**Lab instructions 5**

In this lab you will experiment with Associative Memory (AM). You will first construct an AM using the following input and output vectors:

, , ,

, , ,

Define an array for the weight matrix. Note that input vectors are of length 6 while the output vector has length 3. So, the weight matrix will have a size (6 x 3). Initialize the elements of the weight matrix to 0. We want the weights to be such that if we supply X(i) as input then we get Y(i) as output. The method to get such weights is

Once the weights are calculated we can test the system. The simple test is that if we give an input vector, then the output vector should be . Verify the above for all the four input vectors.

The main strength of an AM is that the correct output vector gets produced even if there is “some” distortion in the input vector. In order to test this aspect of AM perform the following:

For each input vector, i,

For m = 1 to 6

Flip the sign of the mth element // Only one element gets distorted at a time

Give this distorted input to the AM and calculate the output

If the output vector is same as then AM is successful else AM has failed

Report the total number of successes