AIM:

Write a program 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):

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



 