Activation (a):

If ya ≤ 0:

Iteration 1:

X1 X2 X3 W1 W2 W3 b y a ya

0 0 0 0 0 0 0 -1 0 0

a = (0 \* 0 + 0) + (0 \* 0 + 0) + (0 \* 0 + 0) = 0

ya = (-1)(0) = 0

ya ≤ 0, update required:

W1 = 0 + (-1)(0) = 0

W2 = 0 + (-1)(0) = 0

W3 = 0 + (-1)(0) = 0

b = 0 + (-1) = -1

X1 X2 X3 W1 W2 W3 b y a ya

0 0 1 0 0 0 -1 1 -3 -3

a = (0 \* 0 + (-1) ) + (0 \* 0 + (-1) ) + (0 \* 0 + (-1) ) = -3

ya ≤ 0, update required:

W1 = 0 + (1)(0) = 0

W2 = 0 + (1)(0) = 0

W3 = 0 + (1)(1) = 1

b = -1 + 1 = 0

X1 X2 X3 W1 W2 W3 b y a ya

0 1 0 0 0 1 0 1 0 0

a = (0 \* 0 + 0 ) + (0 \* 1 + 0 ) + (1 \* 0 + 0 ) = 0

ya ≤ 0, update required:

W1 = 0 + (1)(0) = 0

W2 = 0 + (1)(1) = 1

W3 = 1 + (1)(0) = 1

b = 0 + 1 = 1

X1 X2 X3 W1 W2 W3 b y a ya

0 1 1 0 1 1 1 1 5 5

a = (0 \* 0 + 1 ) + (1 \* 1 + 1 ) + (1 \* 1 + 1 ) = 5

ya > 0, No update required:

X1 X2 X3 W1 W2 W3 b y a ya

1 0 0 0 1 1 1 1 3 3

a = (0 \* 1 + 1 ) + (1 \* 0 + 1 ) + (1 \* 0 + 1 ) = 3

ya > 0, No update required:

X1 X2 X3 W1 W2 W3 b y a ya

1 0 1 0 1 1 1 1 4 4

a = (0 \* 1 + 1 ) + (1 \* 0 + 1 ) + (1 \* 1 + 1 ) = 4

ya > 0, No update required:

X1 X2 X3 W1 W2 W3 b y a ya

1 1 0 0 1 1 1 1 4 4

a = (0 \* 1 + 1 ) + (1 \* 1 + 1 ) + (1 \* 0 + 1 ) = 4

ya > 0, No update required:

X1 X2 X3 W1 W2 W3 b y a ya

1 1 1 0 1 1 1 1 5 5

a = (0 \* 1 + 1 ) + (1 \* 1 + 1 ) + (1 \* 1 + 1 ) = 5

ya > 0, No update required:

Final weights:

W1 = 0

W2 = 1

W3 = 1

Bias, b = 1