

$$\text{Epoch} = 6 \quad \text{Alpha} = 0.5 \quad f(x) = \begin{cases} 1 & ; x \geq 0 \\ 0 & ; x < 0 \end{cases}$$

ans m=196  
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$$W_{\text{new}} = W_{\text{old}} + [\alpha (+ -) * X_i] \quad X_0 \text{ always } = 1$$

	Input <sup>+</sup> $X_0$	Input <sup>+</sup> $X_1$	Input <sup>+</sup> $X_2$	$1.0 * W_0$	$X_1 * W_1$	$X_2 * W_2$	Net Sum Input	Target output +	Actual output 0	Alpha Error $\alpha (+ -)$	Weight $W_0$ 0.5	Weight $W_1$ 0.5	Weight $W_2$ 0.5
1	0	0	0	0.5	0	0	0.5	0	1	-0.5	0	0.5	0.5
1	0	1	0	0	0	0.5	0.5	0	1	-0.5	-0.5	0.5	0
1	1	0	0	-0.5	0.5	0	0	0	1	-0.5	-1	0	0
1	1	1	1	-1	0	0	-1	1	0	0.5	-0.5	0.5	0.5
1	0	0	0	-0.5	0	0	-0.5	0	0	0	-0.5	0.5	0.5
1	0	1	0	-0.5	0	0.5	0	0	1	-0.5	-1	0.5	0
1	1	0	0	-1	0.5	0	-0.5	0	0	0	-1	0.5	0
1	1	1	1	-1	0.5	0	-0.5	1	0	0.5	-0.5	1	0.5

	Input		Net sum				Target	Actual	Apha	weight		
$x_0$	$x_1$	$x_2$	$1.0 \times w_0$	$x_1 \times w_1$	$x_2 \times w_2$	Input	output	output	Error	$w_0$	$w_1$	$w_2$
							+	0	$\alpha (+-0)$	0.5	0.5	0.5
1	0	0	-0.5	0	0	-0.5	0	0	0	-0.5	1	0.5
1	0	1	-0.5	0	0.5	0	0	1	-0.5	-1	1	0
1	1	0	-1	1	0	0	0	1	-0.5	-1.5	0.5	0
1	1	1	-1.5	0.5	0	-1	1	0	0.5	-1	1	0.5
1	0	0	-1	0	0	-1	0	0	0	-1	1	0.5
1	0	1	-1	0	0.5	-0.5	0	0	0	-1	1	0.5
1	1	0	-1	1	0	0	0	1	-0.5	-1.5	0.5	0.5
1	1	1	-1.5	0.5	0.5	0.5	1	0	0.5	-1	1	0.5
1	0	0	-1	0	0	-1	0	0	0	-1	1	1
1	0	1	-1	0	1	0	0	1	1	-1.5	1	0.5
1	1	0	-1.5	1	0	-0.5	0	0	0	-1.5	1	0.5
1	1	1	-1.5	1	0.5	0	1	1	0	-1.5	1	0.5

$x_0$	Input <sup>+</sup> $x_1$	Input <sup>+</sup> $x_2$	$1.0 \times w_0$	$x_1 \times w_1$	$x_2 \times w_2$	Net sum Input	Target output +	Actual output 0	Alpha Error $\alpha (+-0)$	weight $w_0$ 0.5	weight $w_1$ 0.5	weight $w_2$ 0.5
1	0	0	-1.5	0	0	-1.5	0	0	0	-1.5	1	0.5
1	0	1	-1.5	0	0.5	-1	0	0	0	-1.5	1	0.5
1	1	0	-1.5	1	0	0.5	0	0	0	-1.5	1	0.5
1	1	1	-1.5	1	0.5	0	1	1	0	-1.5	1	0.5

$$AC = TP + TN / ALL = \frac{3+1}{4} = 1$$

$$Recall = TP / TP + FN = \frac{3}{3+0} = 1$$

$$Precision = TP / TP + FP = \frac{3}{3+0} = 1$$

$$Sensitivity = TP/P = 3/3 = 1$$

$$Specificity = TN/N = 1/1 = 1$$

$$F_1 = \frac{2(Precision \times Recall)}{(Precision + Recall)} = \frac{2C(x)}{1+1} = 1$$

		Actual	
		0	1
Target	0	3 TP	0 FN
	1	0 FP	1 TN