EXP 4: logic gates using perceptron learning algorithm

#import library

import numpy as np

import pandas as pd

import time

#x1=class=bias

def pla(weight1,x1):

    length\_x1 = len(x1)

    x2=[]\*length\_x1

while (x1!=x2):

    x2.clear()

        for x in range(0,l):

       w=np.multiply(weight1,A[x])

            if(x1[x]==0 and (sum(w)>=0)):

                weight1=np.subtract(weight1,A[x])

                x2.append(1)

        elif(x1[x]==1 and (sum(w)>=0)):

                x2.append(1)

         if(x1[x]==1 and (sum(w)<0)):

                weight1=np.add(weight1,A[x])

                x2.append(0)

            elif(x1[x]==0 and (sum(w)<0)):

                x2.append(0)

    print(weight1)

# or gate pla 2input

A=([1,0,0],[1,0,1],[1,1,0],[1,1,1])

l=len(A)

x1=[0,1,1,1]

weight=[1,-1,1]

pla(weight,x1)

output:

[-1 1 1]

# and gate pla 2input

A=([1,0,0],[1,0,1],[1,1,0],[1,1,1])

l=len(A)

x1=[0,0,0,1]

weight=[1,-1,1]

pla(weight,x1)

output:

[-3 2 1]