import numpy as np

c1=[1,1,1,1]

c2=[1,-1,1,-1]

c3=[1,1,-1,-1]

c4=[1,-1,-1,1]

rc=[]

print("Enter the data bits :")

d1=int(input("Enter D1 :"))

d2=int(input("Enter D2 :"))

d3=int(input("Enter D3 :"))

d4=int(input("Enter D4 :"))

r1=np.multiply(c1,d1)

r2=np.multiply(c2,d2)

r3=np.multiply(c3,d3)

r4=np.multiply(c4,d4)

resultant\_channel=r1+r2+r3+r4;

print("Resultant Channel",resultant\_channel)

Channel=int(input("Enter the station to listen for C1=1 ,C2=2, C3=3 C4=4 : "))

if Channel==1:

rc=c1

elif Channel==2:

rc=c2

elif Channel==3:

rc=c3

elif Channel==4:

rc=c4

inner\_product=np.multiply(resultant\_channel,rc)

print("Inner Product",inner\_product)

res1=sum(inner\_product)

data=res1/len(inner\_product)

print("Data bit that was sent",data)

Output

Enter the data bits :

Enter D1 :10

Enter D2 :101

Enter D3 :11

Enter D4 :1110

Resultant Channel [ 1232 -1190 -1010 1008]

Enter the station to listen for C1=1 ,C2=2, C3=3 C4=4 : 2

Inner Product [ 1232 1190 -1010 -1008]

Data bit that was sent 101.0