CS909: 2013-14

Week 6: Perceptron

1. Implement a perceptron classifier for linear binary classification using R.

2. Create a dataset that only includes the versicolor and setosa species of iris. Use your binary perceptron to classify this new iris dataset.

   What if the data is presented in random order? What do you observe? Experiment with different learning rates and a different value for the intercept b. Would your algorithm always converge?

3. Create linearly separable, 2-dimensional synthetic data of 25 instances and using your perceptron algorithm find a classifier/hyperplane that will correctly classify this data.

   Visualise the final classifier/hyperplane as well as any intermediate hyperplanes for each of the mistakes made by the perceptron algorithm. (Hint: You will have to derive the slope and intercept of the line from the vector representing the classifier.)

Submission deadline: Midday, Thursday 27th February.