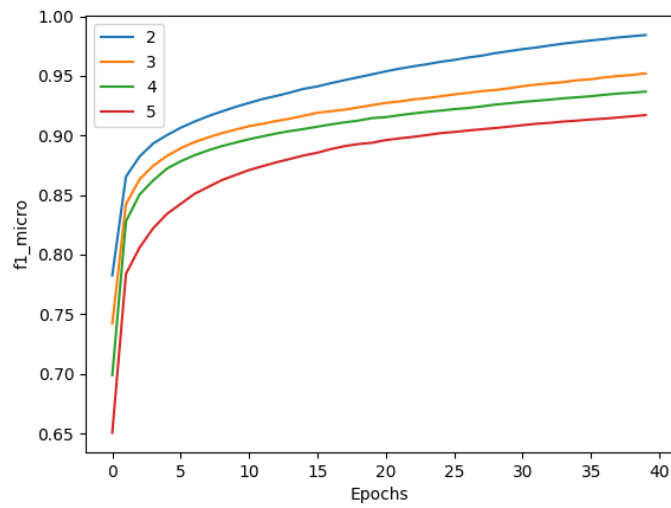F1-MICRO-SCORE

2 PART 2 CIFAR-10 DATASET:
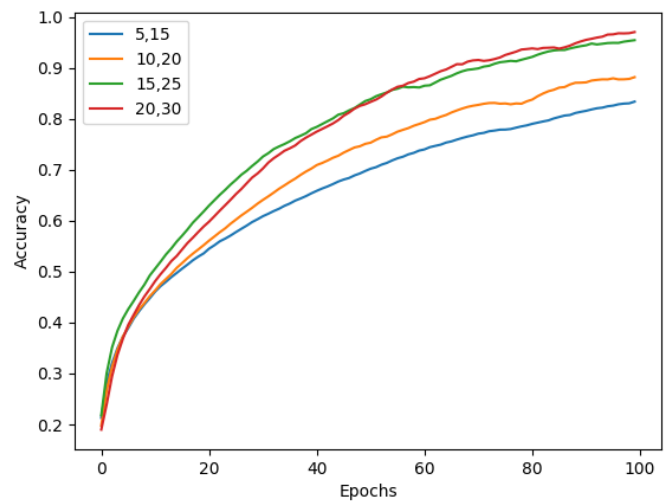
2.1 TASK 1:

DIFFERENT NUMBER OF LAYERS
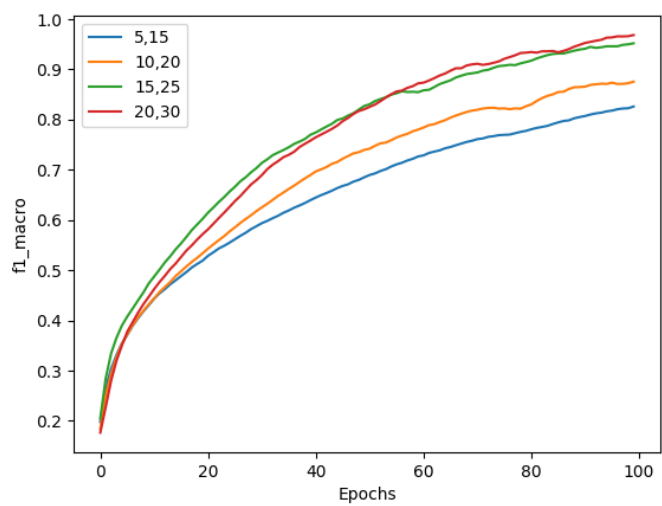

ACCURACY
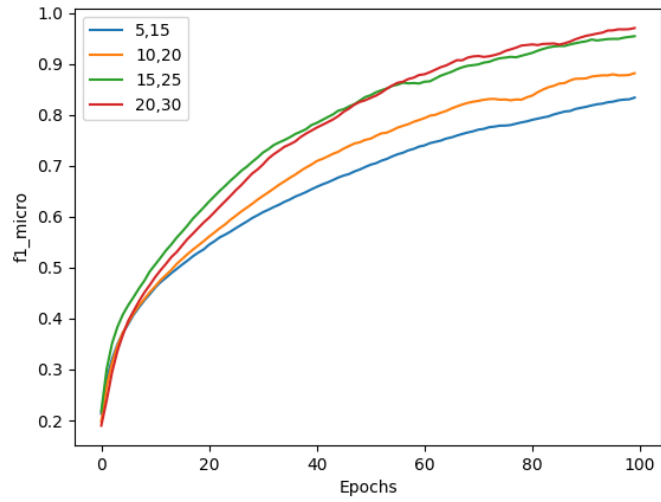
F1-MACRO-SCORE

F1-MICRO-SCORE

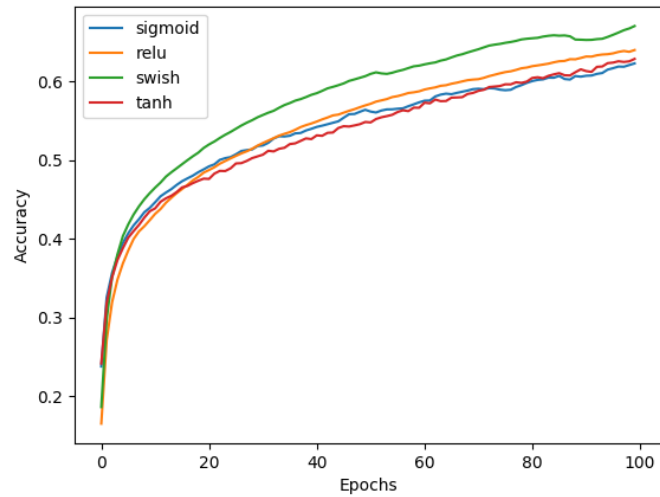## 2.2   TASK 2:

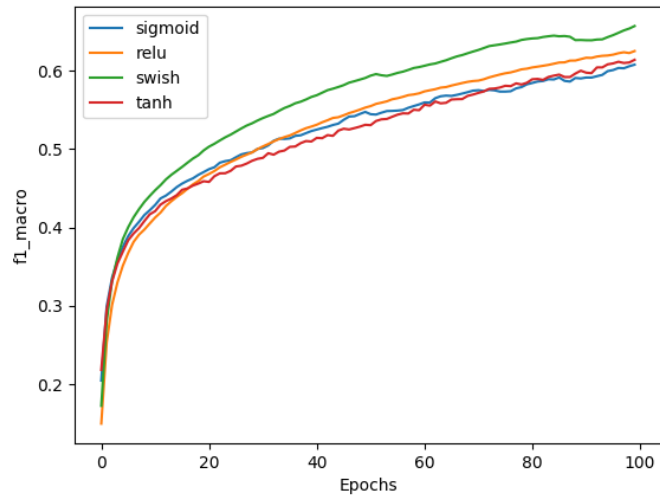VARYING NUMBER OF NEURONS

ACCURACY

F1-MACRO-SCORE

15

F1-MICRO-SCORE

2.3 TASK 3:
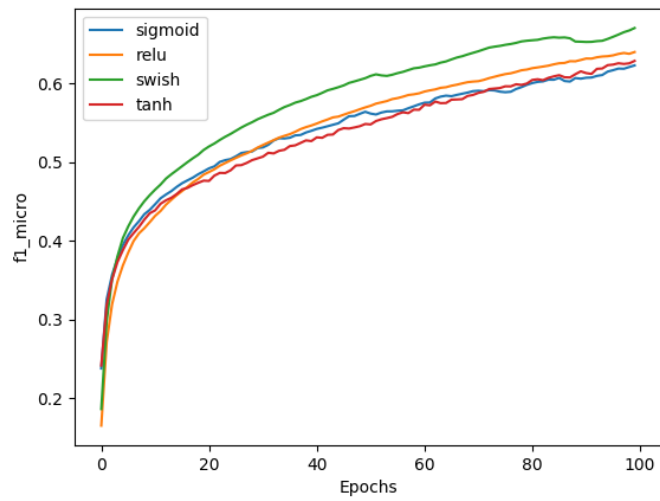
VARYING ACTIVATION FUNCTIONS
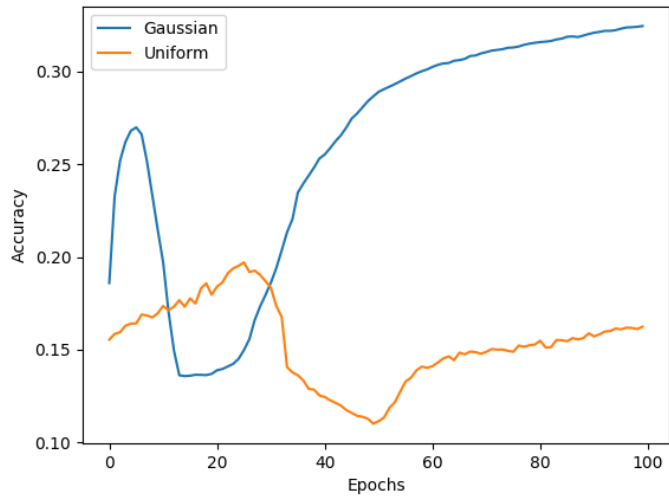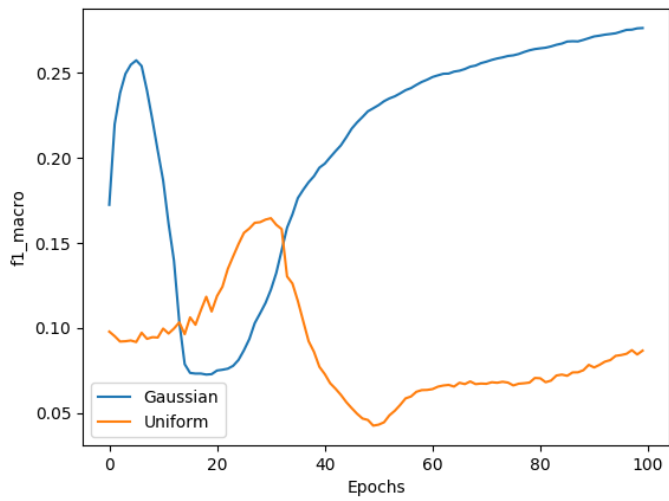

ACCURACY

F1-MACRO-SCORE
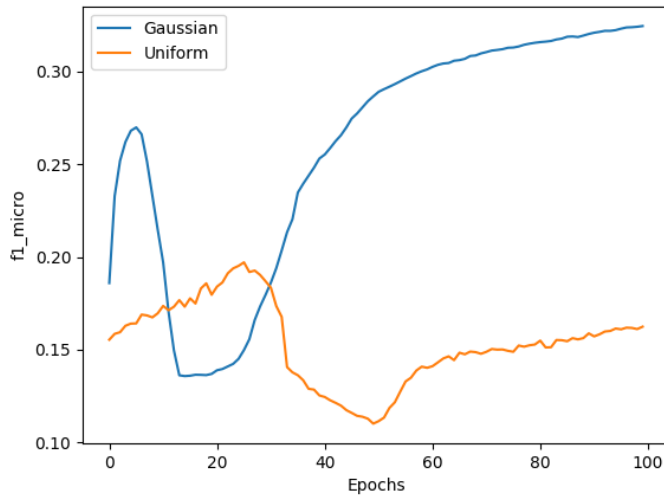

F1-MICRO-SCORE

2.4 TASK 4:

TESTING DIFFERENT INITIALIZATION

ACCURACY

F1-MACRO-SCORE

F1-MICRO-SCORE

2.5   TASK 5:

I have saved all the embedding and corresponding accuracies in the text files separately for every percent of train/test data as mentioned in question.

ACCURACY FOR 10% TRAIN-DATA: 38.3417
ACCURACY FOR 20% TRAIN-DATA: 38.950
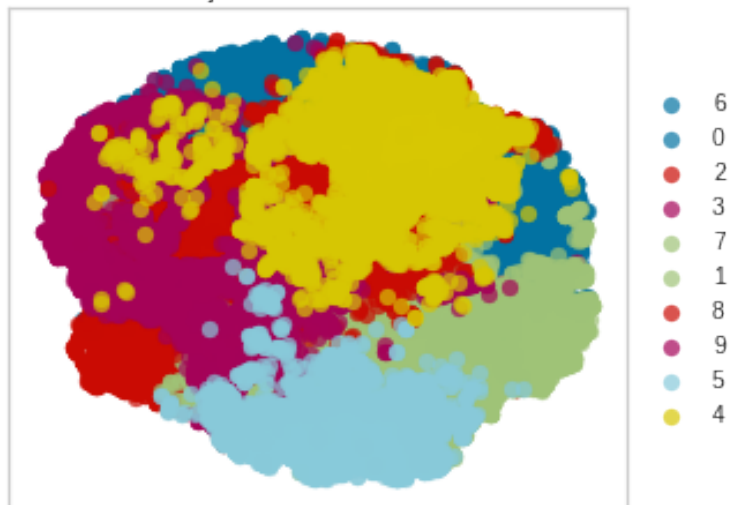ACCURACY FOR 30% TRAIN-DATA: 40.280
ACCURACY FOR 40% TRAIN-DATA: 43.9133
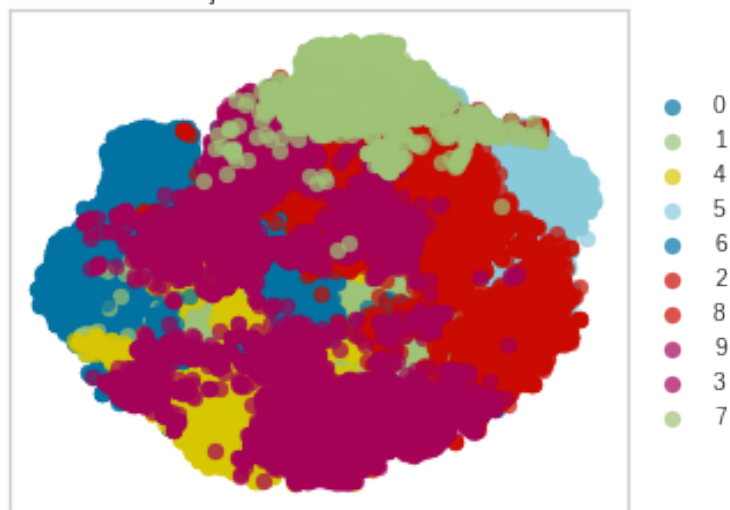ACCURACY FOR 50% TRAIN-DATA: 43.724

2.6   TASK 6:

FOR DIFFERENT PERCENT
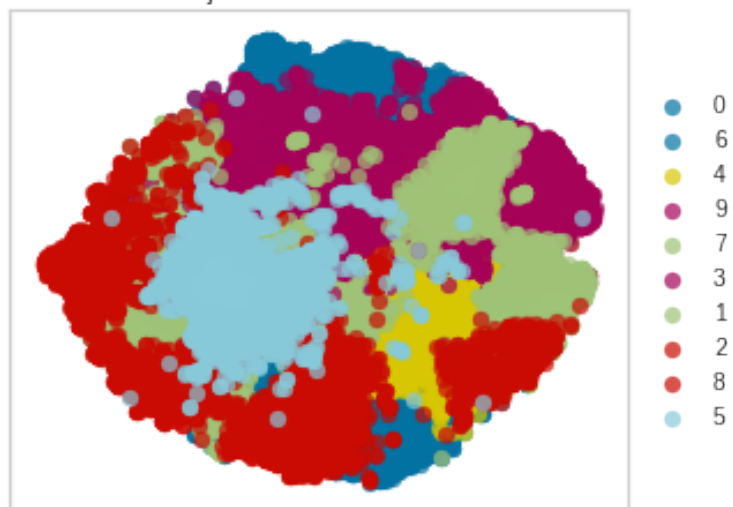
TSNE Projection of 45000 Documents
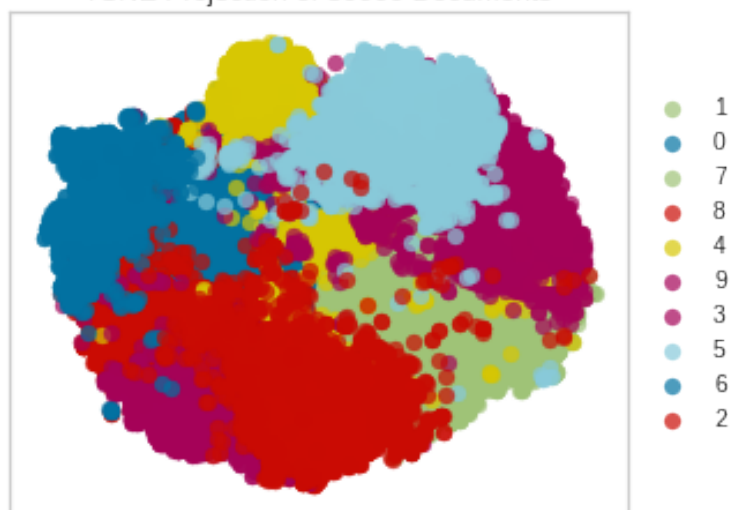
PERCENT: 10

TSNE Projection of 40000 Documents

PERCENT: 20
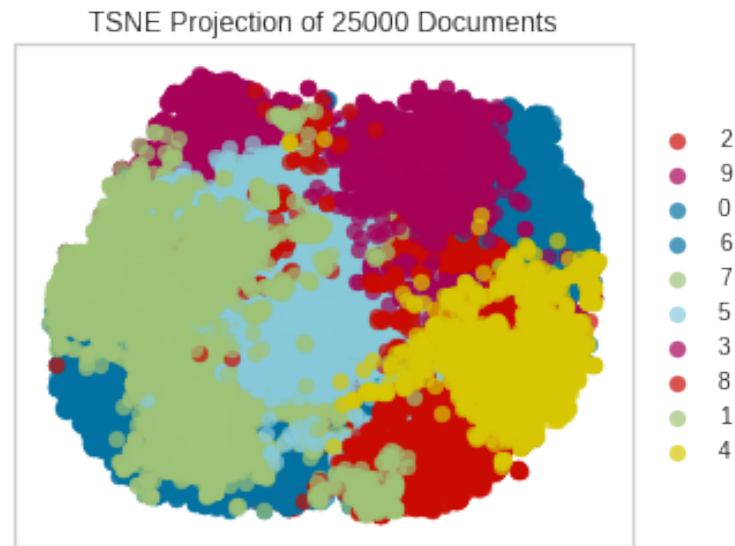
20

TSNE Projection of 35000 Documents

PERCENT: 30

TSNE Projection of 30000 Documents

PERCENT: 40
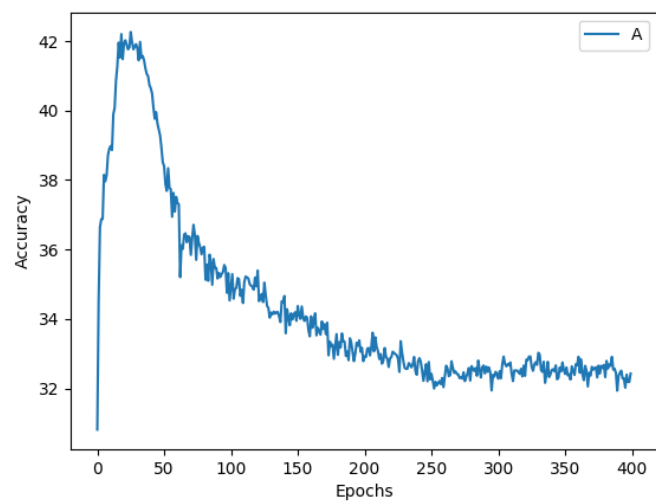
21

TSNE Projection of 25000 Documents

PERCENT: 50

For CIFAR-10 dataset the data points are clustered in different clusters but not well separated and also clusters formed for FASHION-MNIST dataset are well separated and as we train our model on more and more data we see that clusters are more separated.
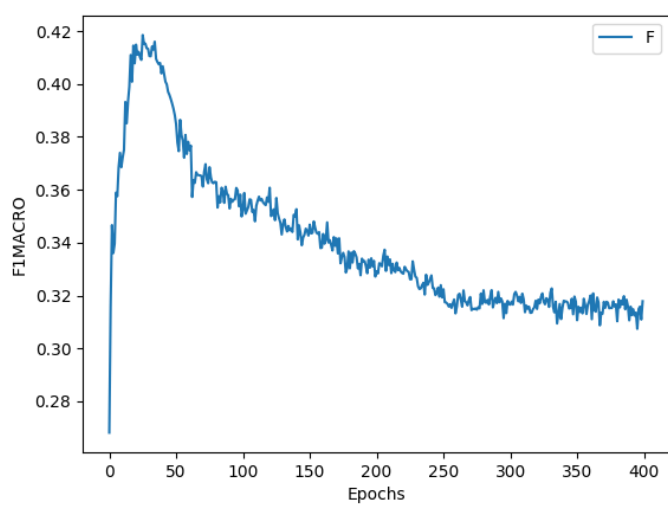
2.7   TASK 7:
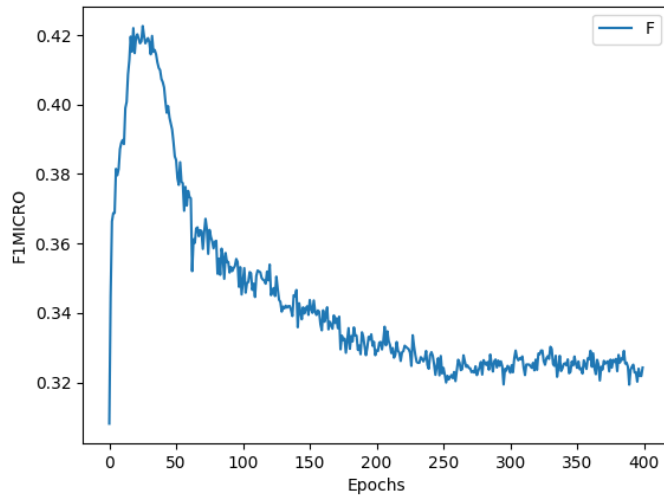
COMPARE OUR MLP AND OUR CNN
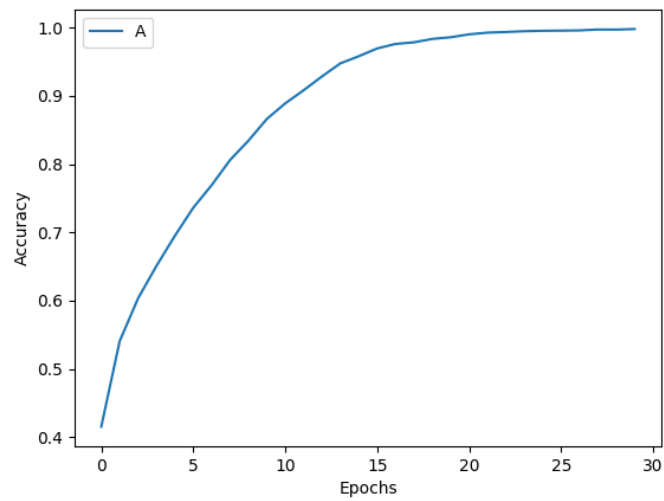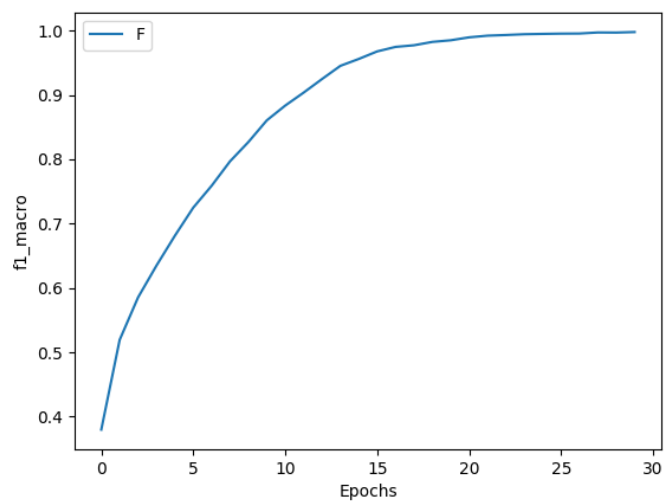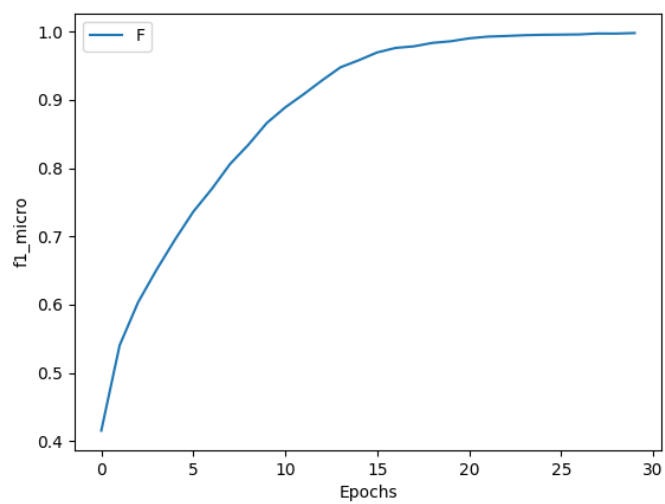
1) MLP GRAPHS:

ACCURACY

F1-MACRO-SCORE

F1-MICRO-SCORE

2) CNN GRAPHS:

ACCURACY

F1-MACRO-SCORE

F1-MICRO-SCORE