Data Mining Assignment 1 – Matthew Harding – 201220275

1. The Perceptron Algorithm:

The perceptron is a bio-inspired algorithm which summates the product of the input for each feature at a given instance with a weight, and then checks if the total is greater than a predetermined threshold. For example, if a perceptron has 3 features with an input of 1, and each feature has an assigned weight of 2, then the total weighted input would be (1 x 2) + (1 x 2) + (1 x 2) which is equal to 6. In the case of the binary perceptron, if this weighted input is greater than the activation threshold the output of the perceptron is 1, else it returns 0.

The Pseudo code:

Training the perceptron

1. Initialise weight vectors and bias input to 0

*For each training example*

1. Compute activation
2. Update weight vectors and bias

Testing the perceptron

1. Compute weighted input vector with model
2. Return classification of input.