Fakulti Teknologi Maklumat & Komunikasi
Universiti Teknikal Malaysia Melaka (UTeM)

BITI 1113
Artificial Intelligence

Laboratory 11

Question 1:

A neuron with 4 inputs has the weight vector w = [1; 2; 3; 4] and a bias, θ = 0 (zero). The activation function given is f(net) = 2 * net. If the input vector is x = [4; 8; 5; 6], what will the output of the neuron be?

Question 2:

Assume that you want to build a solution by using the following network. The input for x 1 = 3 and x 2 = 2.5. The weight for the first layer is given which is 0.5 and second layer is 0.3. Calculate the possible output by using the summation function.

Question 3:

Consider a perceptron that has two real-valued inputs and an output unit with a step activation function. All the initial weights and threshold θ = 0.1. Assume the teacher has said that the output should be 0 for the input input1 = 5 and input2 = -3. Show how the perceptron learning rule would alter this neural network upon processing this training example. Let the learning rate, α = 0.2 and be sure to update the perceptron weights during training.

a) Draw the network architecture before training begins.

b) Show the training process.

c) Using the same perceptron, predicts the outcome for new inputs, input1=10 and input2=5.