



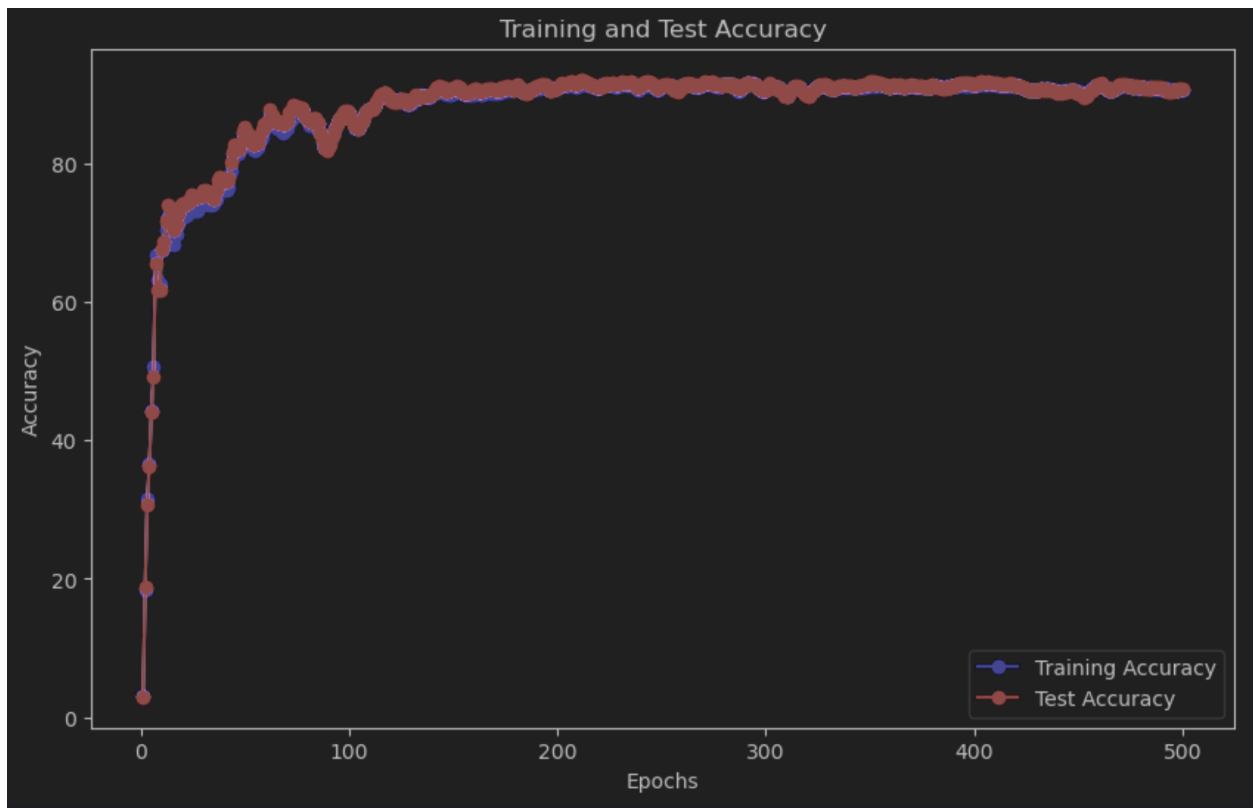
# Programming Project #2

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## Task One:

*Accuracy Performance:*

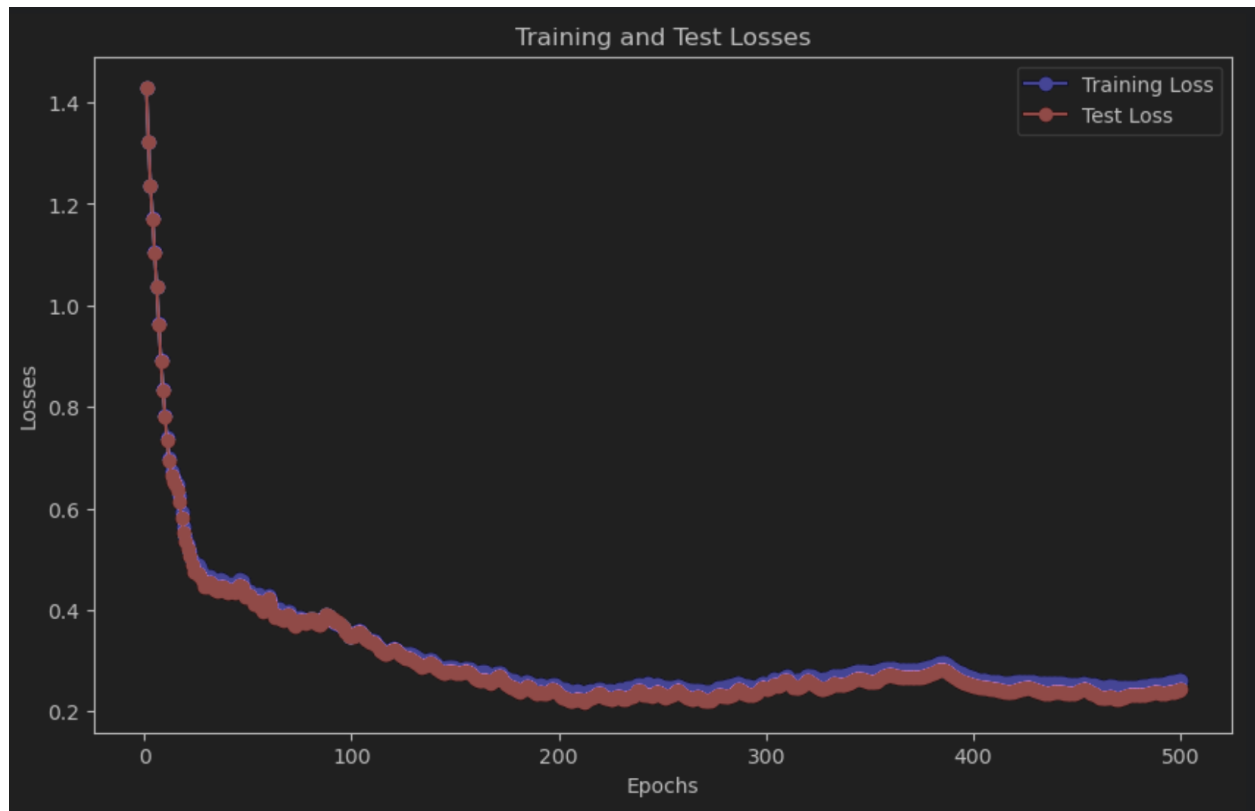


## *Commentary:*

As we see in the graph, neither the test nor train accuracy diverge from each other dramatically at any point, especially during the later epochs. This suggests the model is neither under- nor over-fitted, while still reaching a train and test

accuracy of 90%+ by the 140th epoch. Further epochs continue to improve upon the accuracy, though returns diminish considerably past 300 epochs.

### *Loss Performance:*

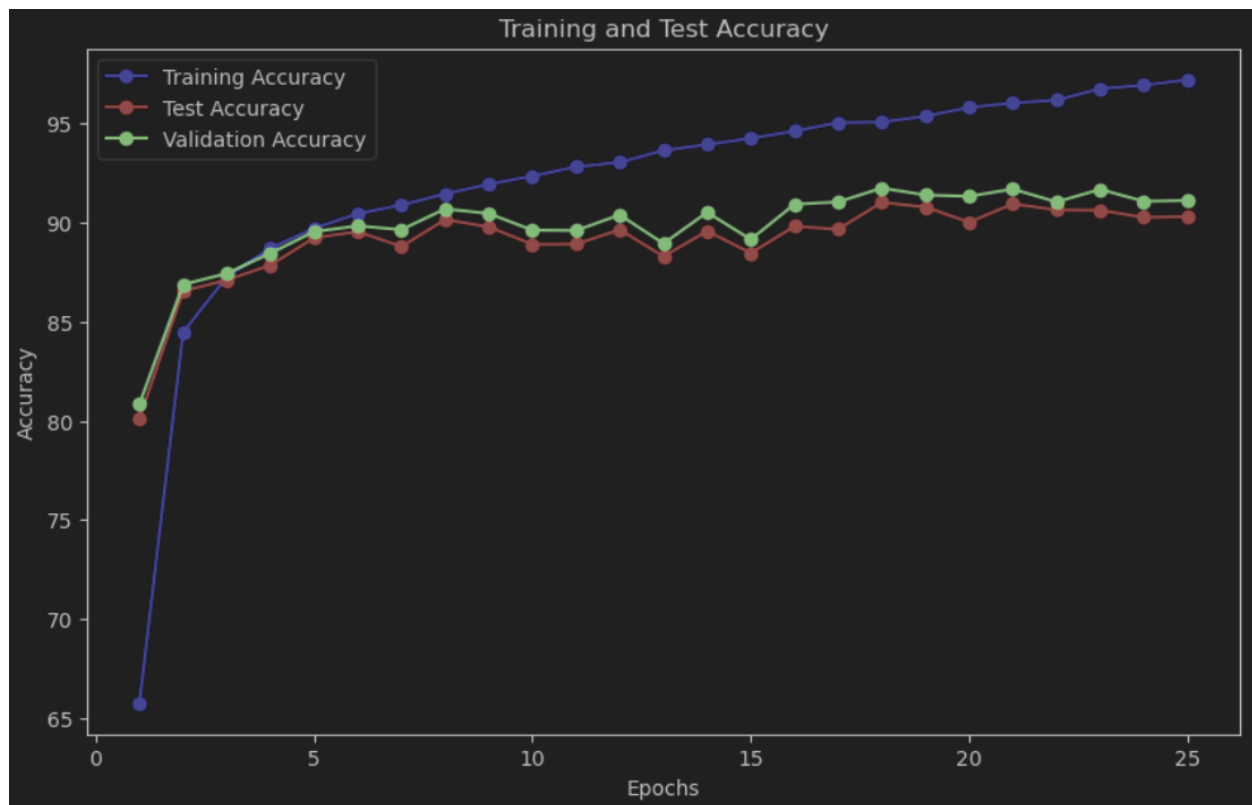


### *Commentary:*

As with the accuracy graph, the loss performance indicates the model converges well, and does not suffer from under- or over-fitting. However, unlike the prior graph, the training and test losses continue to fluctuate throughout the duration of the epochs.

### **Task Two:**

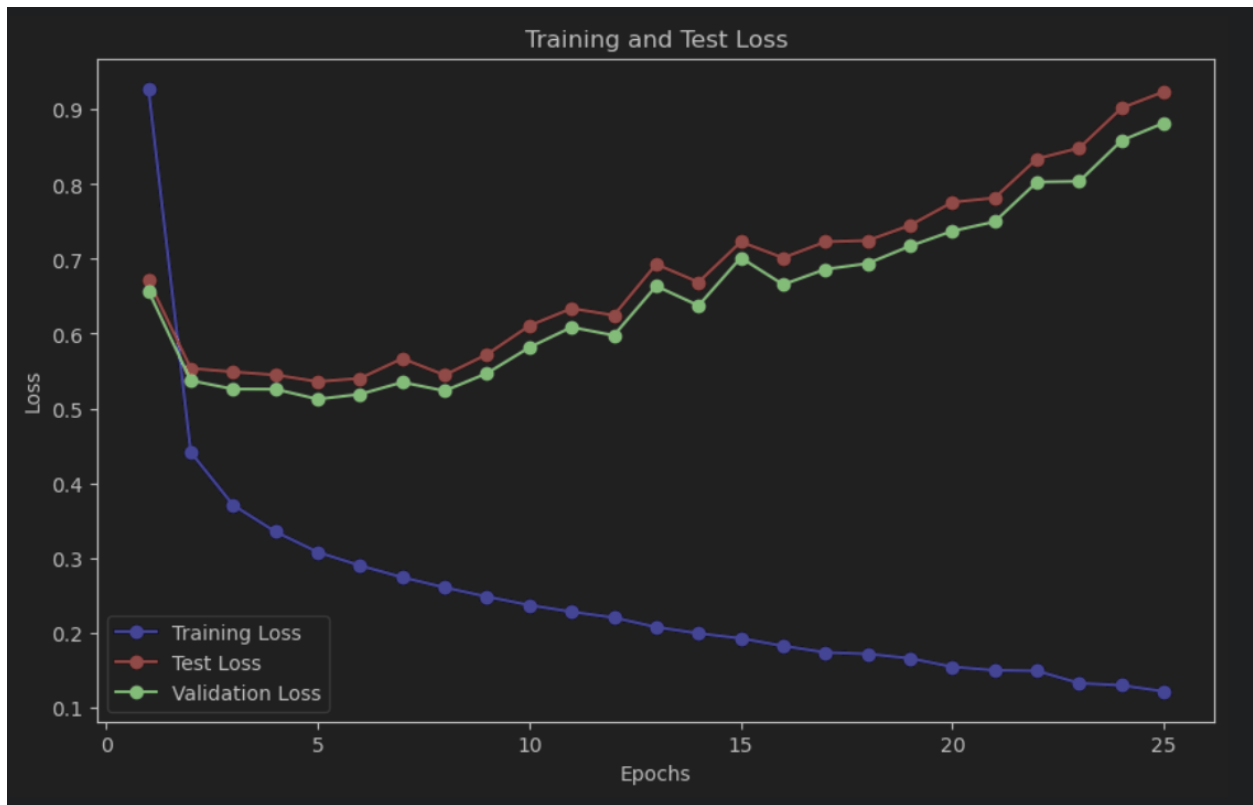
#### *Accuracy Performance:*



### *Commentary:*

The training accuracy in the graph above indicates the model becomes very accurate over 25 epochs when analyzing the training set. However, the test and validation accuracies plateau around 90% and never make it past. In fact, the training and validation accuracies do not reach consistently higher values after the 8th epoch. Overall, the model is generalizing well, and the accuracies do not indicate it is being ruined by over-/under-fitting.

### *Loss Performance:*



### Commentary:

The training loss in the graph above decreases considerably and continuously throughout the 25 epochs. This indicates the model is learning well how to identify images from the training set. However, the test and validation losses increase throughout the duration of execution. This is a classic sign of overfitting, and indicates the model could be further improved by tweaking dropout layers or altering the regularization equation.