Practical : Supervised Learning

1. Load the data from the file ‘iris.txt’. This data set contains 2 classes of 50 instances each, where each class refers to a type of iris plant.

Attribute Information:

Column: 1. sepal length in cm

2. sepal width in cm

3. petal length in cm

4. petal width in cm

5. class:

-1 Iris Setosa

+1 Iris Versicolour

2. Divide the data into two separate sets of equal size (training set and test set).

3. Implement the Perceptron Learning Algorithm as described in the lecture slides.

4. Train the perceptron using the training set. (Stop the iterations when all the training data is correctly classified) .

5. Evaluate the trained perceptron on the test set. What is the classification error?

6. Plot the first two attributes with ‘o’ for class -1 and ‘x’ for class 1. Try to draw the decision surface for your perceptron in the same plot.

7. Write code that randomly divides the data into training and test sets as in 2. Repeat steps 4-5. Does the classification error change? Repeat this 100 times. What is the average classification error?