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VIMAL JYOTHI
ENGINEERING COLLEGE
JYOTHI NAGAR, CHEMPERI – 670632, KANNUR D.T., KERALA
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Assignment Cover Page

Name of the student :- Aswathi. Ajith		
PRN VML22CS057	Admission No...8133...	
Subject Name :- Softcomputing		Subject Code:- CST444
Assignment Title/No : 1		
Name of the faculty: Aswathy.miss		
Assignment Submitted on 23/02/24		

Late submission rules : Max mark will reduced to 50% for 1-5 working day's delay, no mark will be awarded thereafter.

I am hereby confirming that this assignment is my own and I haven't adopted any unfair means in any steps of its preparation to enhance my performance in this assignment.

Aswathi Ajith

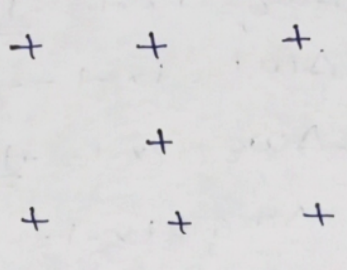
Date :23/02/26 Sign with Name

Assignment subdivision	Maximum Mark	Marks awarded	Remarks
A			
B			
C			

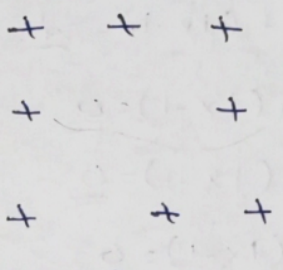
Feed back/suggestions :

Name and sign of the faculty

3. Using the Hebb rule, find the weights required to perform the following classifications of the given input patterns shown in the fig. The "+" symbols represent the value "1" and space indicates "-1". consider "1" belongs to the members of the class and "0" does not belong to the members of the class.



"I"



"O"

Pattern	Inputs										Target
	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_8	b	y
I	1	1	+1	-1	1	-1	1	1	1	1	1
O	1	1	1	1	-1	1	1	1	1	1	-1

Initially $w_1 = w_2 = w_3 = w_4 = w_5 = w_6 = w_7 = w_8 = w_9 = b = 0$

Case I:

$w_i(new) = w_i(old) + x_i y$

$w_1(new) = 0 + (1 \times 1) = 1$

$w_2(new) = 0 + (1 \times 1) = 1$

$w_3(new) = 0 + (1 \times 1) = 1$

$w_4(new) = 0 + (-1 \times 1) = -1$

$w_5(new) = 0 + (1 \times 1) = 1$

$w_6(new) = 0 + (-1 \times 1) = -1$

$w_7(new) = 0 + (1 \times 1) = 1$

$w_8(new) = 0 + (1 \times 1) = 1$

$w_9(new) = 0 + (1 \times 1) = 1$

$b(new) = b(old) + y$

$\Delta w_i = x_i y$

$\Delta w_1 = 1 \times 1 = 1$

$\Delta w_2 = 1 \times 1 = 1$

$\Delta w_3 = 1 \times 1 = 1$

$\Delta w_4 = -1 \times 1 = -1$

$\Delta w_5 = 1 \times 1 = 1$

$\Delta w_6 = -1 \times 1 = -1$

$\Delta w_7 = 1 \times 1 = 1$

$\Delta w_8 = 1 \times 1 = 1$

$\Delta w_9 = 1 \times 1 = 1$

$\Delta b = y = 1$

$\therefore [1\ 1\ 1\ -1\ 1\ -1\ 1\ 1\ 1]$

Case II

$w_1(new) = 1 + (1 \times -1) = 0$

$w_2(new) = 1 + (1 \times -1) = 0$

$w_3(new) = 1 + (1 \times -1) = 0$

$w_4(new) = -1 + (1 \times -1) = -2$

$w_5(new) = 1 + (-1 \times -1) = 2$

$w_6(new) = -1 + (1 \times -1) = -2$

$w_7(new) = 1 + (1 \times -1) = 0$

$w_8(new) = 1 + (1 \times -1) = 0$

$w_9(new) = 1 \times (1 \times -1) = 0$

$b(new) = 1 + -1 = 0$

$\Delta w_1 = 1 \times -1 = -1$

$\Delta w_2 = 1 \times -1 = -1$

$\Delta w_3 = 1 \times -1 = -1$

$\Delta w_4 = 1 \times -1 = -1$

$\Delta w_5 = -1 \times -1 = 1$

$\Delta w_6 = 1 \times -1 = -1$

$\Delta w_7 = 1 \times -1 = -1$

$\Delta w_8 = 1 \times -1 = -1$

$\Delta w_9 = 1 \times -1 = -1$

$\Delta b = y = -1$

$\therefore [w_1\ w_2\ w_3\ w_4\ w_5\ w_6\ w_7\ w_8\ w_9\ b] =$

$[0\ 0\ 0\ -2\ 2\ -2\ 0\ 0\ 0\ 0]$