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19F-0228

# Source Code:

import numpy as np  
operator = 'and'  
atributes = np.array([[0, 0], [0, 1], [1, 0], [1, 1]])  
w = [+9, +9]  
threshold = 5  
alpha = 0.5  
epoch = 1000  
labels = np.array([0, 0, 0, 1])  
for i in range(0, epoch):  
 print("==EPOCH==", i + 1)  
 global\_delta = 0  
 for j in range(len(atributes)):  
  
 actual = labels[j]  
 s1=atributes[j][0] \* w[0]  
 s2=atributes[j][1] \* w[1]  
 summationForCond = s1 + s2  
 yes=1  
 no=0  
 if summationForCond < threshold:  
 fire = no  
 else:  
 fire = yes  
 temp = actual - fire  
 temp2=abs(temp)  
 global\_delta = global\_delta + temp2  
 start=0  
 end=2  
 for loop in range(start, end):  
 val=temp \* alpha  
 w[loop] = w[loop] + val  
  
 print("==V1 =",atributes[j][0], " ""==OPERATION =", operator, " ","==V2 =", atributes[j][1], " ==ACTUAL VALUE = ", actual," ", " ==ASSUMED VALUE =", fire," ==WEIGHT = ", w[0])  
 if global\_delta == 0:  
 break  
  
 print("-------------------------------------------------------------------------------------------------------------")

# Screenshot:









