Question 2

Two-input perceptron for x1 and (not x2)  
*o* = bx0 + w1x1+ w2x2 where x0is 1 and b is the bias  
xi is either 1 or 0 and   
Threshold Function   
0(xi) = 1 if bx0 + w1x1+ w2x2 > 0  
0(xi) = 0 otherwise  
Solve for wi, w2 and b

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| b | x1 | x2 | w1 | w2 | ∑ | Output |
| 0 | 0 | 0 | 1 | -1 | 0 | 0 |
| 0 | 0 | 1 | 1 | -1 | -1 | 0 |
| 0 | 1 | 0 | 1 | -1 | 1 | 1 |
| 0 | 1 | 1 | 1 | -1 | 0 | 0 |

w1=1, w2=-1 and b=0;

Two Layers network

|  |  |  |
| --- | --- | --- |
| 1st layer | 2nd layer | 3rd /output layer |
|  |  |  |
|  |  |

Where j=layer and i=feature/attribute/activation

=+

=+

is either 1 or 0 and; =1  
Threshold Function   
 = 1 if + > 0  
 = 0 otherwise

= 1 if + > 0  
 = 0 otherwise  
Solve for, and