Network	C_Training	C_Validation	C_Test	No_Epochs
Network 1	0.3318	0.3978	0.3992	120
Network 2	0.2611	0.2981	0.2956	120

Table 1: The table presents the classification errors on the training set (C_Training), the validation set (C_Validation), the test set (C_Test) obtained for Networks 1-3 as well as the number of training epochs (No_Epochs) that passed before reaching early stopping.

Table 1 represents the classification errors on all the datasets for networks 1-2 and the number of training epochs (No_Epochs) that passed before reaching early stopping. The classification errors on the training sets are low and the classification errors on the validation set and the test set are slightly higher for all networks. The classification errors on all datasets for network 2 are lower than that for network 1.

1 Results and Discussion

The results and discussion are the following-

1. In table 1, we see that the classification error on the training set is low and the classification errors on the validation set and the test set are slightly higher for network 1. So we conclude that the neural network model is almost a good fit.

2. In comparison to the network 2, the classification errors on all datasets for network 2 are lower than that for network 1 because of inclusion of the layers - convolution2dLayer, maxPooling2dLayer and batchNormalizationLayer.

Adding a convolution2dLayer reduces the number of neurons which regularises the network and hence it reduces the risk of overfitting. It increases the classification accuracies.

maxPooling2dLayer helps in reduction of the feature map which not only reduces the computational cost but also overfitting.

batchNormalizationLayer decreases the amount by which the hidden neuron shift. It reduces the risk of overfitting.

Here, the neural network model is a better fit.