| LABORATORY NO: 2 | **Title:** OR function using McCulloch-Pitts neural net. |
|---|---|

**Aim:** Write a MATLAB program to generate OR function using McCulloch-Pitts neural net.

**Objective:**
Designing MP model for OR Function

**Theory:**
**The OR function** returns a high (1) if anyone of the input is high, returns a low (0) if none of the input is high.

**The truth table** for OR function is

| X1 | X2 | Y |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 1 |

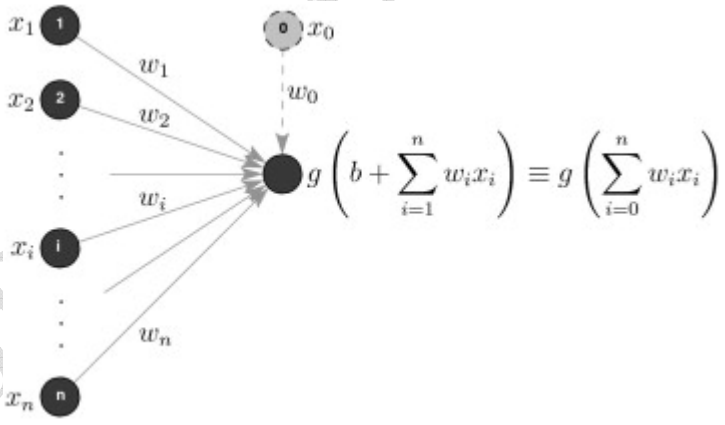


Fig: MP-model for OR gate function

The output is given by,

Y= f(yin)= 1, if yin>=1
=0 , if yin<1

Example:
Assuming w1=1, w2=1 and Threshold=1,
Lets find out Yin i.e. activation of neuron and

1. **X1= 0 , X2=0**
   Yin= X1 * w1 + X2 *w2
   Yin= (1) X1 + (1) X2
   = (1) (0) + (1) (0)
   So, **Y=0** as Yin= 0<1……1
2. **X1= 1, X2=0**
   Yin= X1 * w1 + X2 *w2
   Yin= (1) X1 + (1) X2
   = (1) (1) + (1) (0)
   So, **Y=1** as Yin= 1>=1 ……..2
3. **X1= 0 , X2=1**
   Yin= X1 * w1 + X2 *w2
   Yin= (1) X1 + (1) X2
   = (1) (0) + (1) (1)
   So, **Y=1** as Yin= 1>=1…….3
4. **X1=X2=1**
   Yin= X1 * w1 + X2 *w2
   Yin= (1) X1 + (1) X2
   = (1) (1) + (1) (1)
   So, **y=1** as Yin= 2>1……..4

Hence, we got output Y=[0 1 1 1]

**EXPECTED OUTPUT / CALCULATION / RESULT:**

Input:
Weights of Neuron:
w1=1
w2=1
Threshold:
Theta=1

Output:

w1=1
w2=1
Threshold:
Theta=1

With Output of Neuron:
0 1 1 1