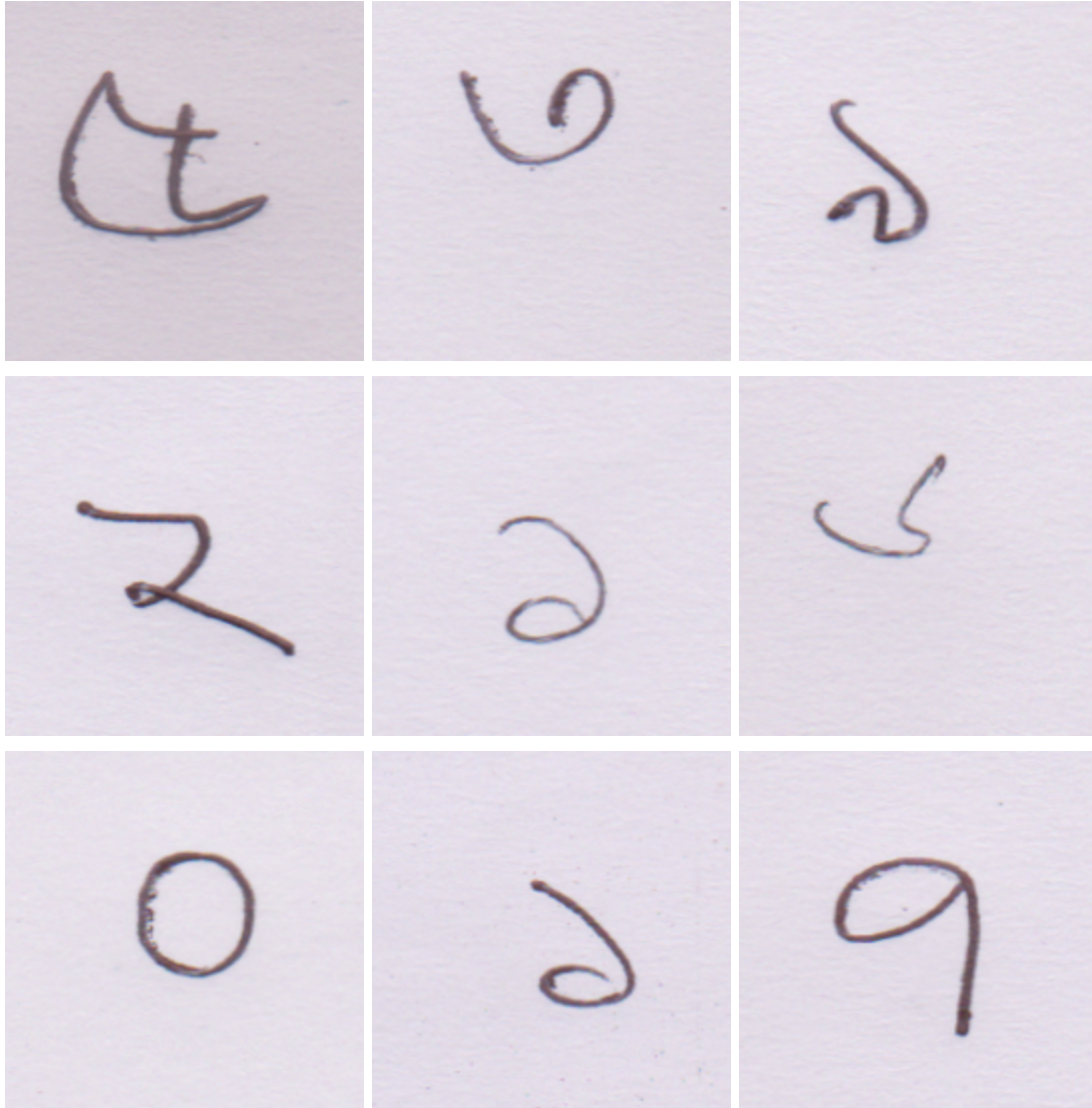


CNN From Scratch

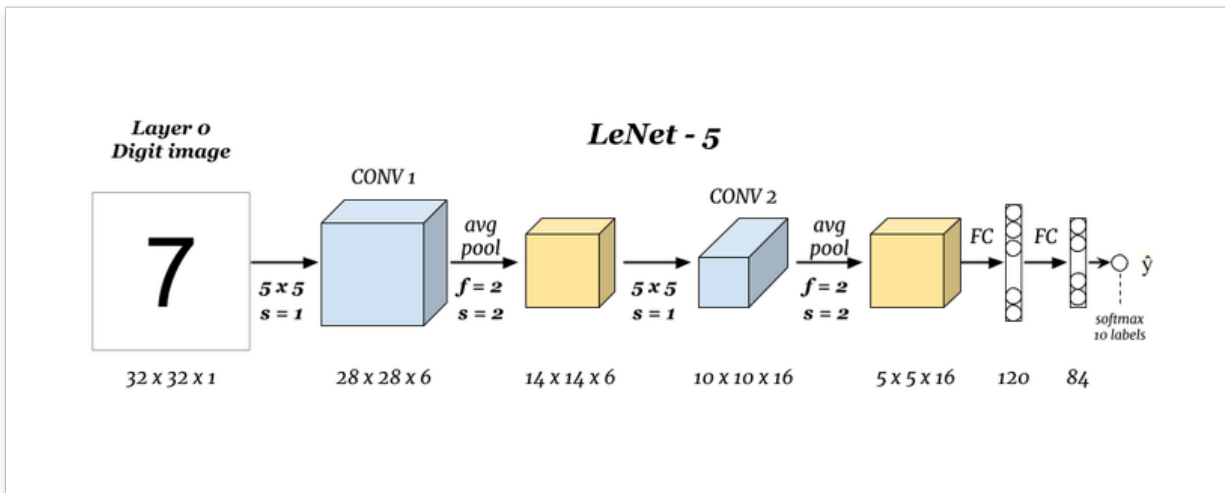
Student ID : 1705098

Task : Bangla Digit Recognition

Dataset : I have used NumtaDB dataset from kaggle. Find it [here](#)



Model Architecture : LeNet-5



HyperParameters :

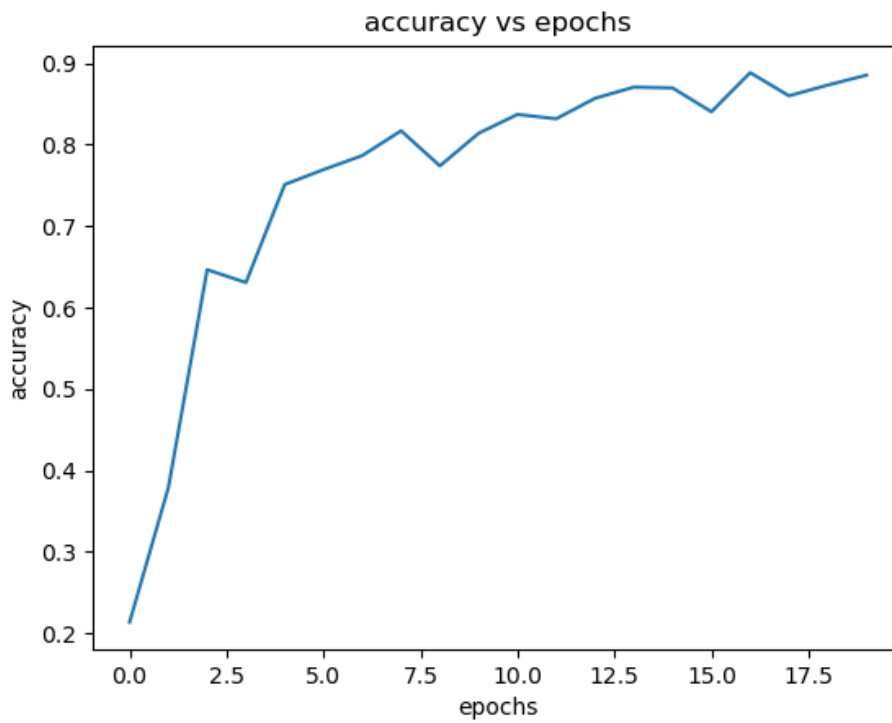
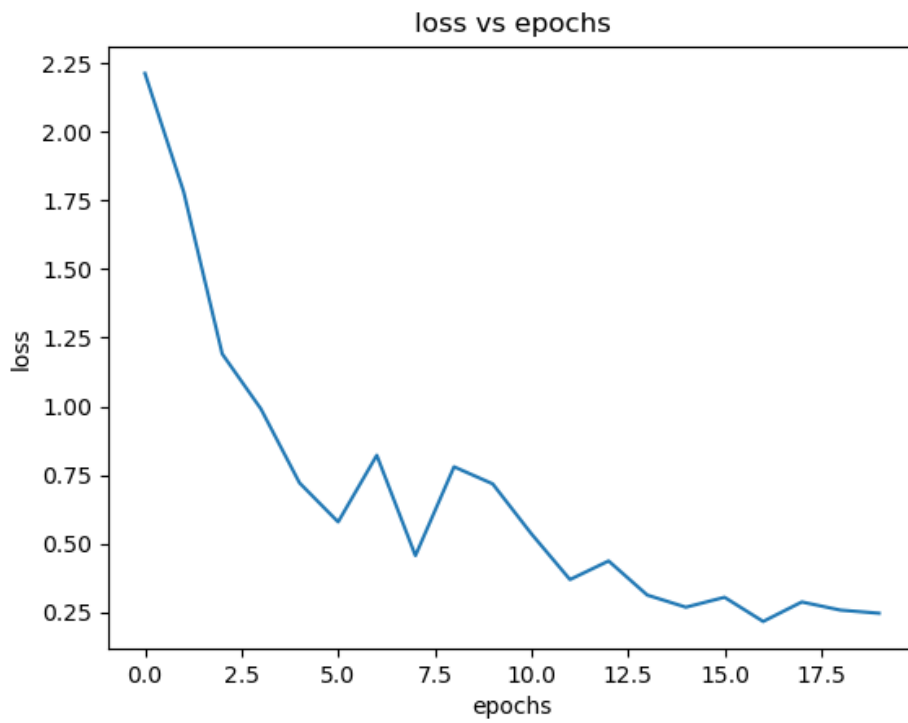
- Batch size : 32
- Learning Rate : 0.01
- No of Epochs : 20

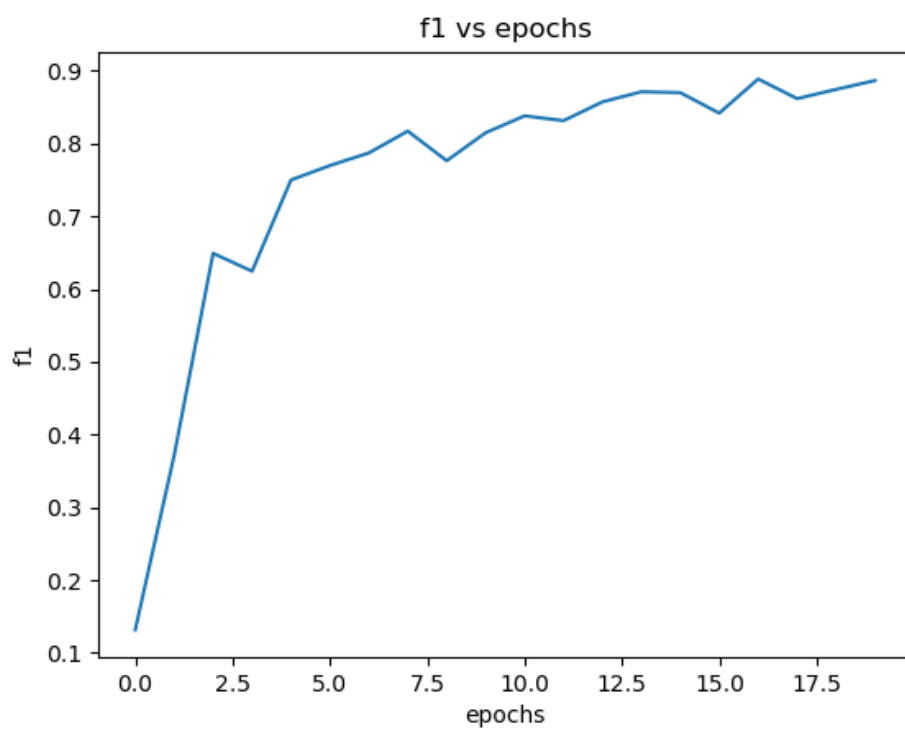
The model was trained on the images from 3 directories: [training-a](#) , [training-b](#) , [training-c](#)

After 20 epochs , 90% validation accuracy was achieved

```
100%|
Epoch: 20, : Loss: 0.1990176829255521 Accuracy: 0.9005076142131979, F1: 0.9014719015344586
```

Graphs:





Performance On Test dataset

The model was tested on the images of directory [training-d](#)

Classification Report:

	precision	recall	f1-score	support
0	0.76	0.89	0.82	1107
1	0.71	0.83	0.77	1107
2	0.72	0.92	0.81	1107
3	0.78	0.76	0.77	1107
4	0.92	0.47	0.62	1107
5	0.90	0.39	0.54	1107
6	0.90	0.56	0.69	1068
7	0.86	0.91	0.88	1075
8	0.62	0.98	0.76	1086
9	0.65	0.80	0.72	1037
accuracy			0.75	10908
macro avg	0.78	0.75	0.74	10908
weighted avg	0.78	0.75	0.74	10908

Confusion Matrix

