

Dataset

$\langle x_1, x_2 \rangle$	y
$\langle 1, 1 \rangle$	1
$\langle 1, 2 \rangle$	1
$\langle 0, 0 \rangle$	-1
$\langle -1, 0 \rangle$	-1

$$w = \langle 0, 0, 0 \rangle$$

Epoch 1:

$\langle x_0, x_1, x_2 \rangle$	$b + w_1 \cdot x_1 + w_2 \cdot x_2$	$\hat{y}_i^{(1)}$	y_i
$\langle 1, 1, 1 \rangle$	$0 + 1 \times 0 + 1 \times 0 \geq 0$	1	1
$\langle 1, 2 \rangle$	$0 + 1 \times 0 + 2 \times 0 \geq 0$	1	1
$\langle 0, 0 \rangle$	0	1	-1
Update to $w = \langle -1, 0, 0 \rangle$			
$\langle -1, 0 \rangle$	$-1 + -1 \times 0 + 0 \times 0 < 0$	-1	-1

$$w = \langle -1, 0, 0 \rangle$$

Epoch 2:

$\langle x_0, x_1, x_2 \rangle$	$b + w_1 \cdot x_1 + w_2 \cdot x_2$	$\hat{y}_i^{(1)}$	y_i
$\langle 1, 1, 1 \rangle$	$-1 + 1 \cdot 0 + 1 \cdot 0 < 0$ Update to $w = \langle 0, 1, 1 \rangle$	-1	1
$\langle 1, 2 \rangle$	$0 + 1 \cdot 1 + 2 \cdot 1 \geq 0$	1	1
$\langle 0, 0 \rangle$	$0 + 0 \cdot 1 + 0 \cdot 1 \geq 0$ Update to $w = \langle -1, 1, 1 \rangle$	1	-1
$\langle -1, 0 \rangle$	$-1 + -1 \cdot 1 + 0 \cdot 1 < 0$	-1	-1

$$w = \langle -1, 1, 1 \rangle$$

Epoch 3:

$\langle x_0, x_1, x_2 \rangle$	$b + w_1 \cdot x_1 + w_2 \cdot x_2$	$\hat{y}_i^{(1)}$	y_i
$\langle 1, 1, 1 \rangle$	$-1 + 1x_1 + 1x_1 \geq 0$	1	1
$\langle 1, 2 \rangle$	$-1 + 1x_1 + 2x_1 \geq 0$	1	1
$\langle 0, 0 \rangle$	$-1 + 0x_1 + 0x_1 < 0$	-1	-1
$\langle -1, 0 \rangle$	$-1 + -1x_1 + 0x_1 < 0$	-1	-1