OR GATE

y

X1

Xo

X1

Xo

Bias

Output

bbbbb

1)

**Truth table for OR Gate where 1 = T and 0 = F , NB T implies true and F implies False**

|  |  |  |
| --- | --- | --- |
| X0 | X1 |  |
| 1 | 1 | 1 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 0 | 0 | 0 |

2 Code

import numpy as nmp  
  
user\_iput = []  
x = 0  
  
def perceptron(weight, bias, x):  
 model = nmp.add( nmp.dot( x, weight ), bias ) # same as (x \* weight) + bias  
 outPut = 1 / (1 + nmp.exp( -model )) # same as 2 \*\* -model  
 return nmp.round( outPut )  
  
  
def executePerceptron(gateType, weightDictionary, dataset):  
 weights = nmp.array( [weightDictionary[gateType][w] for w in weightDictionary[gateType].keys()[::-1]] )  
 output = nmp.array( [perceptron( weights, weightDictionary['bias'][gateType], val ) for val in dataset] )  
 return gateType, output # print( gate info and output)  
  
  
def main():  
 OR\_GATE\_WEIGHT\_AND\_BIAS = {  
  
 'OR\_GET': {  
 'w0': 0.3,  
 'w1': 0.2  
  
 },  
 'bias': {  
 'OR\_GET': -0.13  
 }  
 }  
 INPUT\_VALUES = nmp.array( [  
 user\_iput  
 ] )  
  
 OR\_GET = executePerceptron( 'OR\_GET', OR\_GATE\_WEIGHT\_AND\_BIAS, INPUT\_VALUES )  
  
 def run(INPUT\_VALUES, name, data):  
 # act = name[6:]  
 print("OR GATE NEURAL NET IMPLEMENTATION")  
 print("X0\tX1\tOutput")  
 result = ["{1}\t{2}\t{0}".format( output, \*datas ) for datas, output in zip( INPUT\_VALUES, data )]  
 for i in result:  
 print(i)  
  
 gates = [OR\_GET]  
  
 for i in gates:  
 run( INPUT\_VALUES, \*i )  
  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 print("\nThe program allows entry all possible combinations of OR gate values with two iputs\n"  
 "repeats process 8 to allow 4 possible combinations of X0 and X1\n"  
 "x0 and x1 and gives output as either 0 or 1\nenter X0 and X1 as 0 or 1 \n\n"  
 "start; key in after x0 and x1 below \n\n"  
 "")  
 for i in range( 8 ): # repeats process 8 to allow 4 possible combinations of x0 and x1  
 n = input( "Enter X" + str(x) + " " ) # 0 or 1 values  
 user\_iput.append( n )  
 x = x + 1  
  
 if i > 0 and i % 2 != 0:  
 main()  
 print("\n")  
 user\_iput = []  
 x = 0  
 continue

Results

/usr/bin/python2.7 /Users/admin/PycharmProjects/projo/ORGETANN.py

The program allows entry all possible combinations of OR gate values with two iputs

repeats process 8 to allow 4 possible combinations of X0 and X1

x0 and x1 and gives output as either 0 or 1

enter X0 and X1 as 0 or 1

start; key in after x0 and x1 below

Enter X0 1

Enter X1 1

OR GATE NEURAL NET IMPLEMENTATION

X0 X1 Output

1 1 1.0

Enter X0 1

Enter X1 0

OR GATE NEURAL NET IMPLEMENTATION

X0 X1 Output

1 0 1.0

Enter X0 0

Enter X1 1

OR GATE NEURAL NET IMPLEMENTATION

X0 X1 Output

0 1 1.0

Enter X0 0

Enter X1 0

OR GATE NEURAL NET IMPLEMENTATION

X0 X1 Output

0 0 0.0

Process finished with exit code 0