**Assignment-7**

As it is given to work on AND problem. The following table shows the AND table:

|  |  |  |
| --- | --- | --- |
| X1 | X2 | Final |
| 0 | 0 | 0 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 1 |

Let the weights be W1=0.6 and W2=0.8

Row1:

X1=0 and X2=0,

Sigma= X1\*W1+X2\*W2

Sigma= 0\*0.6+0\*0.8

Sigma=0

Row2:

X1=1 and X2=0,

Sigma= X1\*W1+X2\*W2

Sigma=1\*0.6+0\*0.8

Sigma=0.6

ε = actual – prediction = 0 – 1 = -1

alpha would be 0.4.

w1 = w1 + alpha \* ε

w1=0.6 + 0.4 \* (-1)

w1=0.6 – 0.4

w1=0.2

w2 = w2 + alpha \* ε

w2=0.8 + 0.4 \* (-1)

w2=0.8 – 0.4 = 0.4

Row3: x1 = 0 and x2 = 1.

Sigma = x1 \* w1 + x2 \* w2

Sigma=0 \* 0.2 + 1 \* 0.4 = 0.4

Activation unit will return 0 because output of the sum unit is 0.4 and it is equal to the threshold value 0.4.

Row4: x1 = 1 and x2 = 1.

Sigma = x1 \* w1 + x2 \* w2

Sigma=1 \* 0.2 + 1 \* 0.4 = 0.6

Activation unit will return 1 because output of the sum unit is 0.6 and it is greater than the threshold value 0.4.

Now apply the W1=0.2 and W2=0.4 for row 1 and 2.

Row1:

Row3: x1 = 0 and x2 = 0.

Sigma = x1 \* w1 + x2 \* w2

Sigma=0 \* 0.2 + 0 \* 0.4 = 0

Activation unit will return 0 because output of the sum unit is 0 and it is equal to the threshold value 0.4.

Row2:

Row3: x1 =1 and x2 = 0.

Sigma = x1 \* w1 + x2 \* w2

Sigma=1\* 0.2 + 0\* 0.4 = 0.2

Activation unit will return 0 because output of the sum unit is 0.2 and it is equal to the threshold value 0.4.