

# TIPR Assignment 2 Report

## Shilpa K K

### S R No: 15598

Python Version 3.7 has been used.

All the codes have been added to the src directory. Task 5 is implemented in the file task5a.py. All the other tasks have been implemented in main.py.

Plots and results for all tasks in parts one, two and three have been uploaded to output\_plots and output\_data directories respectively.

To test the model :

```
python main.py --test-data <test data directory path> --dataset <dataset name>
```

To train and then test the neural-net :

```
python main.py --train-data <train data directory path> --test-data <test data directory path> --dataset <dataset name> --configuration <layer config>
```

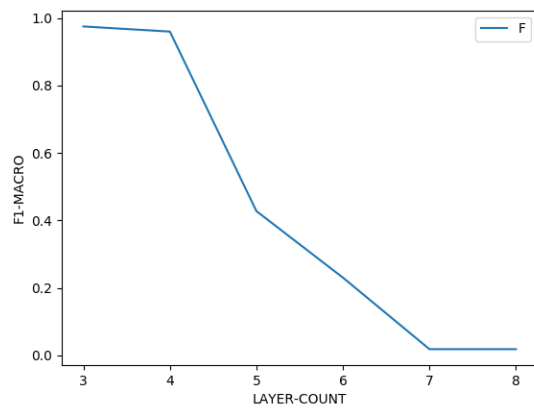
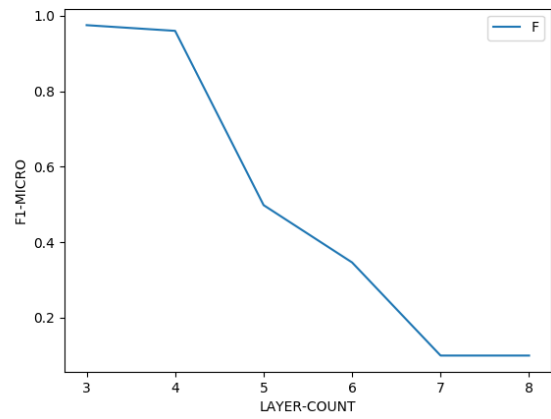
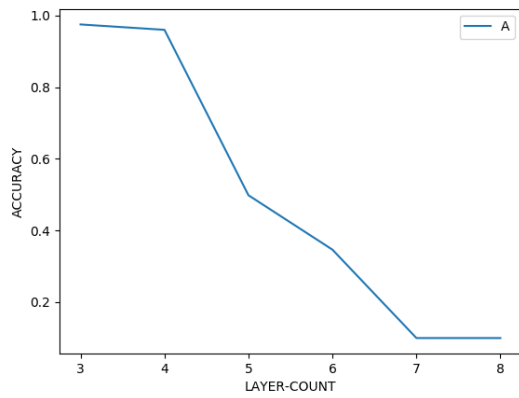
## Part One

Designed multilayer neural network(MLNN) for optical numeral recognition.

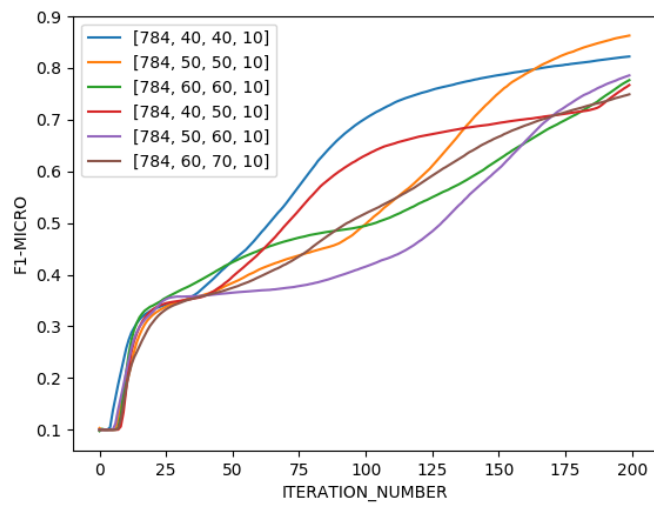
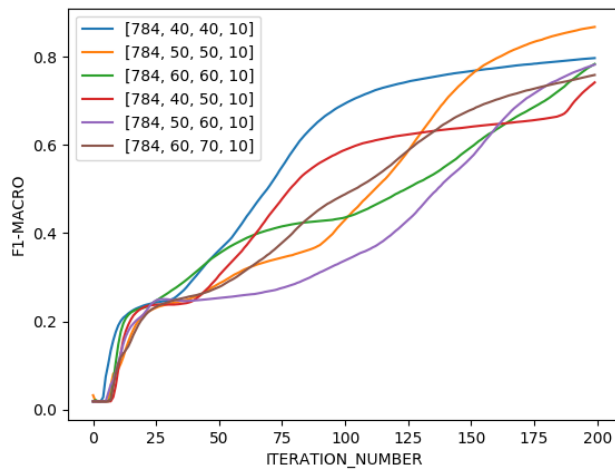
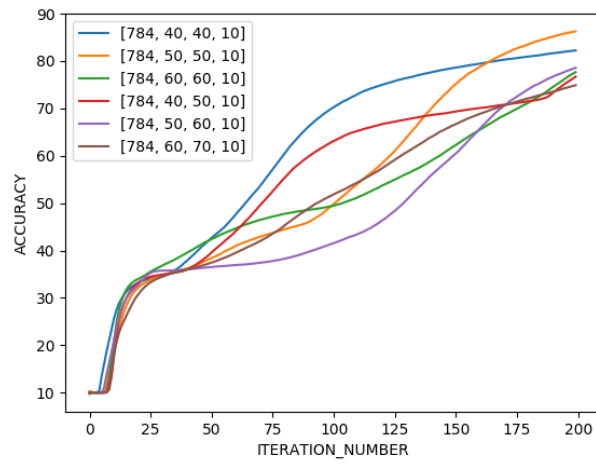
1. Parameters are initialized in init function when an object of the class is created.
2. Implemented forward propagation using forward\_prop function.
3. Implemented backward propagation using back\_prop function.
4. Cross entropy is used as cost function.

## Plots

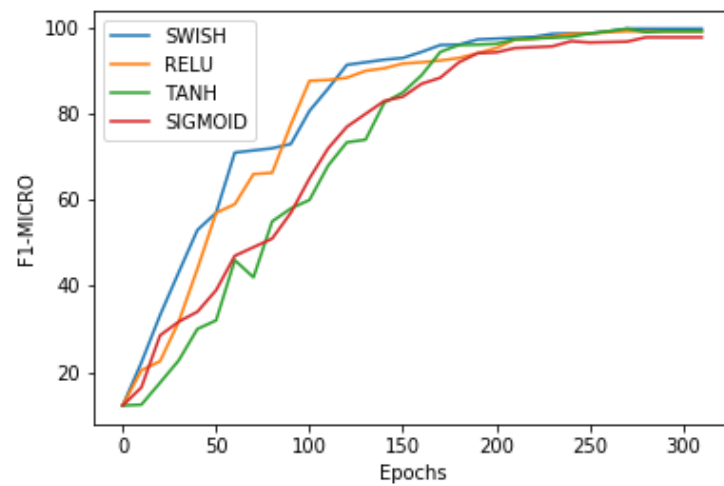
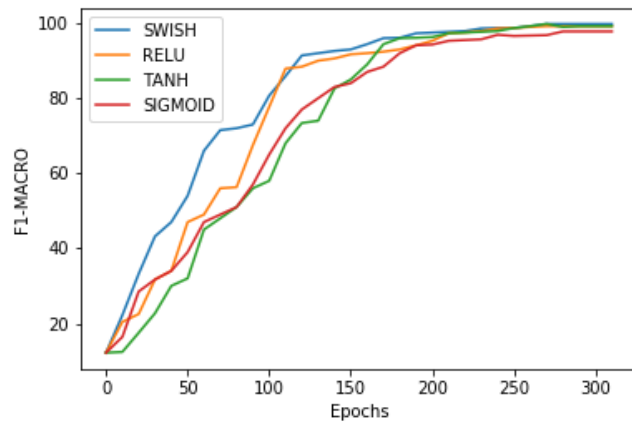
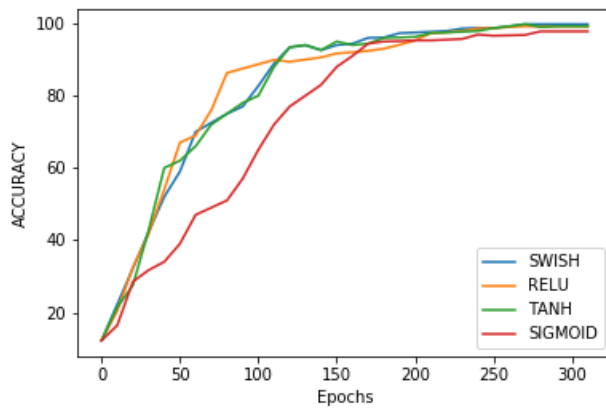
### Task 1



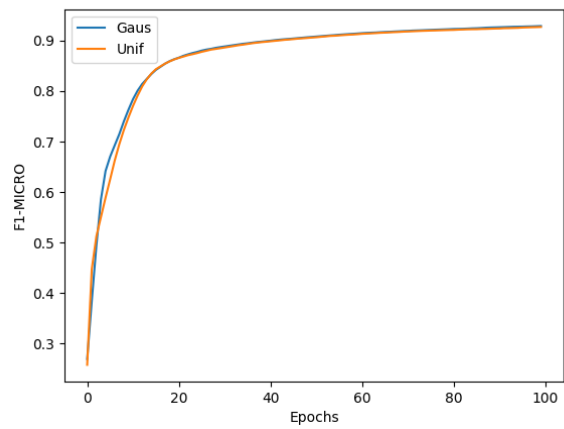
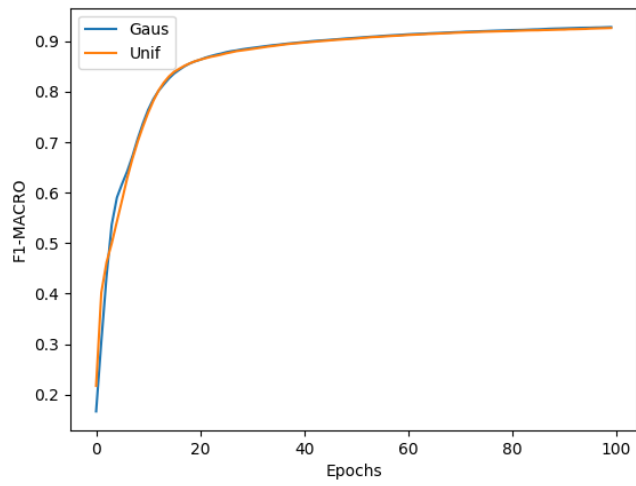
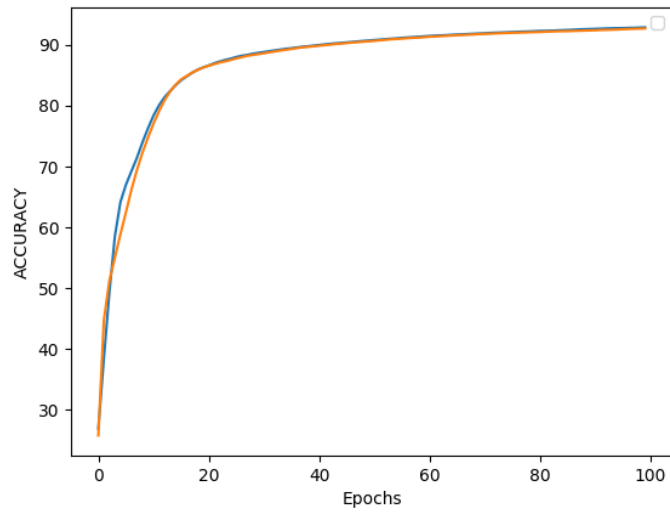
## Task 2



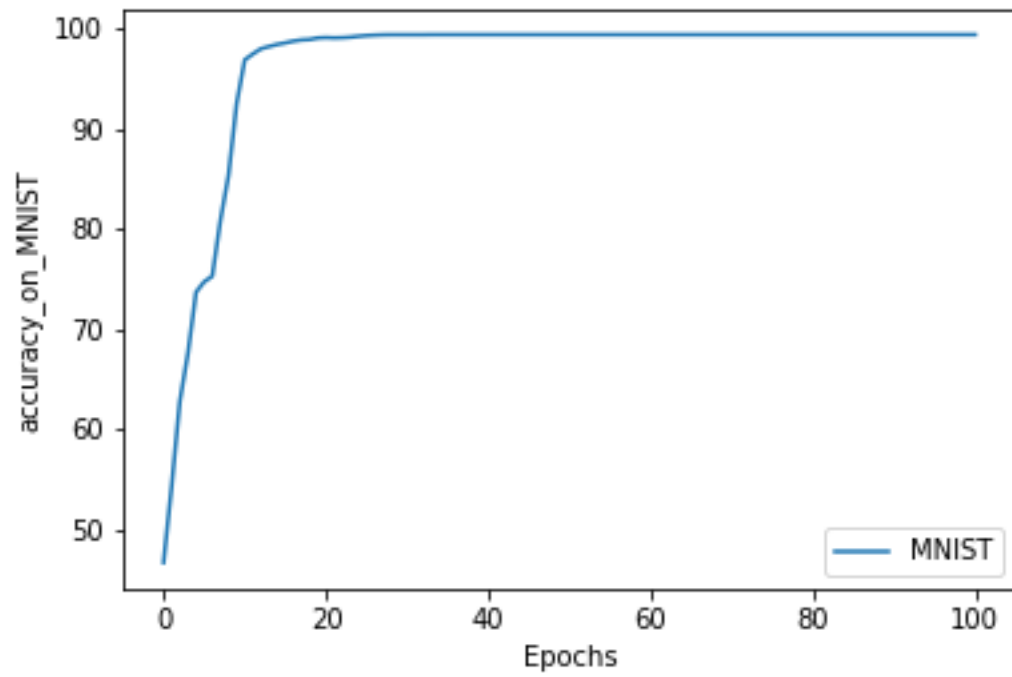
### Task 3



## Task 4

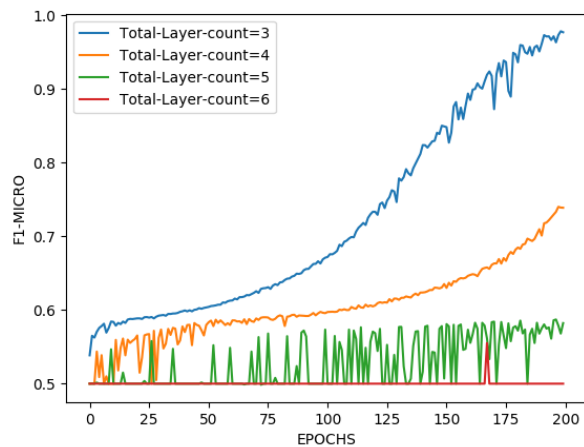
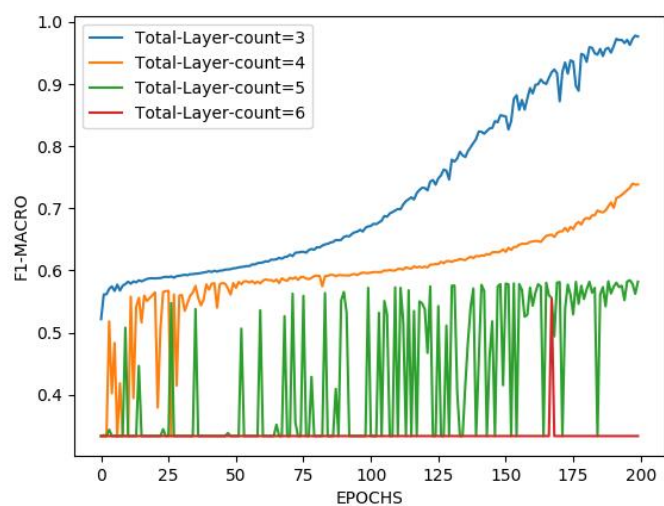
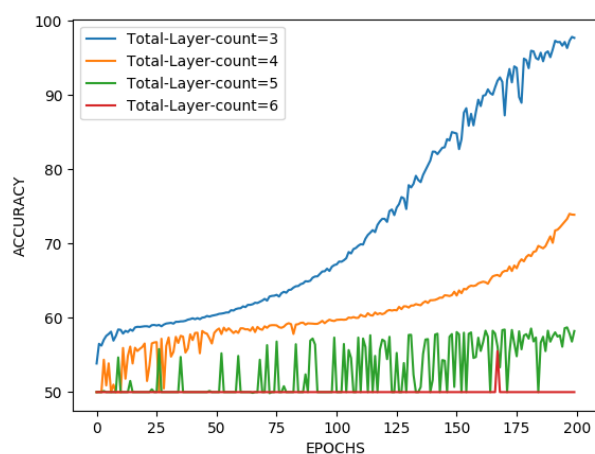


## Task 5

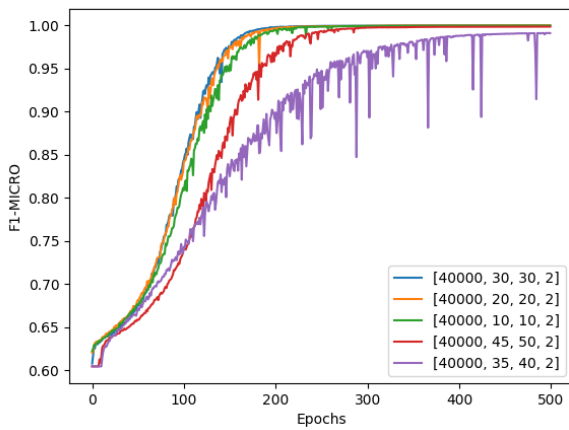
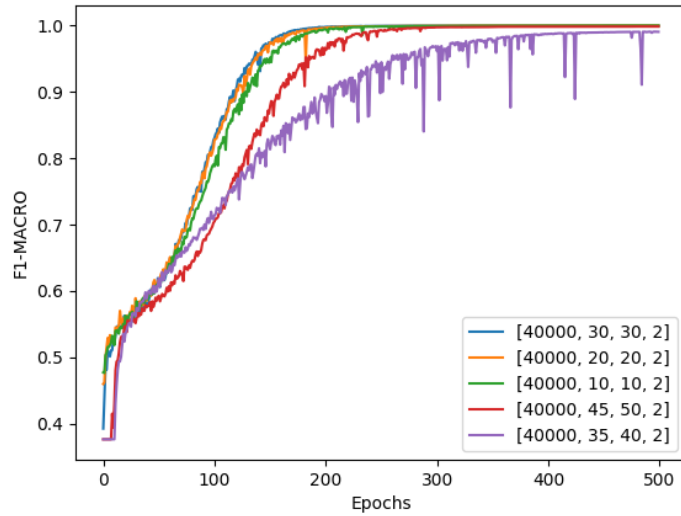
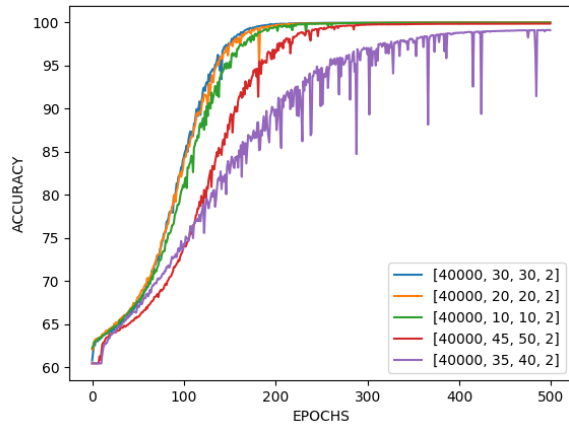


## Part Two

### Task 1

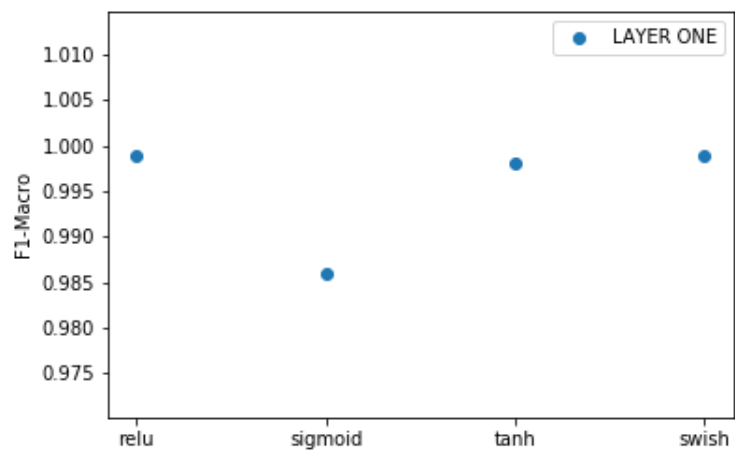
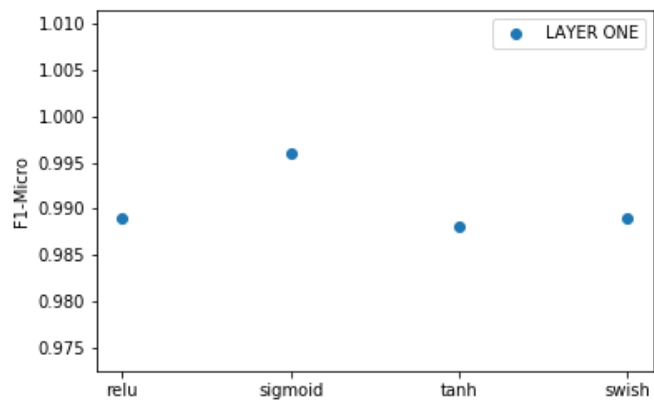
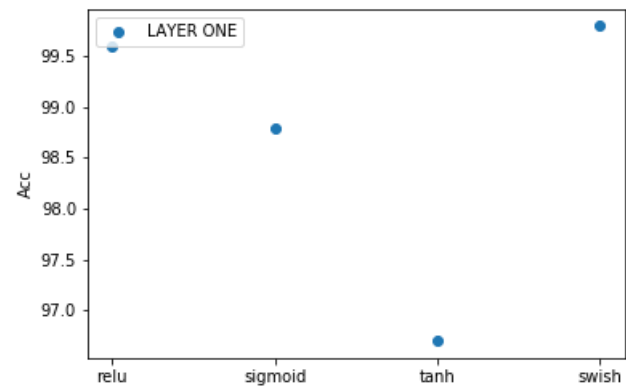


## Task 2

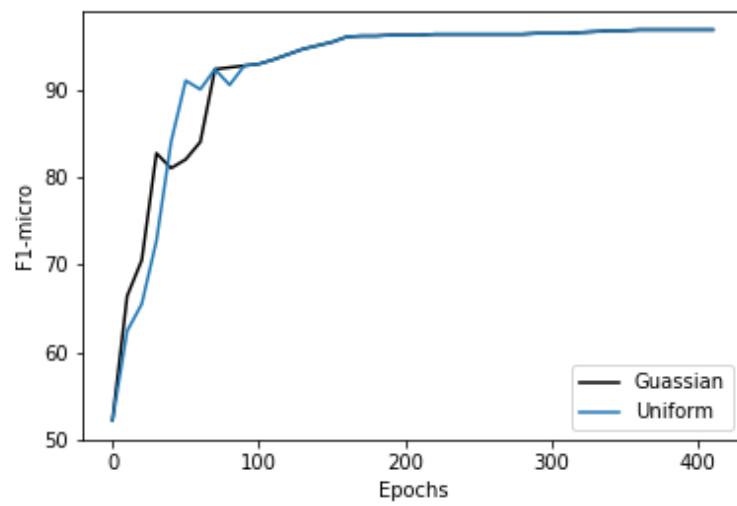
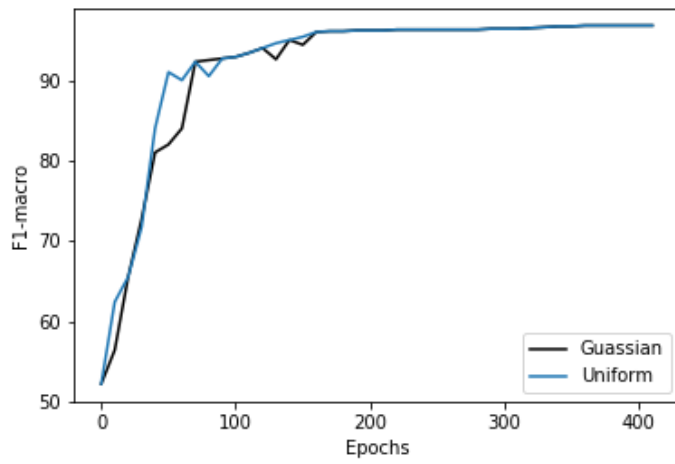
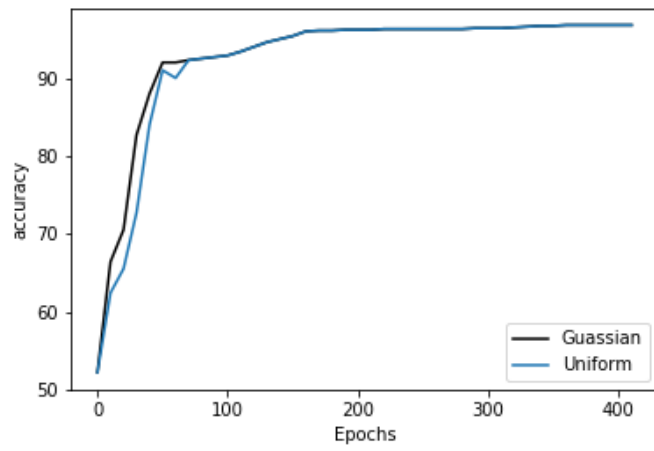




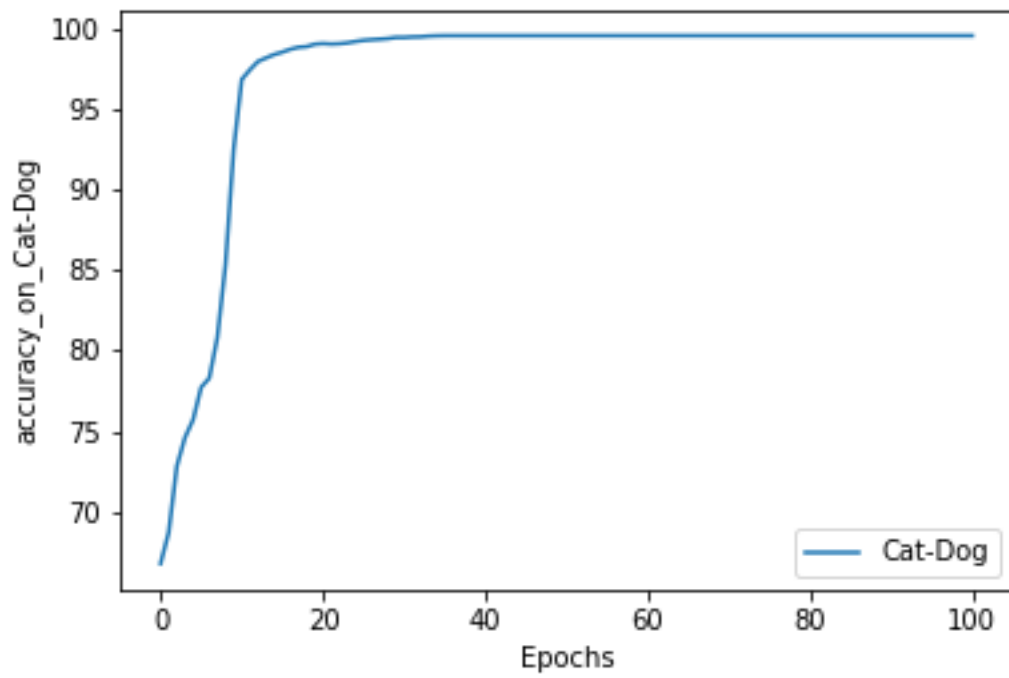
### Task 3



## Task 4



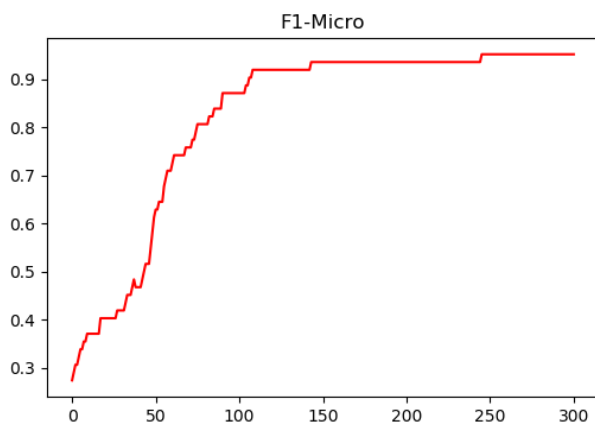
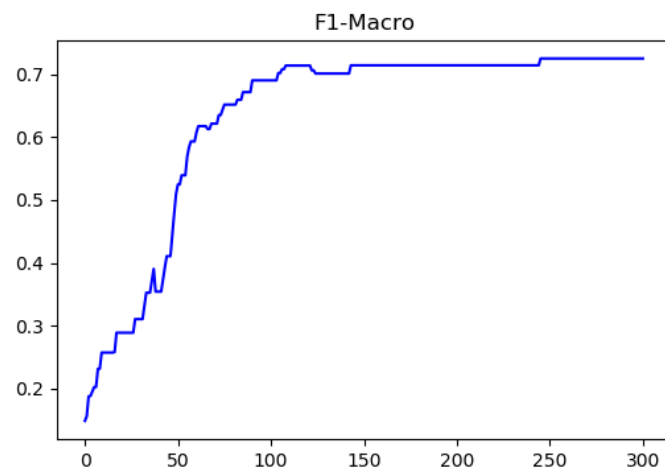
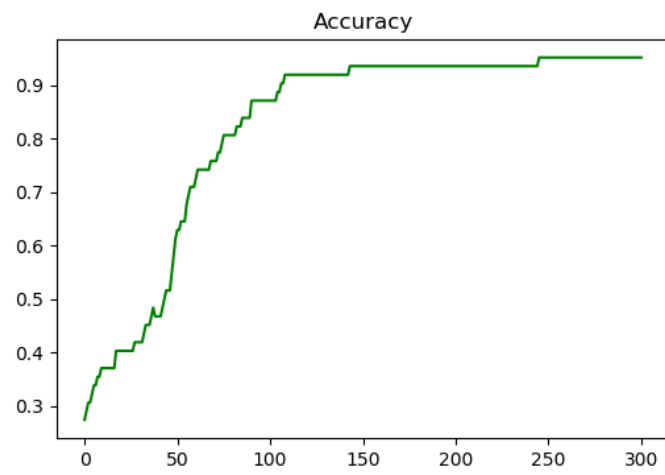
## Task 5



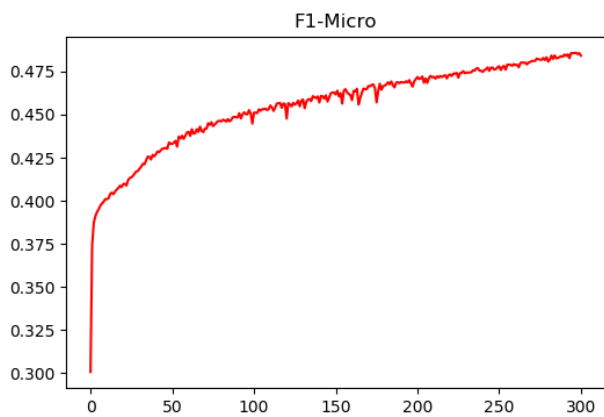
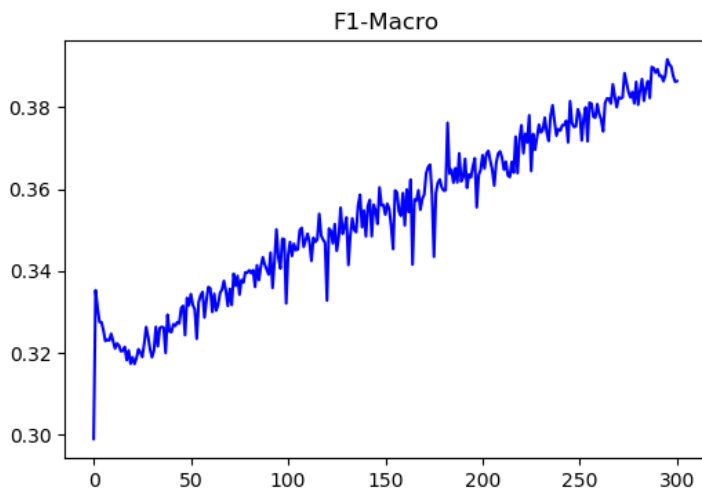
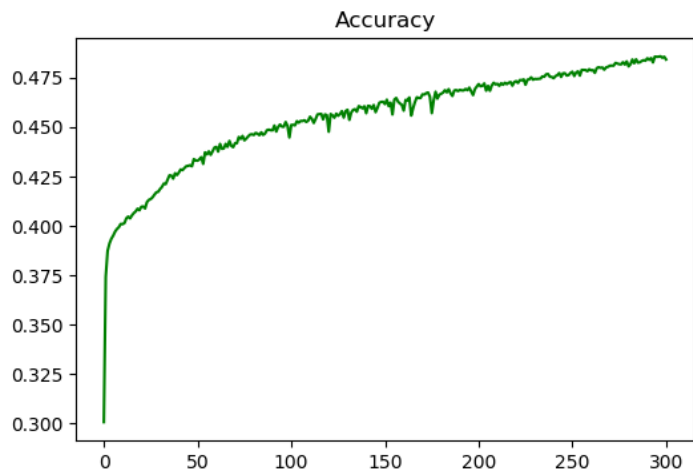
## Part Three

### Plots

### Dolphin Dataset



## Pubmed Dataset



## Twitter Dataset

