2018-2020 Quiz Thursday

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Iteration 1:

x_1	x_2	y_{in}	y	ouput	w_1	w_2	b
1	1	1	0	1	0	0	1

$$y_{in} = b + \sum_i w_i x_i$$

$$= 1 + \sum_{i=1}^{n} 0.1 + 0.1$$

$$y_{in} = 1$$

Updating weight.

$$w_{i\,new} = w_{i\,old} + \alpha \cdot t \cdot x_i$$
$$b_{new} = b_{old} + \alpha \cdot t$$

$$w_{1\,new} = 0 + 0.2 \times 1 \times 1 = 0.2$$

$$w_{2\,new} = 0 + 0.2 \times 1 \times 1 = 0.2$$

Now iteration 2.

x_1	x_2	y_{in}	y	Output	w_1	w_2	b
9.4	6.4	4.16	1	-1	0.2	0.2	1

$$y_{in} = 1 + 0.2 \times 9.4 + 0.2 \times 6.4 = 4.16$$

Again updating weights.

$$w_{i\,new} = 0.2 + 0.2 \times -1 \times 9.4 = -1.68$$

$$w_{2\,new} = 0.2 + 0.2 \times -1 \times 6.4 = -1.08$$

x_1	x_2	y_{in}	y	output	w_1	w_2	b
2.5	2.1	-6.468	-1	1	-1.68	-1.08	1

$y_{in} = 1 + -1.68 \times 2.5 + -1.08 \times 2.1$

$= -6.468$

$y = -1$

updating weights.

$w_1 = -1.68 + 0.2 \times 1 \times 2.5$

$w_1 = -1.18$

$w_2 = -1.08 + 0.2 \times 1 \times 2.1$

$= -0.66$

x_1	x_2	y_{in}	y	output	w_1	w_2	b
8.0	7.7	-13.288	-1	-1	-1.18	-0.66	1

$y_{in} = 1 + 8.0 \times -1.18 + 7.7 \times 0.66$

$= -13.282$

$y = -1$

Algorithm stop