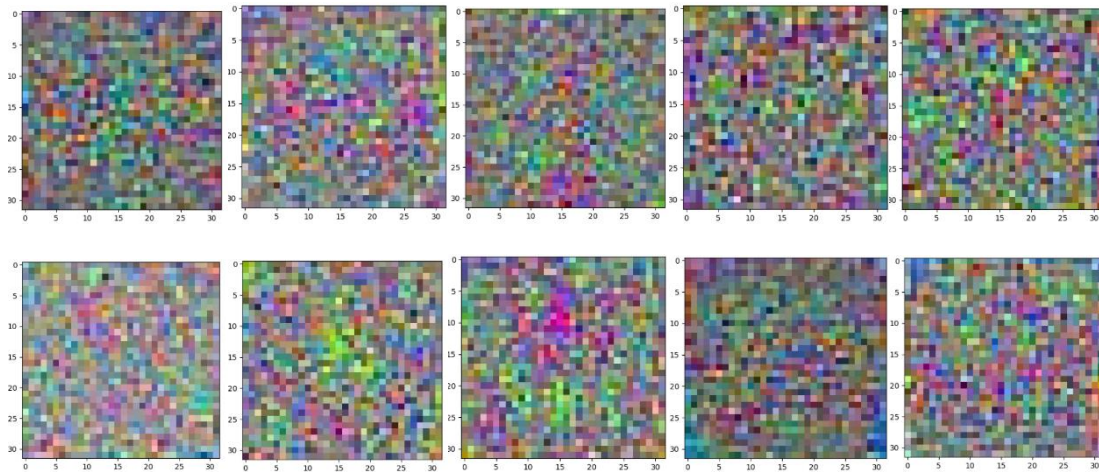
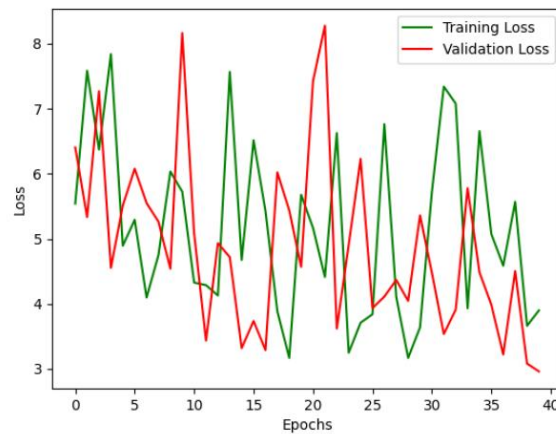


Assignment1 - - - Report

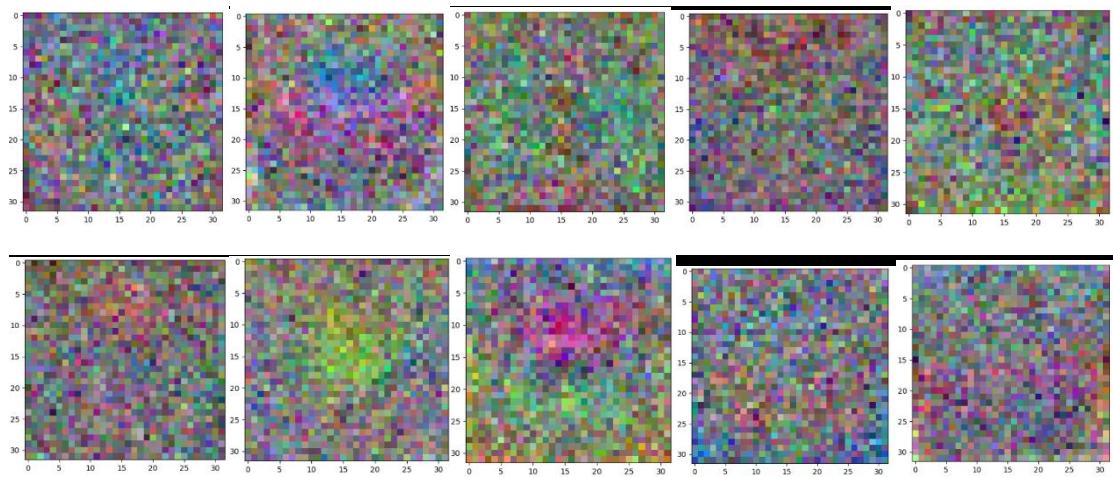
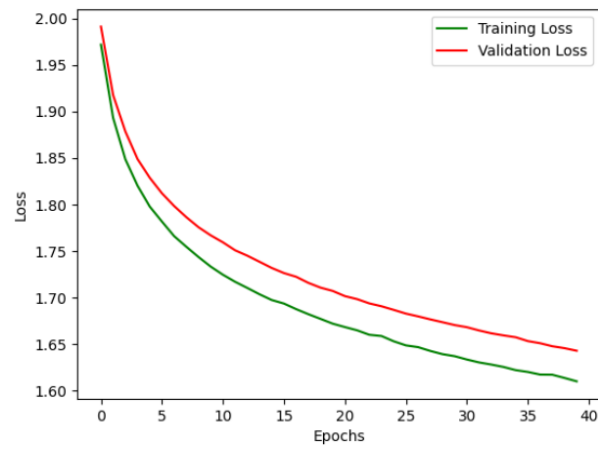
I follow the Assignment1.pdf to finish my homework, and there are some plots to show the results.

Parameters: $\text{lam} = 0$ $n_{\text{epochs}} = 40$ $n_{\text{batch}} = 100$ $\text{eta} = 0.1$



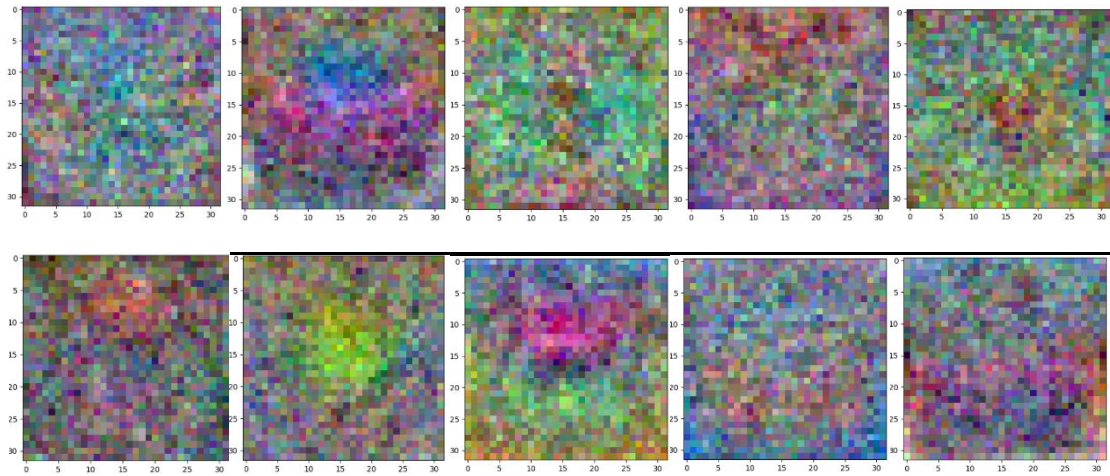
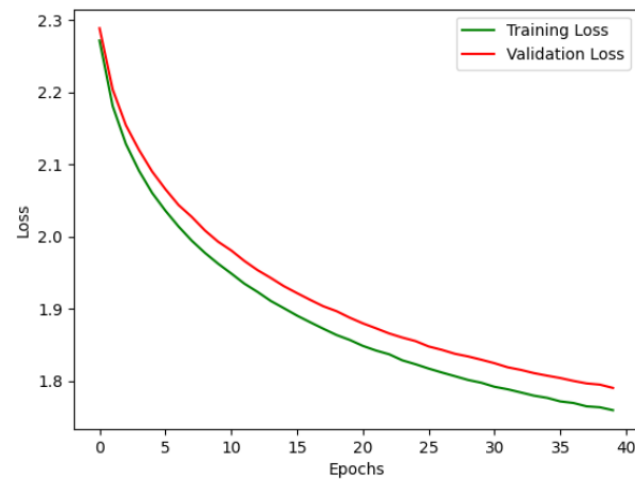
Final accuracy rate in test is 28.97%

Parameters: lam = 0 n_epochs = 40 n_batch = 100 eta = 0.001



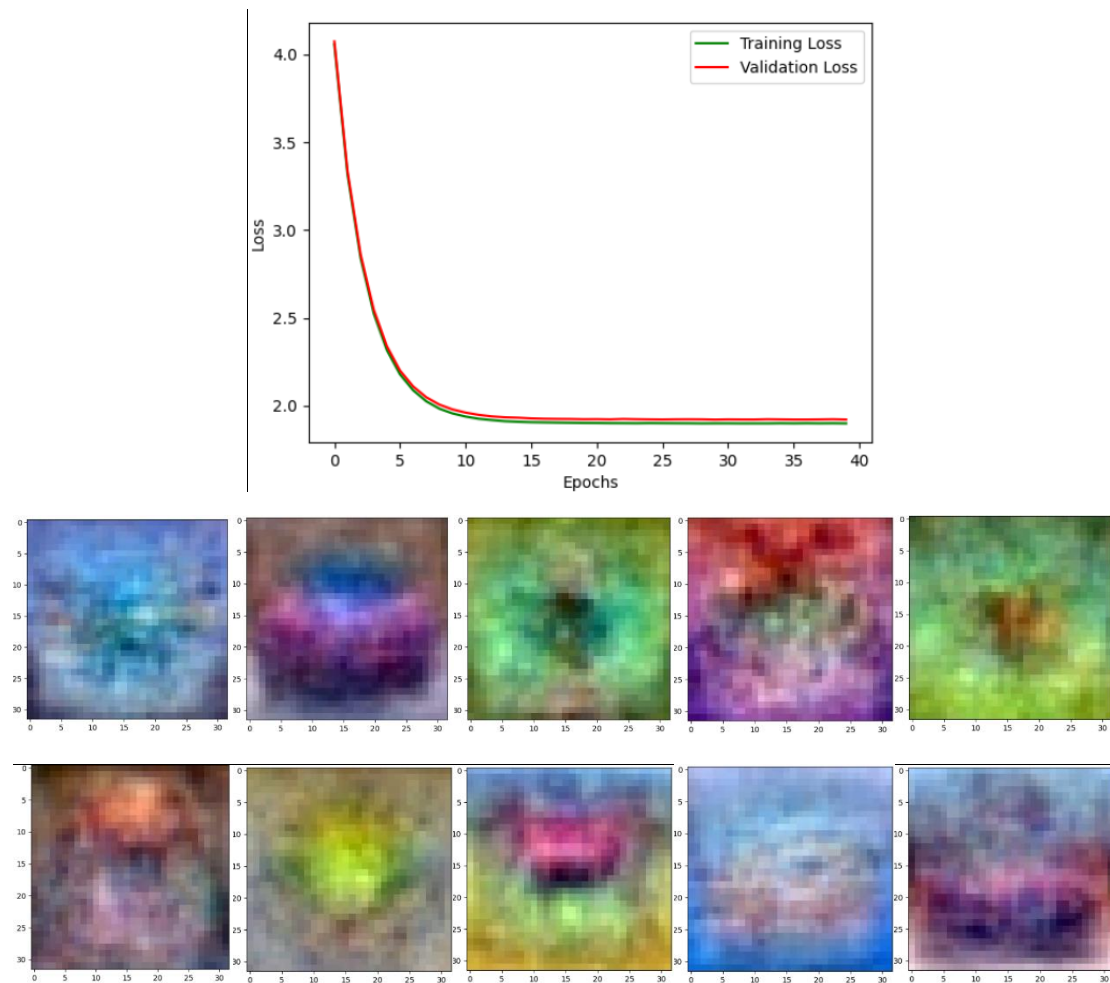
Final accuracy rate in test is 39.48%

Parameters: lam = .1 n_epochs = 40 n_batch = 100 eta = 0.001



Final accuracy rate in test is 39.44%

Parameters: lam = 1 n_epochs = 40 n_batch = 100 eta = 0.001



Final accuracy rate in test is 37.3%

To sum up:

Increasing the lam(regulation parameters) can prevent the **over-fitting**, while the too larger lam will result the **under-fitting**. As for the learning rate, if it is too larger, the unstable is obviously in first plot, while if it is too small, the learning progress is really time consuming, so find a balance a point between lam and learning rate is essential.