Assignment 3

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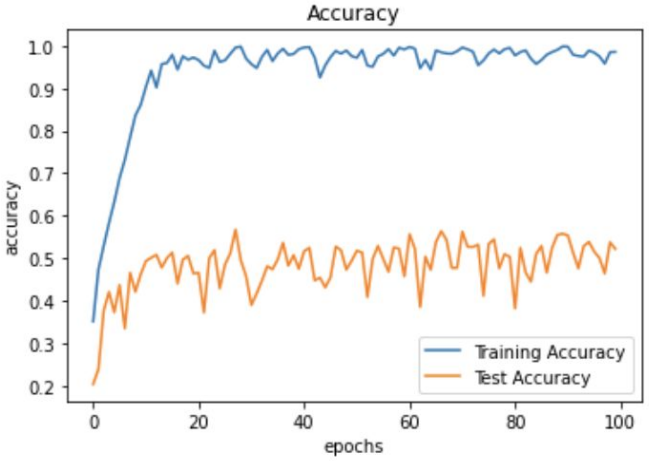
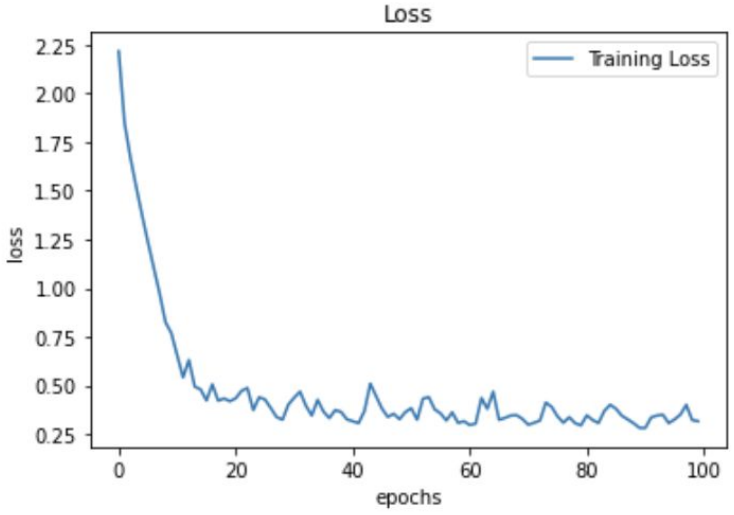
Deep Learning: Assignment 2
Date: 05/30/2020

Q1.

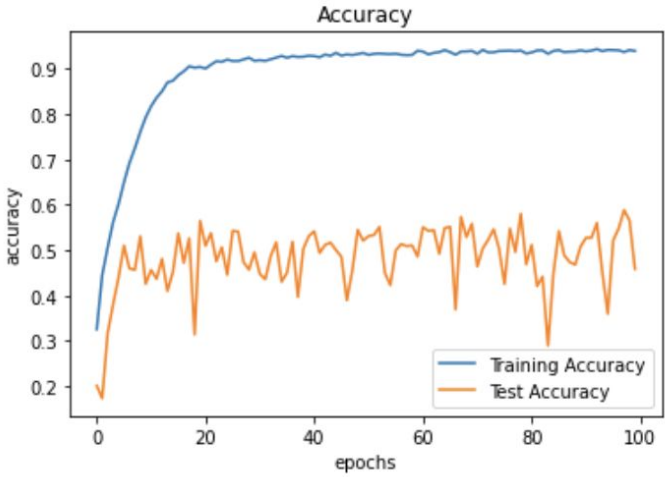


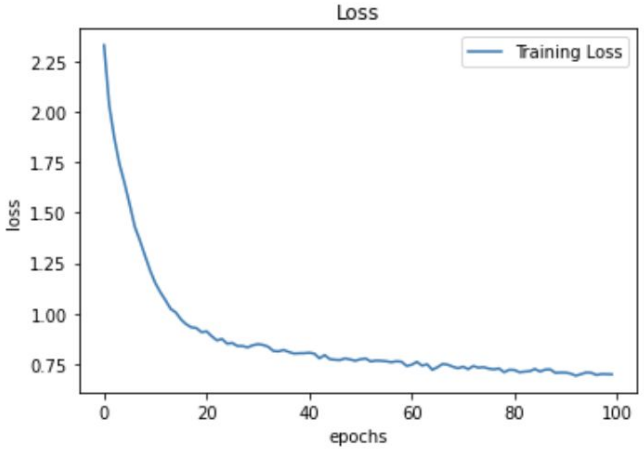


Test Accuracy: 52.21%

Q2.

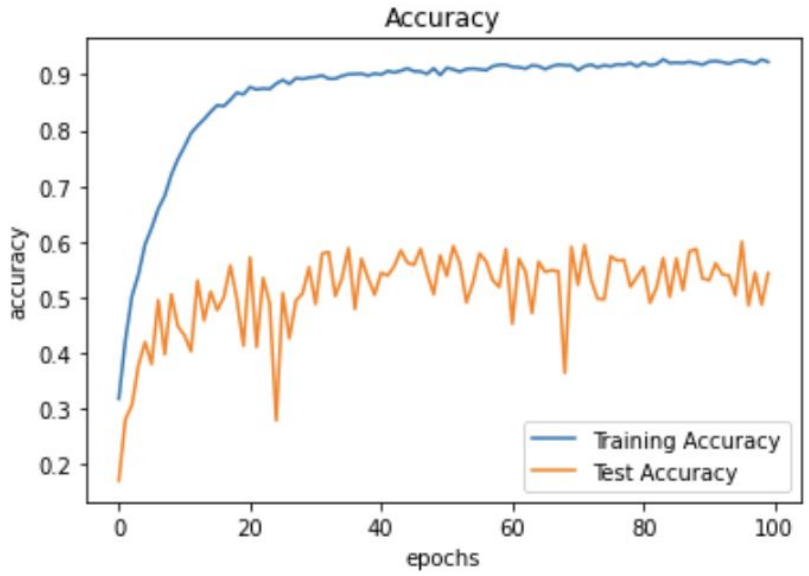
a) □ = 0.2

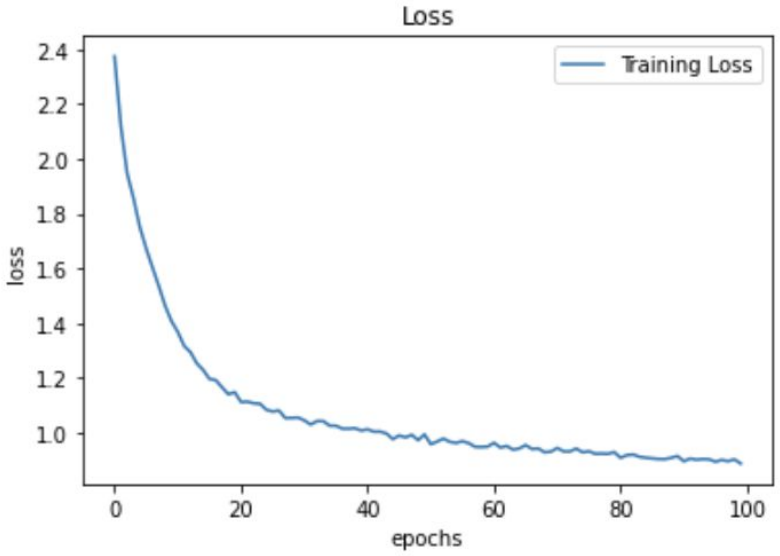




Test Accuracy: 50.66%

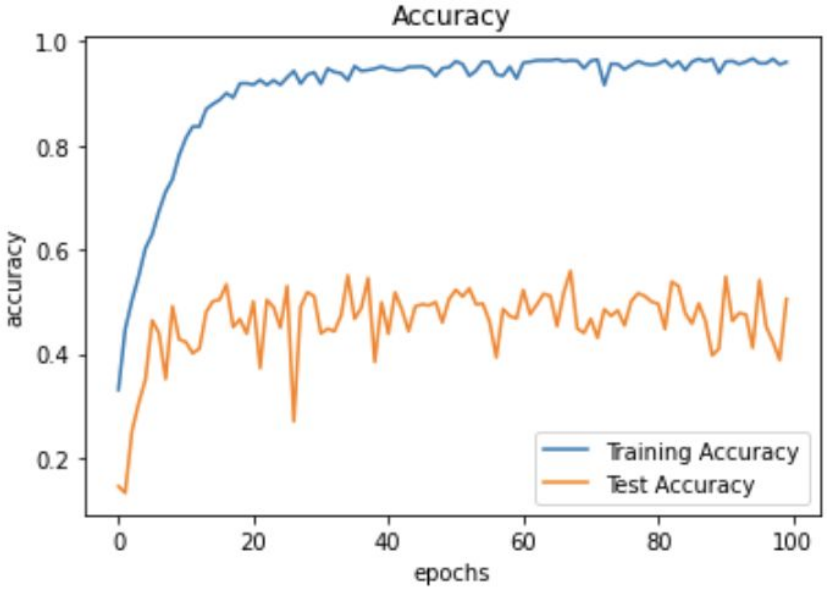
b) □ **= 0.4**

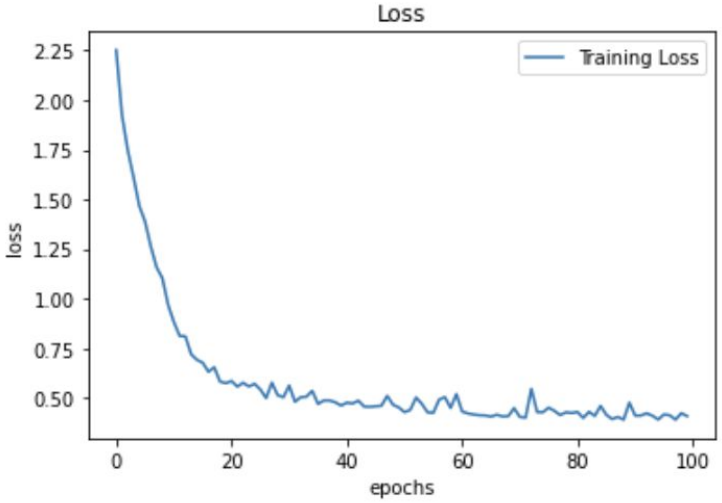




Test Accuracy: 54.35%

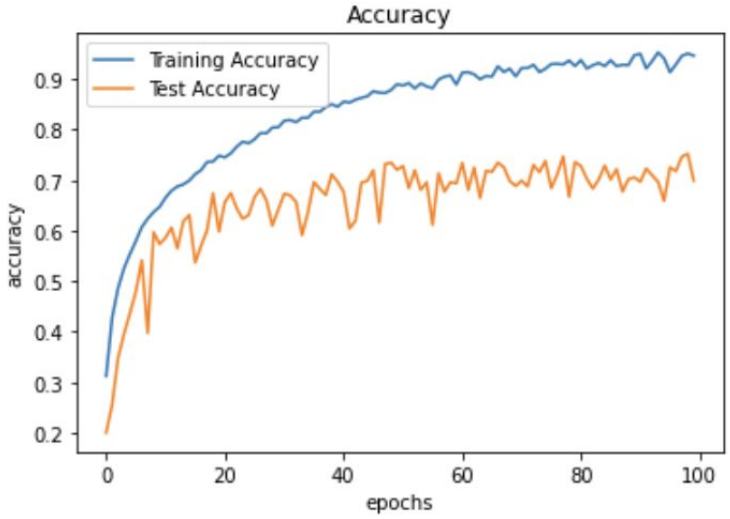
Q3.

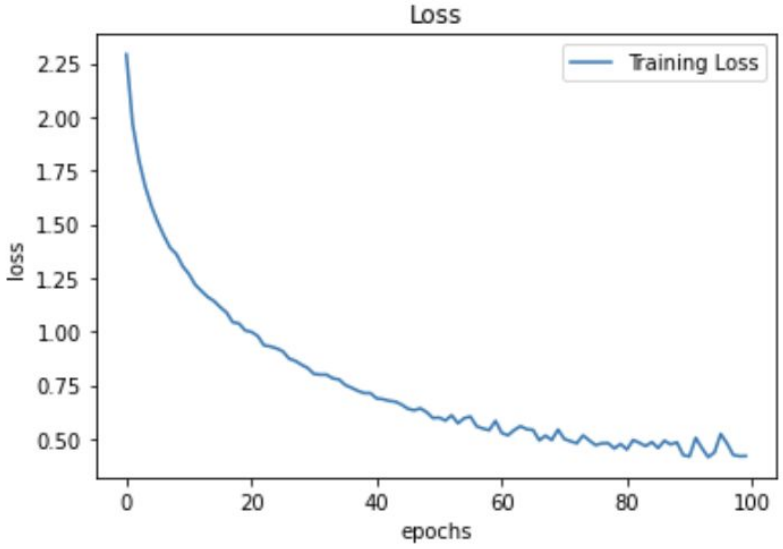




Test Accuracy: 50.52%

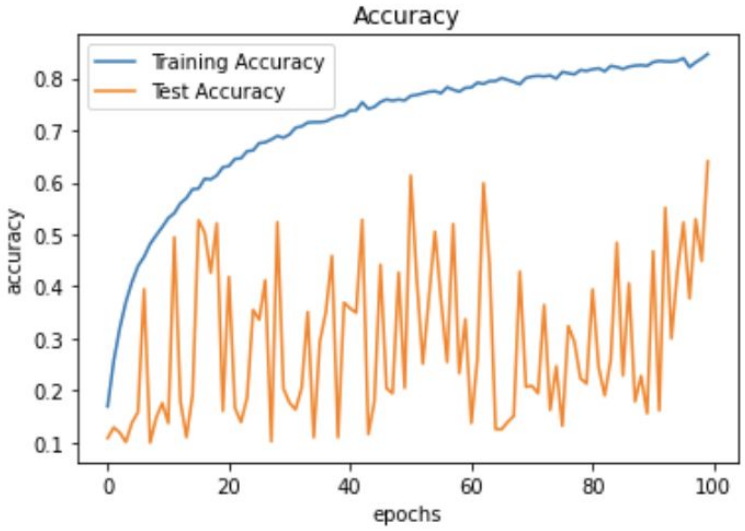
Q4.

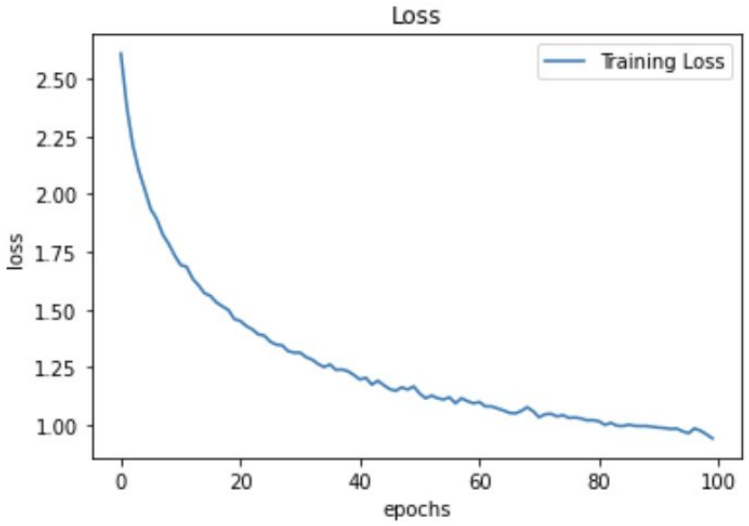




Test Accuracy: 69.90%

Q5.





Test Accuracy: 64.02%

Does combining improve things further?

Yes. Based on the above results, after combining the different augmentations together, the accuracy does seem to be improving compared to most of the augmentations.

Q6. (2 pts) Comment on the role of data augmentation. How does it affect test accuracy, train accuracy and the convergence of optimization? Is test accuracy higher? Does training loss converge faster?

From the above experiments, the data augmentations do improve the train, test accuracy. But also, we can say that not all augmentations improve the Train and Test Accuracy. I think it depends on the dataset and the augmentation.
Yes, the test accuracy is higher in case of all the augmentation used together.
Also based on the graphs above, the training loss in case of augmentation used does not converge faster than without augmentation.