Homework 4

Alpaydin, Chap 10. problem, 2,3

Problem 4: using the XOR_NN posted on cougar courses,

1. decrease the step size to 0.1. what is the effect? Plot the mean squared error vs training epoch
2. Increase the step size to 10.1. what is the effect? Plot the mean squared error vs training epoch

Problem 5: run the matlab examples for linear and quadratic discriminant using Fisher Iris data.

1. Create an Linear discriminant analysis of fish iris data
    a. Print out the covariance matrices for the three classes. There is a single covariance matrix for all three classes.
    b. Which direction has the most power?
    c. Is the correlation coefficient positive or negative?
    d. What is the expected correlation coefficient based on the scatter plot?
2. Modify line 17 in the script so that
    a. PW = -meas(:,4);
    b. Now run the linear classifier and print out the covariance matrix
    c. Is the correlation coefficient positive or negative?
3. Create a quadratic discriminant for this data (using the script for quadratic discrimnants)
    a. Print out the covariance matrices for each of the three classes. There is a different covariance matrix for each class