Pipeline Model:

Conv2d -> ReLu Activation -> Max Pooling -> Conv2d -> ReLu Activation -> Max Pooling -> Fully connected Network -> SoftMax

Description:

Input image of 28 * 28 pixel as an input to the first layer. First layer is having 32 neurons and filter of size 5 * 5 with ReLu activation which followed by MaxPooling of 2 * 2 with stride 2.

Second layer is having input as a output of first layer and 64 neurons with filter size same as first 5 * 5 and MaxPooling of 2 * 2 with stride 2.

In this assignment, I have used stochastic gradient descent (SGD) optimizer.

Observations:

As we can observed, the model quickly achieves high accuracy and low loss. These observations are by increasing number of epochs. First, model trained with 10 epochs, accuracy comes around 96.4%. After increasing number of epochs to 15 then accuracy turned to 96.75%. Finally increasing epochs to 20, final accuracy comes 97.20%.

Accuracy: 97.20%