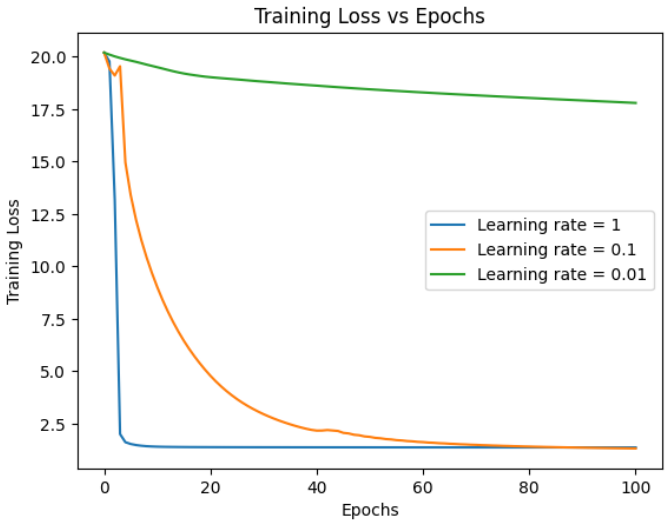
Name: W.A.R.T.Fonseka

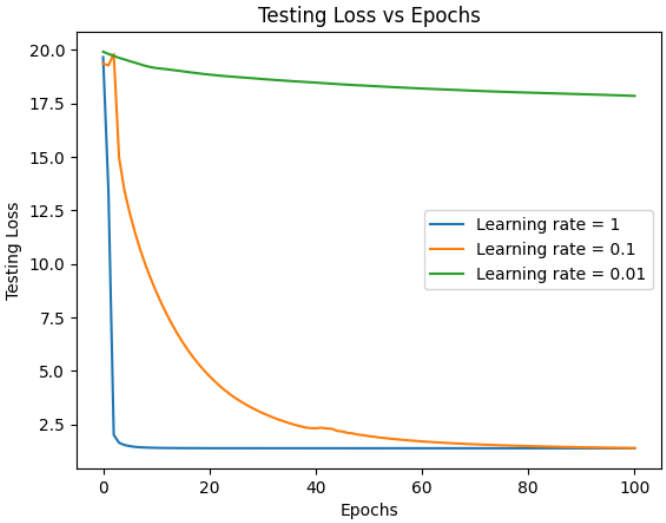
Index: 210170G

CS3630 Assignment 1

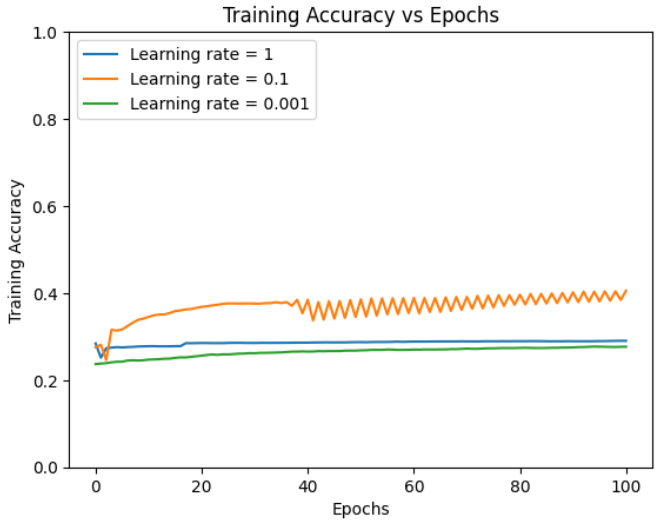
Task 2 -Report

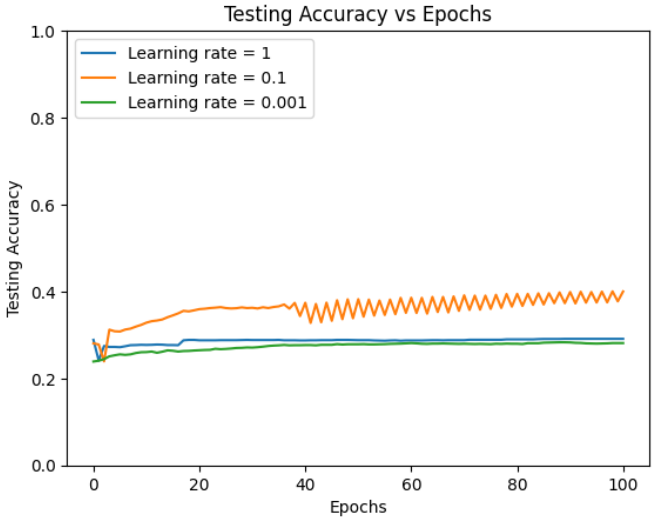
Training and Testing cost w.r.t. iterations





Train & test accuracy scores w.r.t. iterations





The choice of learning rate is critical in determining the performance and convergence behavior of neural networks. A higher learning rate can lead to faster initial convergence, but it tends to be unpredictable and may cause the model to overshoot the optimal parameter values, leading to divergence in the loss function. On the other hand, lower learning rates are more stable, but they often require a significantly higher number of epochs to achieve effective training, which can be impractical.

In my experiment, I trained the model for 100 epochs, which provided initial insights into the effects of different learning rates. While the network is still in its early training phase, the learning rate of 0.1 has shown the best results so far, balancing convergence speed and model accuracy. It is likely that with more epochs, the differences between learning rates would become even more pronounced, further highlighting the trade-offs between convergence speed and stability. However, based on the current results, 0.1 seems to be the most suitable learning rate for this case.