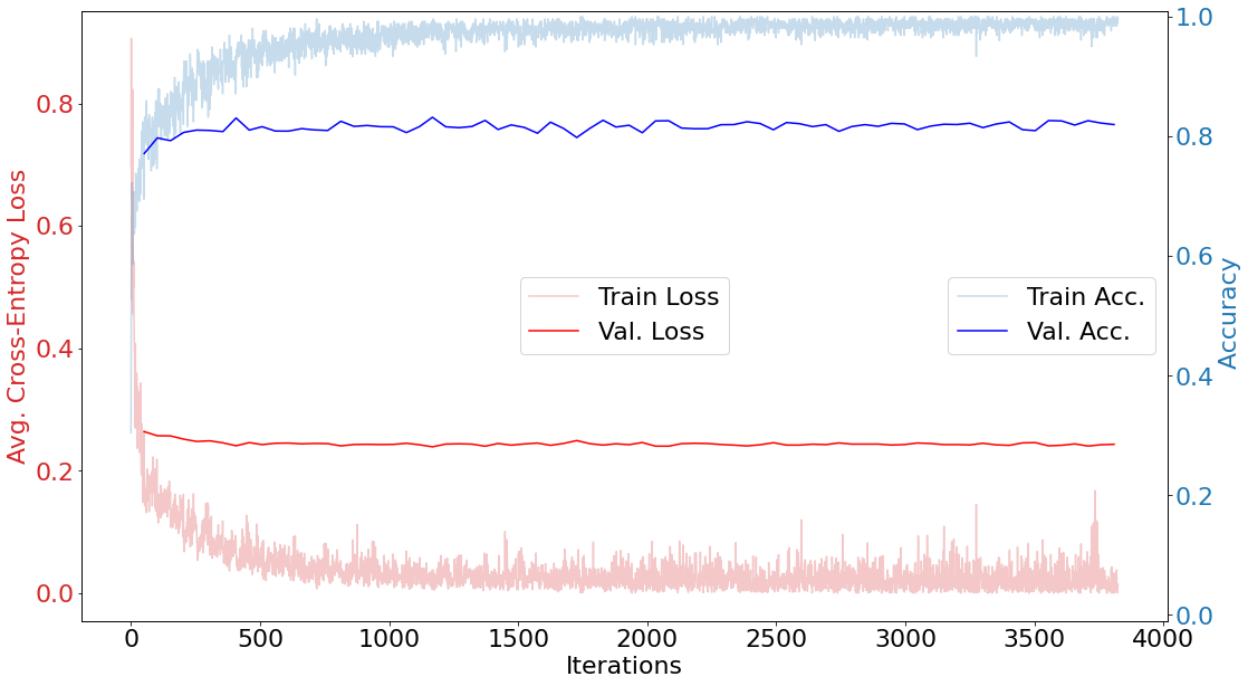
✓ Training plot generated by the code:



✓ Final test accuracy:

82.44%

Loss, training acc, validation acc in the last epoch (75th):

2023-05-07 22:46:48 INFO [Epoch 74] Loss: 0.04055 Train Acc: 96.4% Val Acc: 81.96%

✓ Written discussion: Tuning of parameter:

- Initially, I tried with data (non-normalized) and observed that the accuracy is around 35% and loss has values "nan". I think the model is diverging instead of converging.
- Then, tried with X_train/255.0 – 0.5 normalization approach for train, validation, and test. I see that the validation accuracy in the last epoch is 81.93% and test accuracy is 80.72%
- Later I tried with mean, std deviation way of normalization for train, validation, and test. Although there isn't significant difference in overall accuracy, but I feel that this way of normalization helped in not little overfitting and the final test accuracy is around 82.30%
- The above all data normalization things I tried with a learning rate of 1e-3, width as 256, and batch size 64.
- Later I tried with learning rate 1e-4 and observed that validation loss is not reducing, and the model is overfitting.

- After that I tried with learning rate 1e-2 and can see that model is not converging and the final test accuracy is around 40%.
- Finally with mean, std way of normalization of data, I have fixed the learning rate as 1e-3 and increased the width as 512, and batch size 256. This combination gives me the final test accuracy as 82.44%.