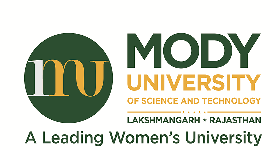
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**School of Engineering and Technology**

**CS14.451**

**Soft Computing Laboratory**

**Practical Exam**

**Submitted to: Submitted by:**

**Dr. Sunil K. Jangir Mahima Fulwaria**

**B-Tech 4th yr.**

**CSE-CC(C2)**

**170422**

**Objective: To implement Adaline Neural Network using Python Language.**

**Code:**

import numpy as np

x1=np.array([[1,1,-1,-1]])

x2=np.array([[1,-1,1,-1]])

t=np.array([[1],[1],[1],[-1]])

w11=0.1

w21=0.1

w01=0.1

alpha=0.1

i=0

bias=1

w1=np.zeros((4,1))

w2=np.zeros((4,1))

w0=np.zeros((4,1))

Yin=np.zeros((4,1))

y=np.zeros((4,1))

error=np.zeros((4,1))

count=0

while(count!=3):

    i=0

    if(count!=0):

            w11=w1[3]

            w21=w2[3]

            w01=w0[3]

    while(i!=4):

        if(i==0):

            Yin[i]= (x1[0][i]\*w11)+(x2[0][i]\*w21)+(bias\*w01)

            y[i]=t[i][0]-Yin[i]

            w1[i]=w11+(alpha\*y[i]\*x1[0][i])

            w2[i]=w21+(alpha\*y[i]\*x2[0][i])

            w0[i]=w01+(alpha\*y[i]\*bias)

        else:

            if(i>0 & i<=4):

                Yin[i]= (x1[0][i]\*w1[i-1])+(x2[0][i]\*w2[i-1])+(bias\*w0[i-1])

                y[i]=t[i][0]-Yin[i]

                w1[i]=w1[i-1]+(alpha\*y[i]\*x1[0][i])

                w2[i]=w2[i-1]+(alpha\*y[i]\*x2[0][i])

                w0[i]=w0[i-1]+(alpha\*y[i]\*bias)

        error[i]=(y[i])\*\*2

        i=i+1

    print('EPOCH',(count+1),':')

    print('\n')

    print('w1:',w1)

    print('\n')

    print('w2:',w2)

    print('\n')

    print('w0:',w0)

    print('\n')

    print('error',error)

    print('\n\n')

    count=count+1

**Output:**

