COL774- Assignment 2.2 CNNs

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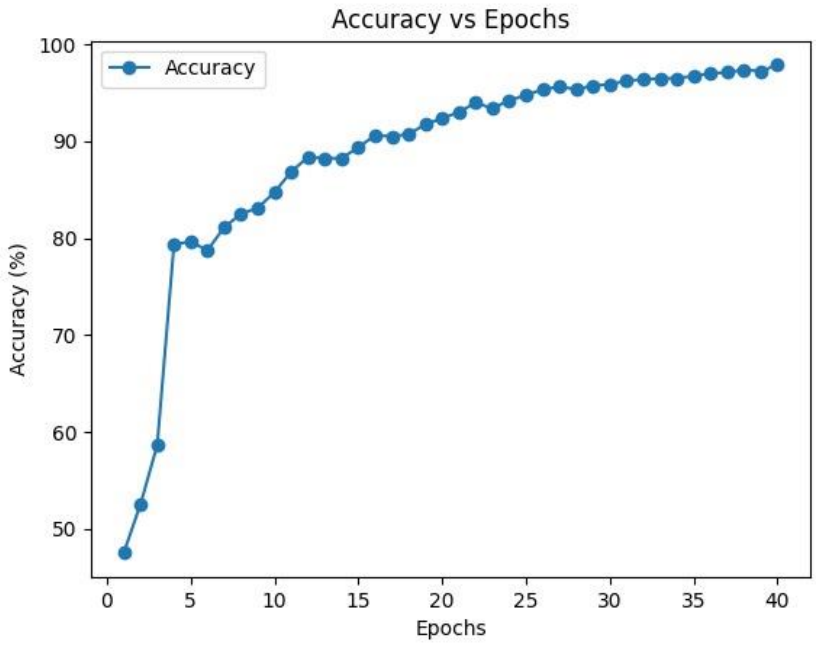
Introduction

This report describes the observations, methods of analysis and design decisions taken in in implementing Convolutional Neural Networks(MLPs) for binary as well as multiclass classification in the context of classifying images of handwritten text in one of eight regional Indian languages.

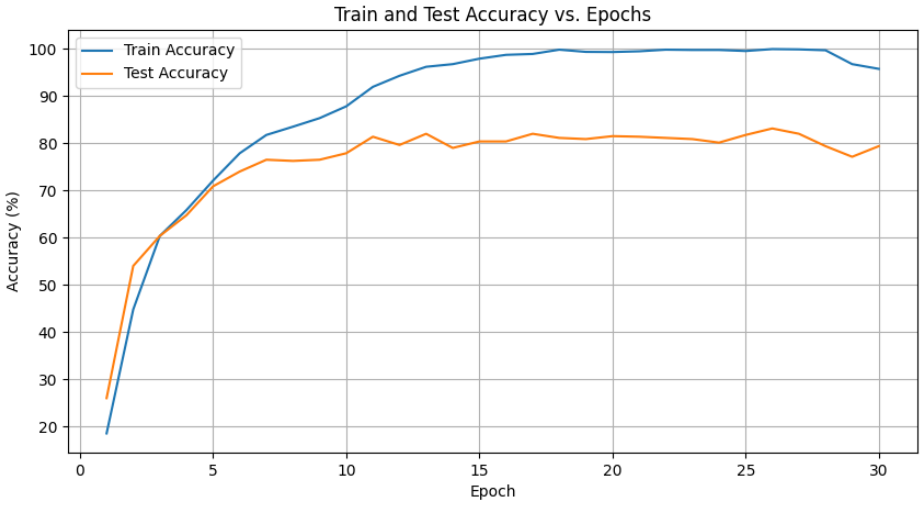
Part-A

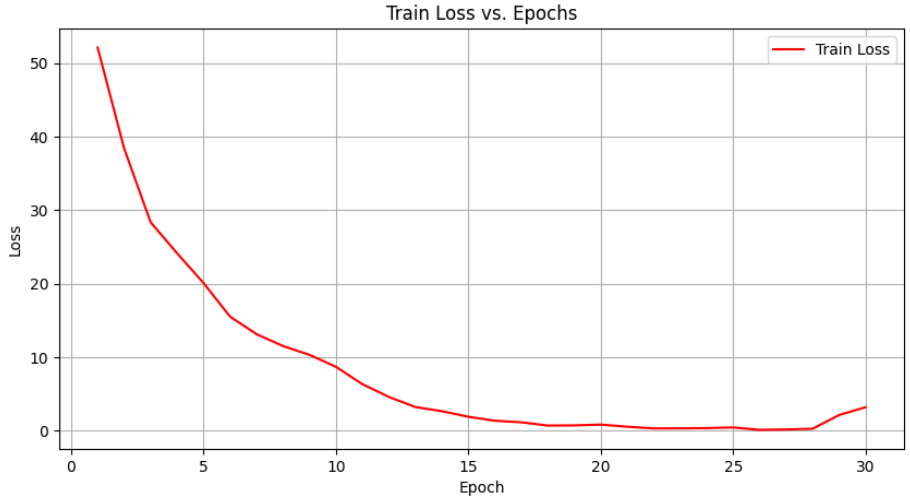
- This part did not involve any significant design decisions. We simply implemented the architecture specified using Pytorch which makes the process very convenient.
- The public test accuracy was found to be 80.50%
- The variation of training loss, training set accuracy and test set accuracy with the number of epochs was as follows:



Part-B

- This part did not involve any significant design decisions.
- The public test accuracy was found to be
- The variation of training loss, training set accuracy and test set accuracy with the number of epochs was as follows:





Part-C

- We have used Adam optimiser as it leads to better results in general than AdamW and RMSProp. The learning rate value of 0.001 was chosen manually.
- ReduceLRonPlateau scheduler was used. Other options such as cosine annealing were alos explored but their results were not as good. This improved the training speed significantly. The parameters chosen were patience = 3 and factor = 0.5 which are considered default parameters.
- Batch normalisation and dropouts were incorporated into the final model
- Final accuracy achieved at the end of 50 epochs was 94.75%.