The code provided was run by PyCharm.

The results of each run may not be the same since the training dataset is shuffled.

The code consists of:

1. training data (load and shuffle training data)

2. test data (load test data)

3. PerceptronTrain function (perceptron algorthim with L2 Regularisation option)

4. PerceptronTest function (return the predicted class 1 or -1)

5. accuracy function (calculate either train or test accuracy of the a model including a multiclass model)

Note: the target class values as well as the predicted values will be shown when the code is run

6. oneVersusTheRest function (calculate weights and bias of a multiclass model)

7. train_a_vs_b function (calculate train and test accuracy based on the selected classes)

8. # Question 3 section

9. # Question4: 1 vs the rest approach section

10. # Question 5: L2 regularization section

Note that: All explanations of the code are in the given python file interms of doc strings and comments.