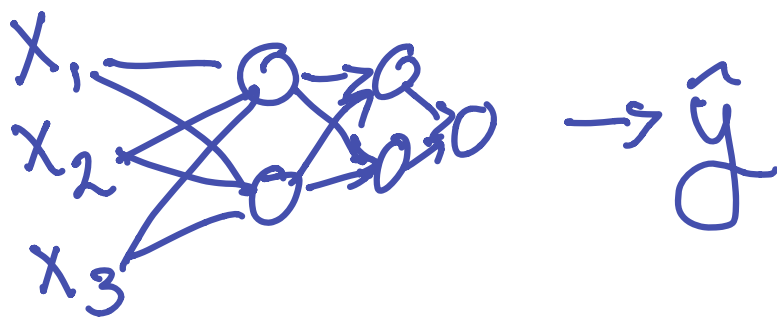


Thinking of an example

Artificial Neural network



x_1	3	5	12	1	9	Temp
x_2	1	0	1	0	1	Sun?
x_3	2	12	3	17	2	Wind m/s
y	No	No	Yes	No	Yes	Beautiful Spring Day

Note: add vectorization
at the end for those who know

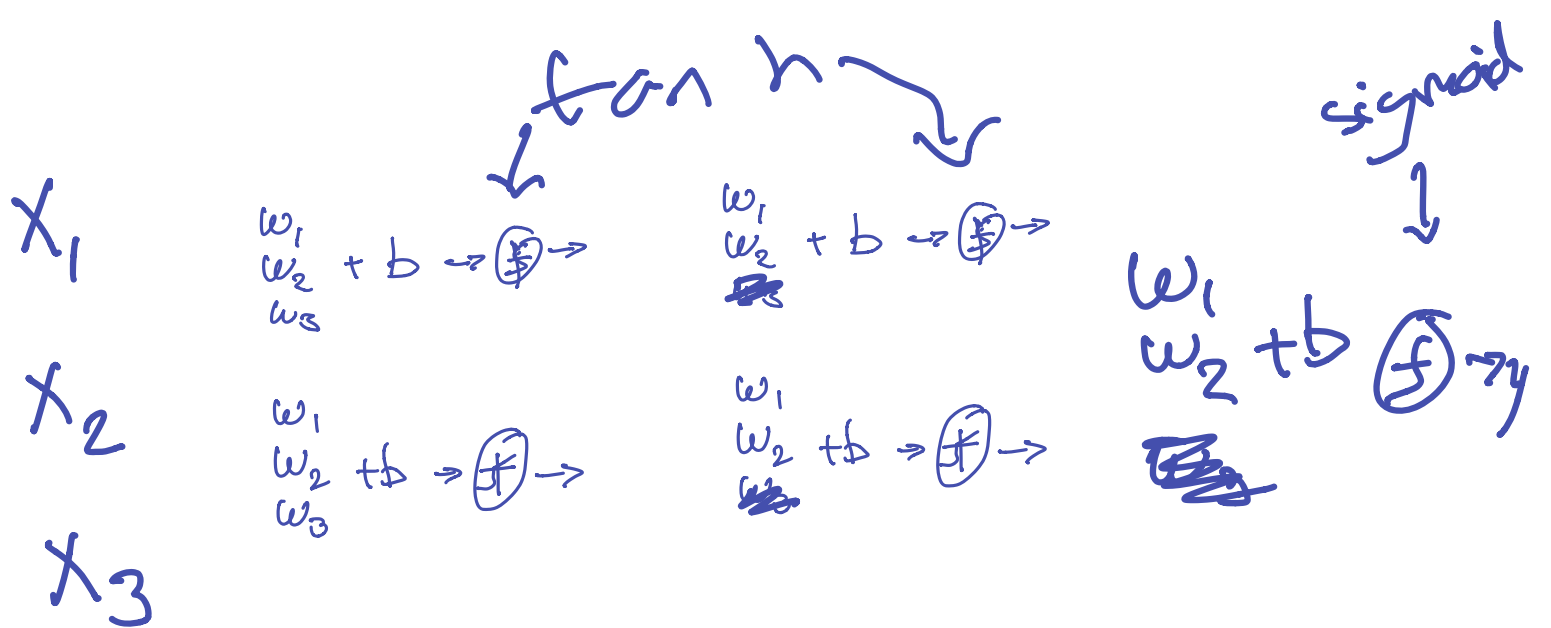


Diagram illustrating the structure of a neural network layer with 3 input nodes (x_1, x_2, x_3) and 3 output nodes (y_1, y_2, y_3).

The input nodes are connected to the output nodes via weights (w_1, w_2, w_3) and a bias (b). The output nodes are connected to the final output (y) via a sigmoid function (σ).

The diagram shows the following connections:

- Input x_1 connects to output y_1 via w_1 and y_2 via w_2 .
- Input x_2 connects to output y_1 via w_1 and y_2 via w_2 .
- Input x_3 connects to output y_1 via w_3 and y_2 via w_3 .
- The output nodes y_1 and y_2 are connected to the final output y via a sigmoid function (σ).

OBS: Have that w 's are 0, usually values vary more, let's keep it simple

$$1 \cdot 3 + 10 \cdot 1 + 0 \cdot 2 + 5 = 18 \rightarrow \textcircled{F} \rightarrow 1$$

$$-3 \cdot 3 + 0 \cdot 1 + 1 \cdot 2 \neq 5 = 1 \rightarrow 0.76$$

$$5 \cdot 1 + 5 \cdot 0.76 + 1 = 9.8 \rightarrow 0.99$$

$$1 \cdot 1 + 3 \cdot 0.76 + -3 = 0.28 \rightarrow 0.27$$

$$0.5 \cdot 0.99 + 0.27 \cdot 0.5 - 0.1 = 0.53$$

$$0.53 \rightarrow \textcircled{F} \rightarrow 0.63$$

$$0.63 \geq 0.5 \rightarrow 1 \text{ yes}$$

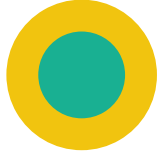
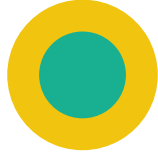
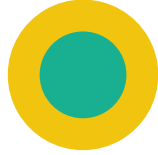
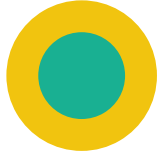
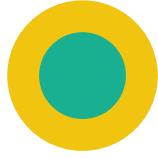
it's a beautiful
spring day

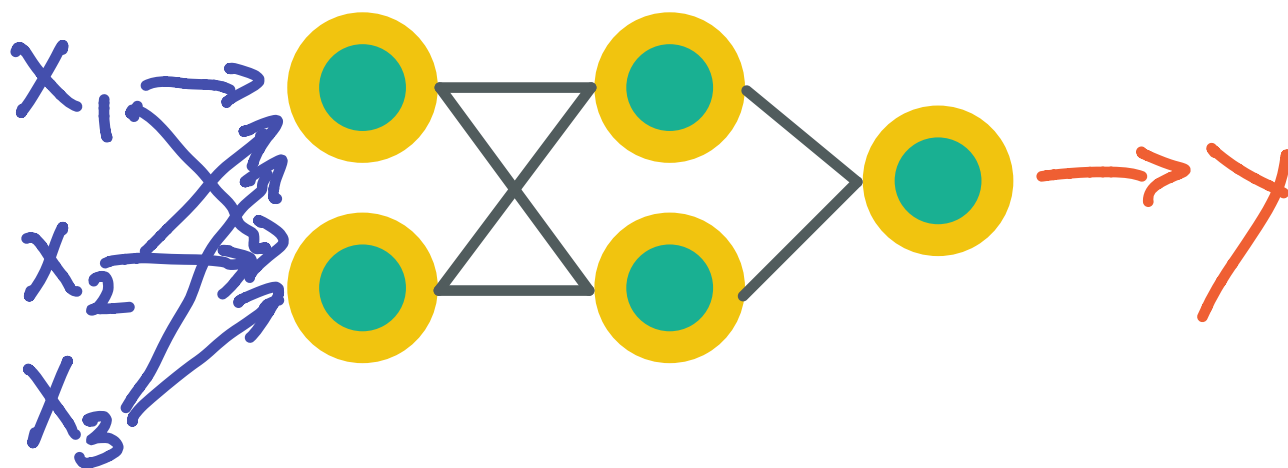
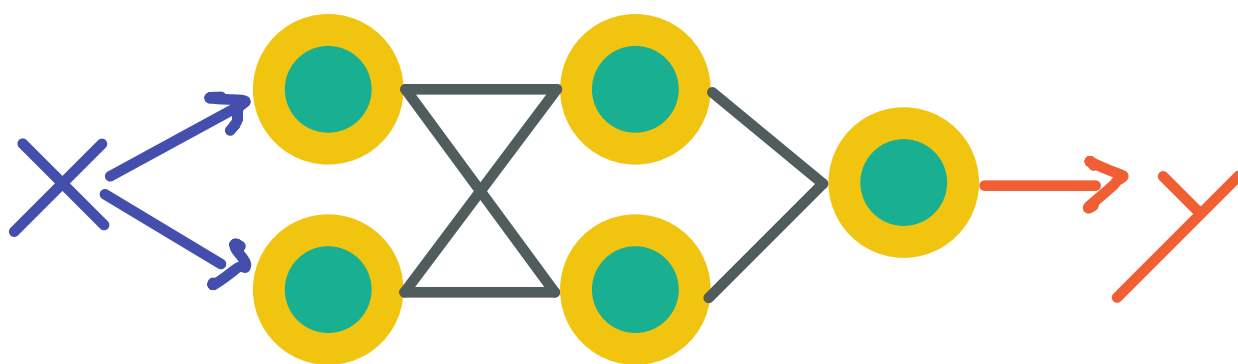
This is ~~wrong~~

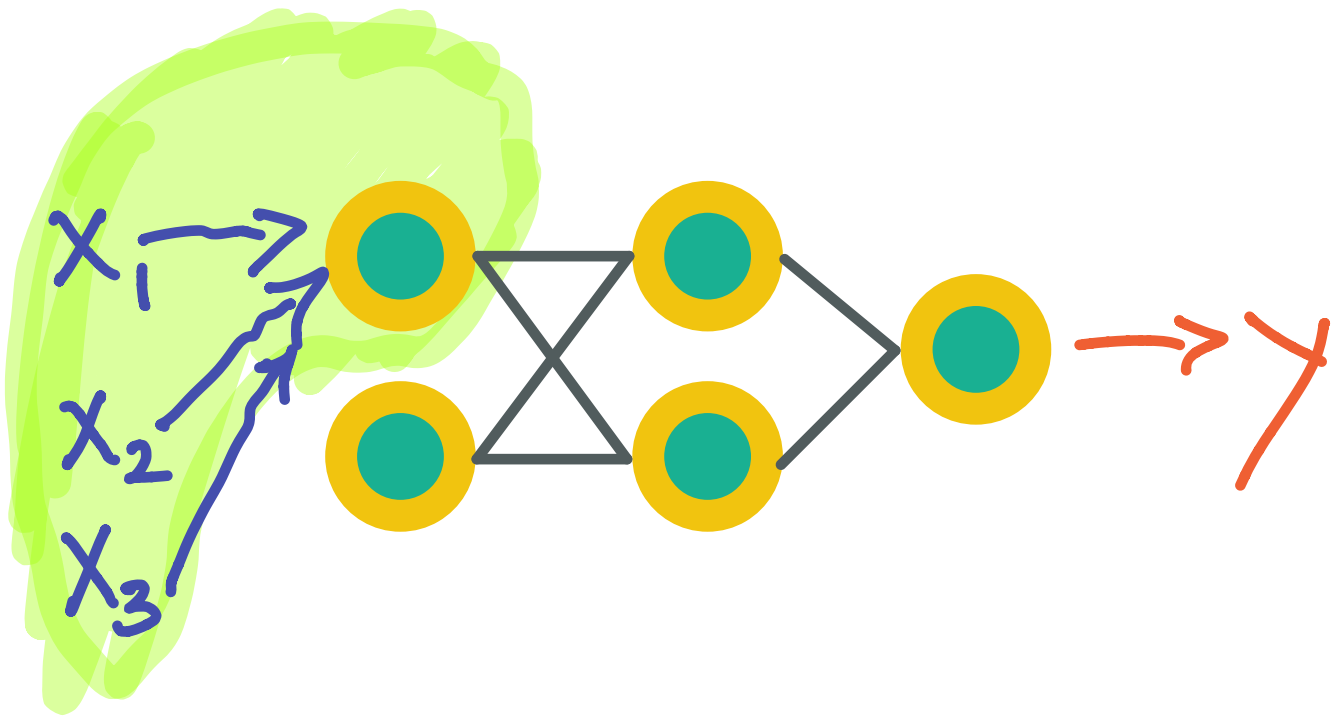
Loss function

Har funktionen det
med ~~derivat~~ ^{derivat}?

Kommer de
att kunna
~~nya~~
eller via
terminal?







$$w_1x_1 + w_2x_2 + w_3x_3 + b$$

$$\rightarrow p \rightarrow \text{tanh} \rightarrow z$$