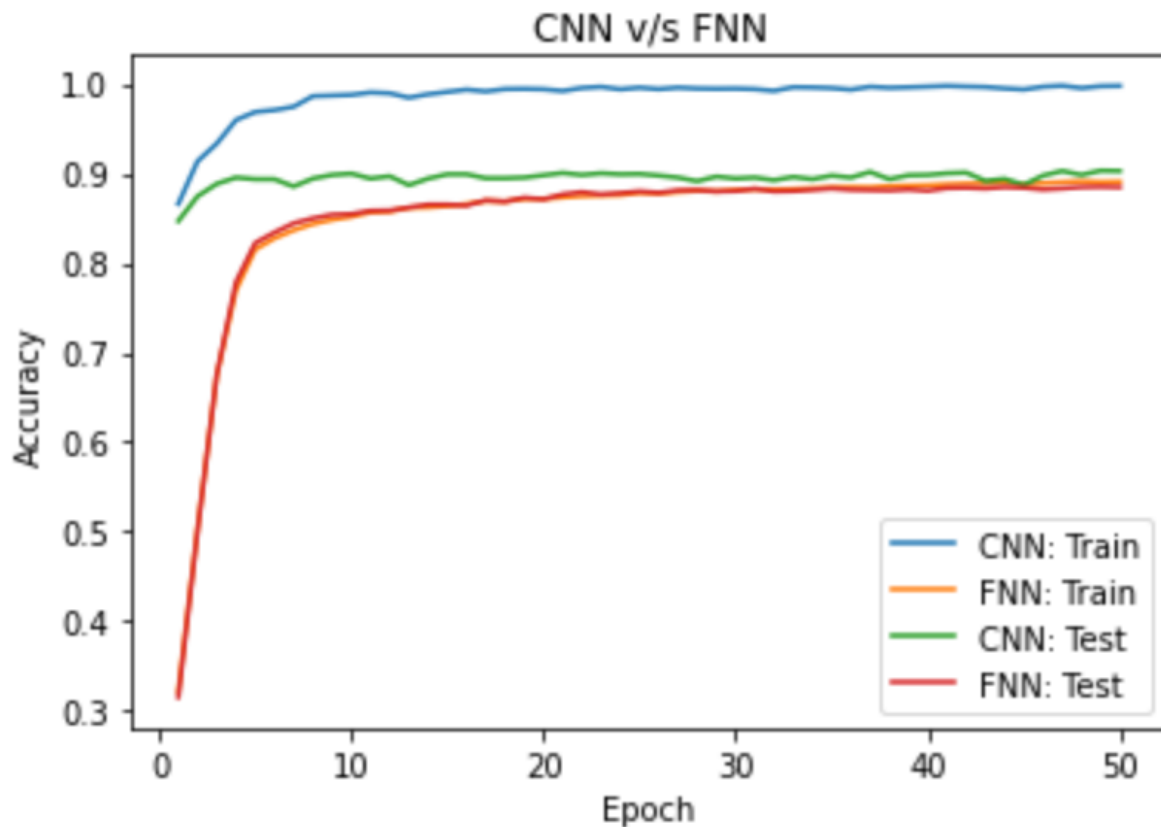# Results From Experiment 1:

The FNN's training and testing accuracies go hand-in-hand meaning the model is not over-fitting and learning the data well, however, it can only reach a peak of around 87 percent. Looking at the CNN model, we see that it quickly learns the available data i.e. at very early number of epochs, and provides steadily good testing accuracy.

These point to the fact that CNNs perform image-related tasks much better than fully connected layers.

Results From Experiment 2:


Different Dropout Rates
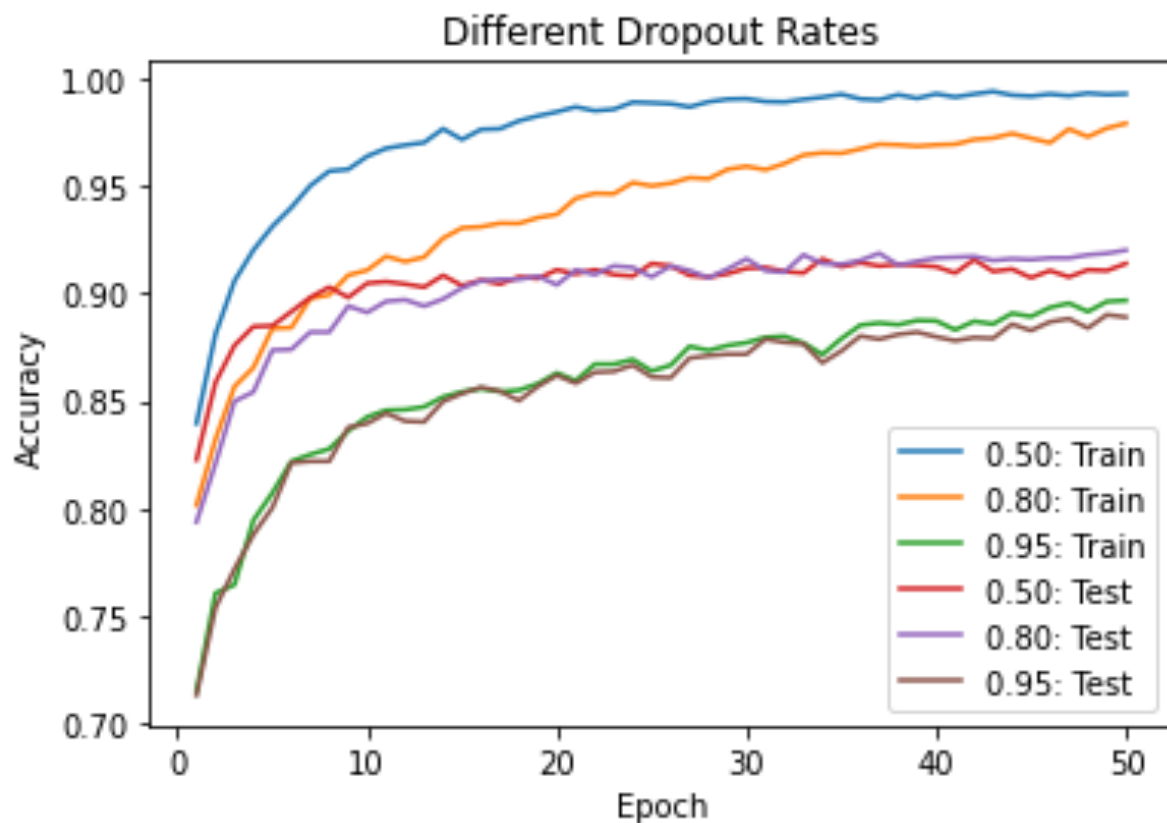
The general purpose of dropout is to prevent over-fitting on the training data by ignoring randomly selected neurons with a certain probability, during training of the model.

Keeping that in mind, the higher dropout rates i.e. 0.95 result in the model saturating at a low training accuracy indicating in-sufficient training. Coming to dropout rate of 0.50, we see better accuracy and finer curve that saturated very early on.

The most interesting results come from droput rate of 0.80 in which we see that the model has not saturated i.e. there is room for training while the testing accuracy are already similar to those obtained in the previous model. The testing accuracy might also increase very slightly if trained for more number of epochs.

Results From Experiment 3:

Different Weight Decays
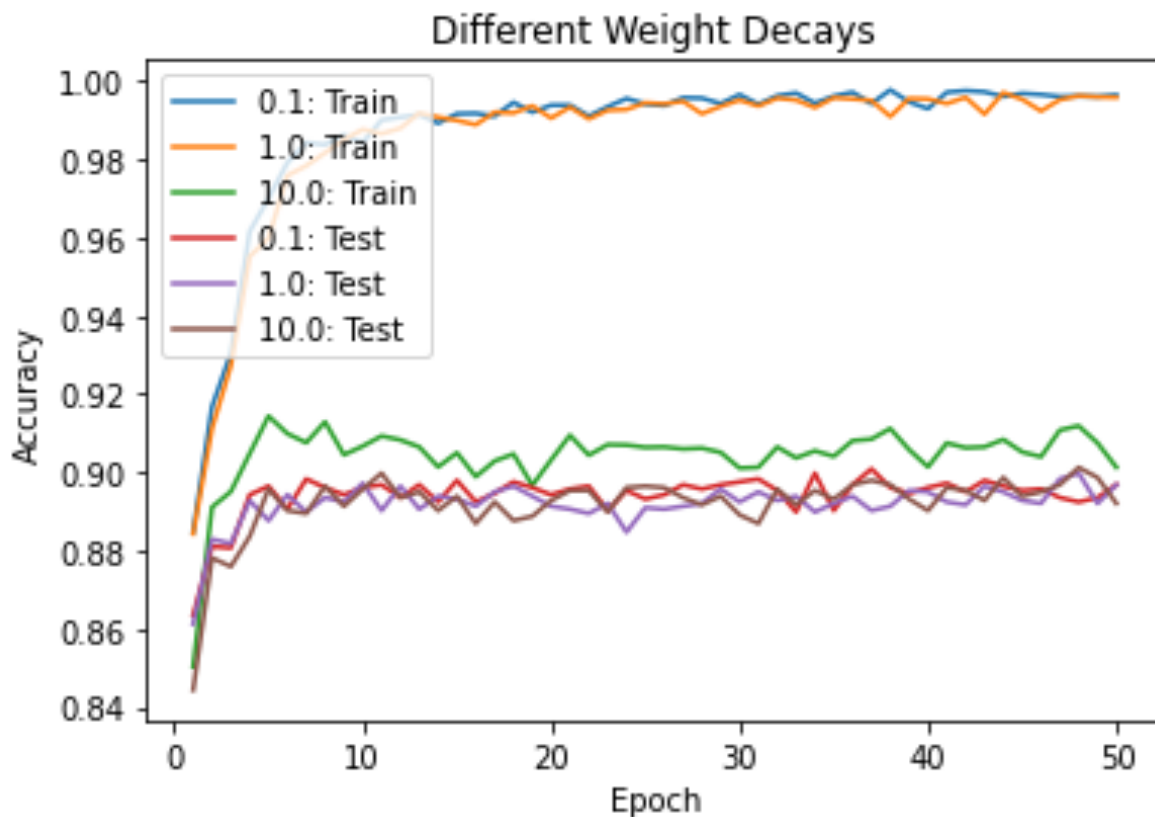
Weight decay is another regularization technique that prevents model weights from blowing up, and forcing the model to learn from smaller weight values. From the plot, we notice that using a weight decay parameter of 10 is too much as the model gets stuck at a very low training accuracy. For the other two values, training accuracies saturate very early on.

Looking at the testing accuracies, results are similar for all three values at first glance, both in peak values and in their fluctuating nature. However, the testing accuracy for 0.1 smooths out at the end compared to the those for other two values. The decision of which value is better can only be taken by training for more number of epochs and take note of the long-term trend.