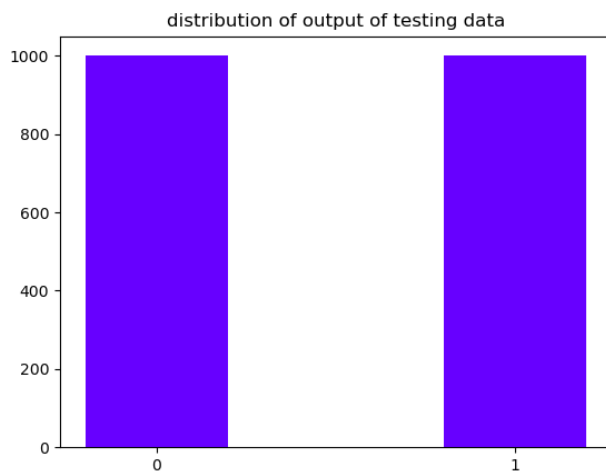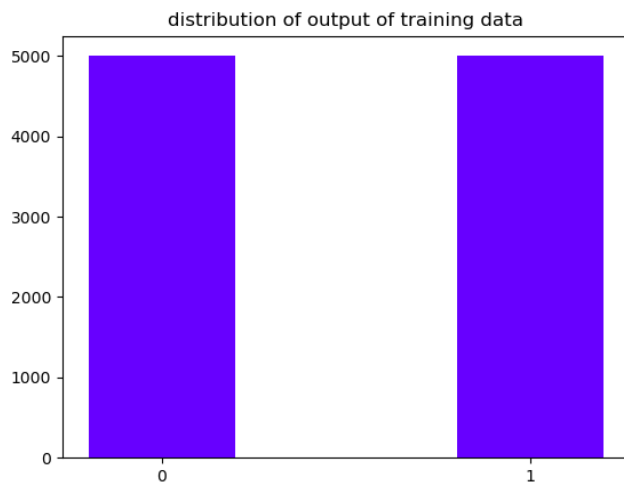ASSIGNMENT-03
MACHINE LEARNING

RATNA SAI KIRAN
2018179
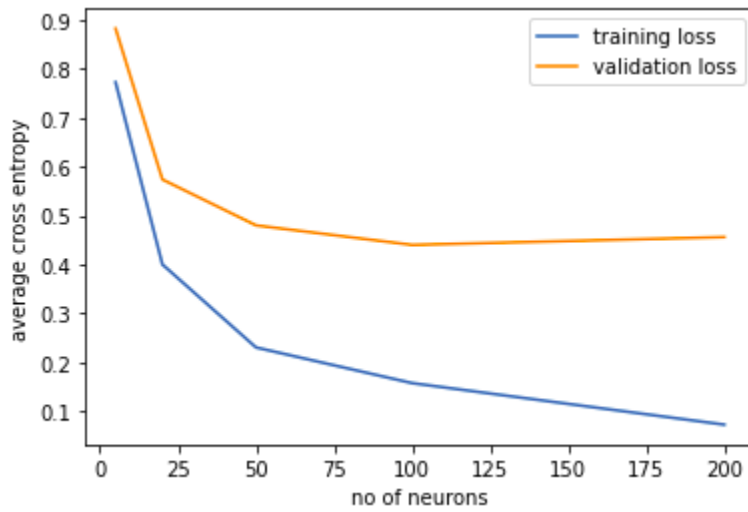
4)
  a.Class distribution was equal in both training and testing datasets.following are the histograms of the both data

distribution of output of training data
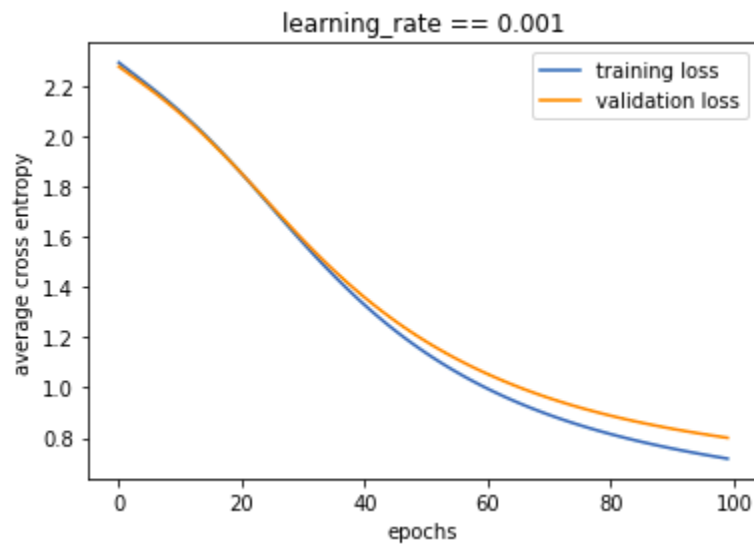

distribution of output of testing data
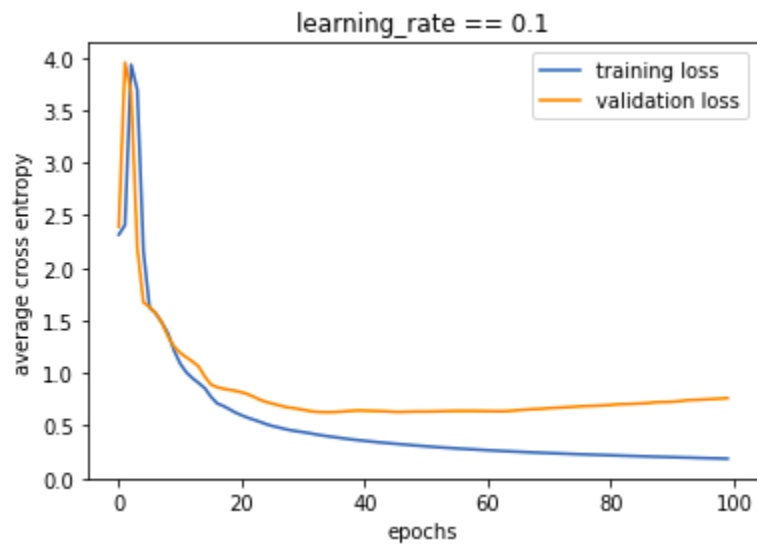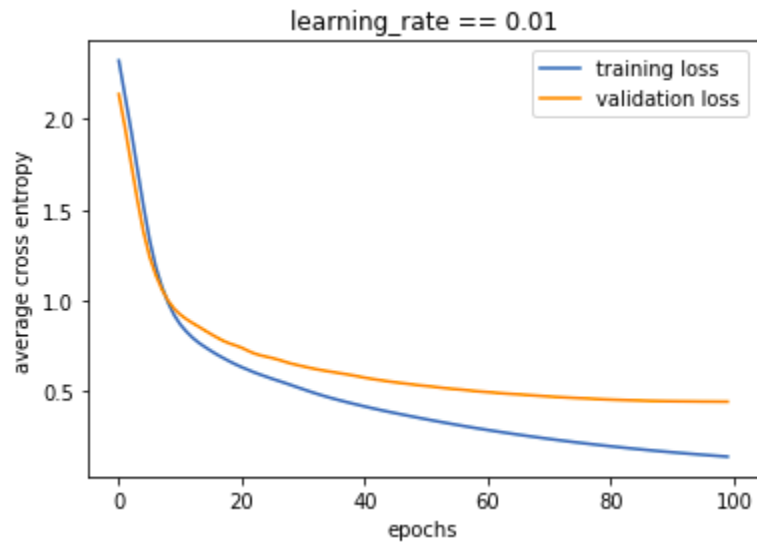
3
1 a.

1 b

By changing the no of neurons in the hidden layer we can observe that the loss is decreasing and the model is performing better .By increasing the number of hidden units our model loss is reducing which is our model is performing better.

2 a

learning_rate == 0.01

learning_rate == 0.1

2 b .

By increasing the learning rate we can observe that our model is converging quickly

2

1

Test accuracy for different activation functions
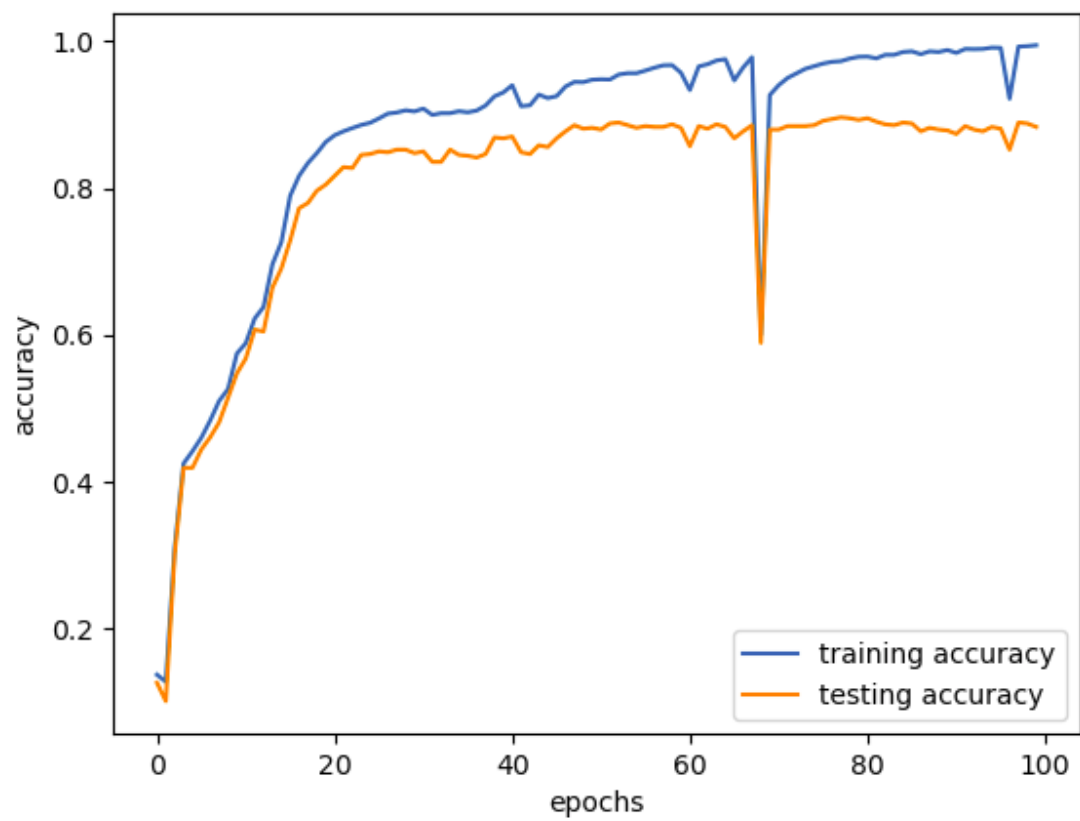
ReLu	0.8940476190476191
Tanh	0.8448412698412698
Linear	0.8579365079365079

| Sigmoid | 0.11587301587301588 |

2

ReLu function as acctivation function

Tanh function as acctivation function
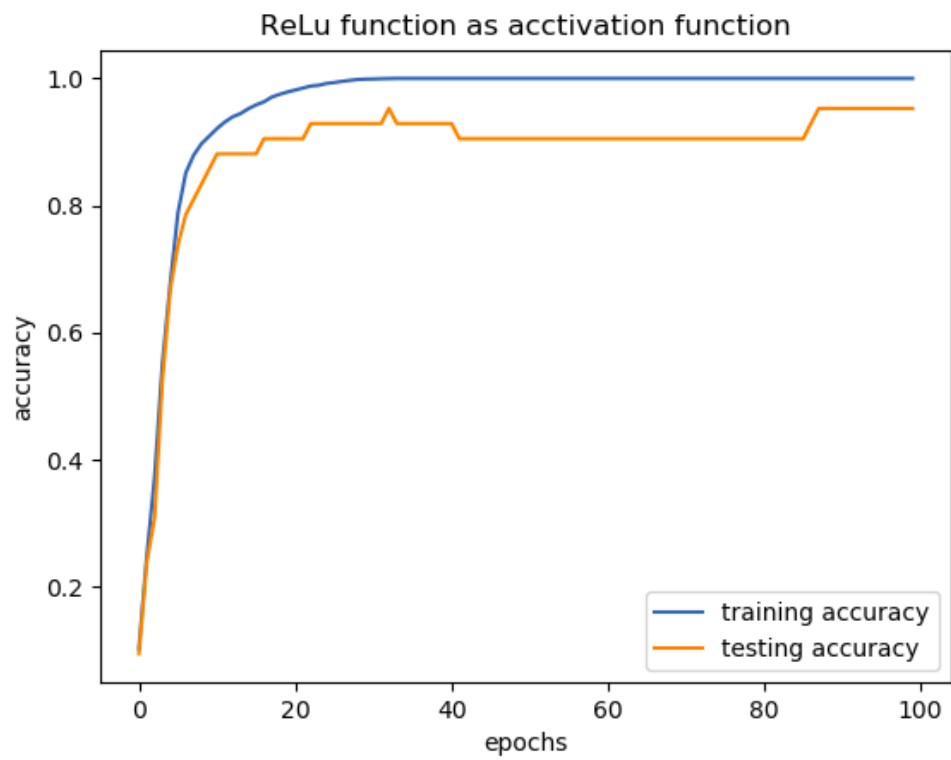
Linear function as acctivation function
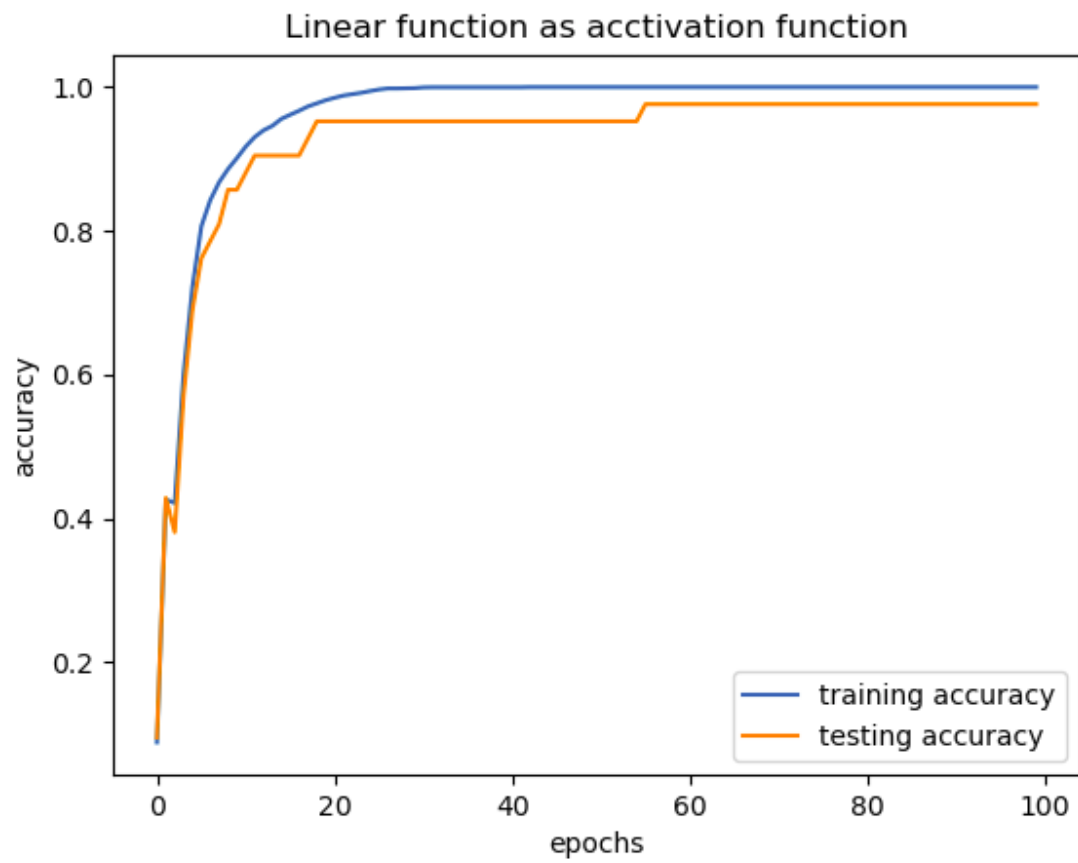
4 . Total layers = 5
   No of hidden layers =3

6.

ReLu	0.8075396825396826
Tanh	0.8547619047619047
Linear	0.8277777777777777
Sigmoid	0.8865079365079365

   Observed above testing accuracies using sklearn's MLPClassifier
 Sklearn was using adam optimiser where as we used batch gradient descent .However
accuracies are not matching with our own model

5. Highest accuracy was observed in relu activation function