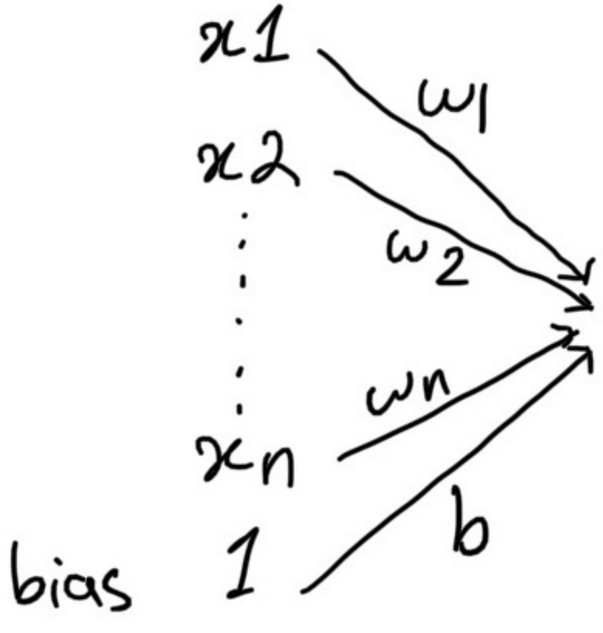
Perceptron



$$\sum_{i=1}^{n} w_i x_i + b$$

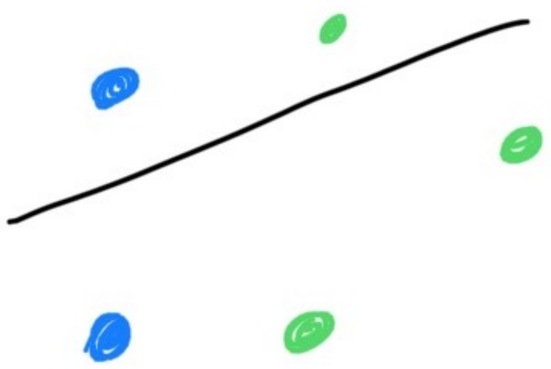
$$wx + b \geq 0 \; ?$$

$\longrightarrow$ ⌐¬ $\longrightarrow$ 0/1

linear function

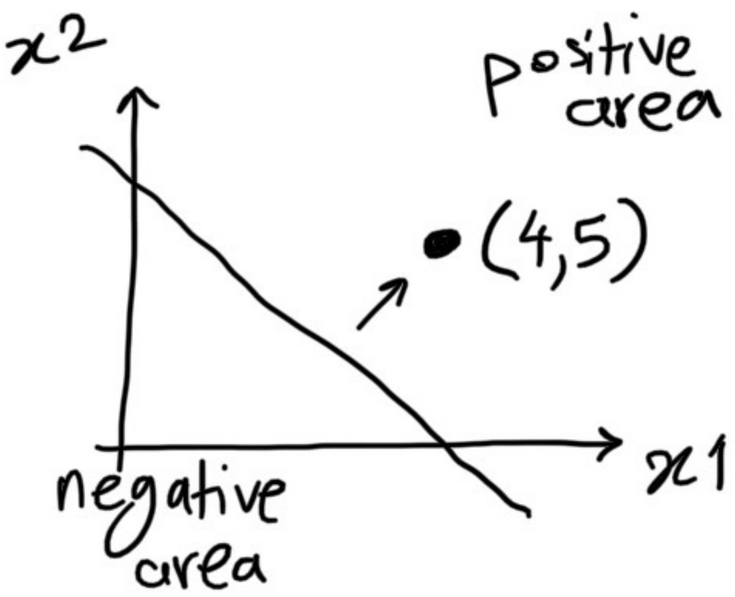
step function

Perceptron Algorithm Goal : split data



→ move this until we get a good split

lines that are misclassified, want the line to come closer.



positive area : $3x_1 + 4x_2 - 10 > 0$

$3x_1 + 4x_2 - 10 < 0$

Line should make small steps towards the line.

But we don't want huge steps.

That's why we use learning rate, e.g., 0.1.

if point was in negative area

$$\begin{array}{rccc} & 3 & 4 & -10 \\ + & (4 & 5 & 1) \quad \times 0.1 \\ - & & & \end{array}$$

point is in pos. area

new line : $2.6x_1 + 3.5x_2 - 10.1 = 0$