

PROGRAM 10

Aim: Write a program to implement OR logic functions.

Code:

```
import numpy as np
x=np.array([[1,1],[1,0],[0,1],[0,0]])
t=np.array([[1],[1],[1],[0]])
w=np.array([[0],[0]])
theta=1
yin=np.zeros(shape=(4,1))
y=np.zeros(shape=(4,1))
yin=np.dot(x,w)
i=0
found=0
while(found==0):
    i=0
    yin=np.dot(x,w)
    #print(yin)
    while(i<4):
        if yin[i]>=theta:
            y[i]=1
            i=i+1
        else:
            y[i]=0
            i=i+1
    #print("y",y)
    #print("t",t)
    if (y==t).all():
        print("MODEL IS TRAINED ")
        print("\nOutput : \n",y)
        print("\nweights : ",w,"\n")
        print("theta : ",theta)
        found=1
    else:
        print("MODEL IS NOT TRAINED")
        w=np.zeros(shape=(0,0))
        theta=int(input("Enter New Theta : "))
        for k in range(int(2)):
            w1=int(input("Enter Weight : "))
            w=np.append(w,w1)
```

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OUTPUT:

```
3 import numpy as np
9 x=np.array([[1,1],[1,0],[0,1],[0,0]])
9 t=np.array([[1],[1],[1],[0]])
1 w=np.array([[0],[0]])
2 theta=1
3 yin=np.zeros(shape=(4,1))
4 y=np.zeros(shape=(4,1))
5 yin=np.dot(x,w)
5 i=0
7 found=0
8 while(found==0):
9     i=0
9     yin=np.dot(x,w)
1    print(yin)
2    while(i<4):
3        if yin[i]>=theta:
4            y[i]=1
5            i=i+1
6
7            #if(i==4):
8                #break
9        else:
10           y[i]=0
11           i=i+1
12    print("y",y)
13    print("t",t)
14    if (y==t).all():
15        print("MODEL IS TRAINED ")
16        print("\nOutput : \n",y)
17        print("\nweights : ",w,"\n")
18        print("theta : ",theta)
19        found=1
20    else:
21        print("MODEL IS NOT TRAINED")
22        w=np.zeros(shape=(0,0))
23        theta=int(input("Enter New Theta : "))
24        for k in range(int(2)):
25            w1=int(input("Enter Weight : "))
26            w=np.append(w,w1)
```

Enter New Theta : 1

Enter Weight : 1

Enter Weight : 1

[2. 1. 1. 0.]

y [[1.]

[1.]

[1.]

[0.]]

t [[1]

[1]

[1]

[0]]

MODEL IS TRAINED