DEEP LEARNING

NEURAL NETWORKS

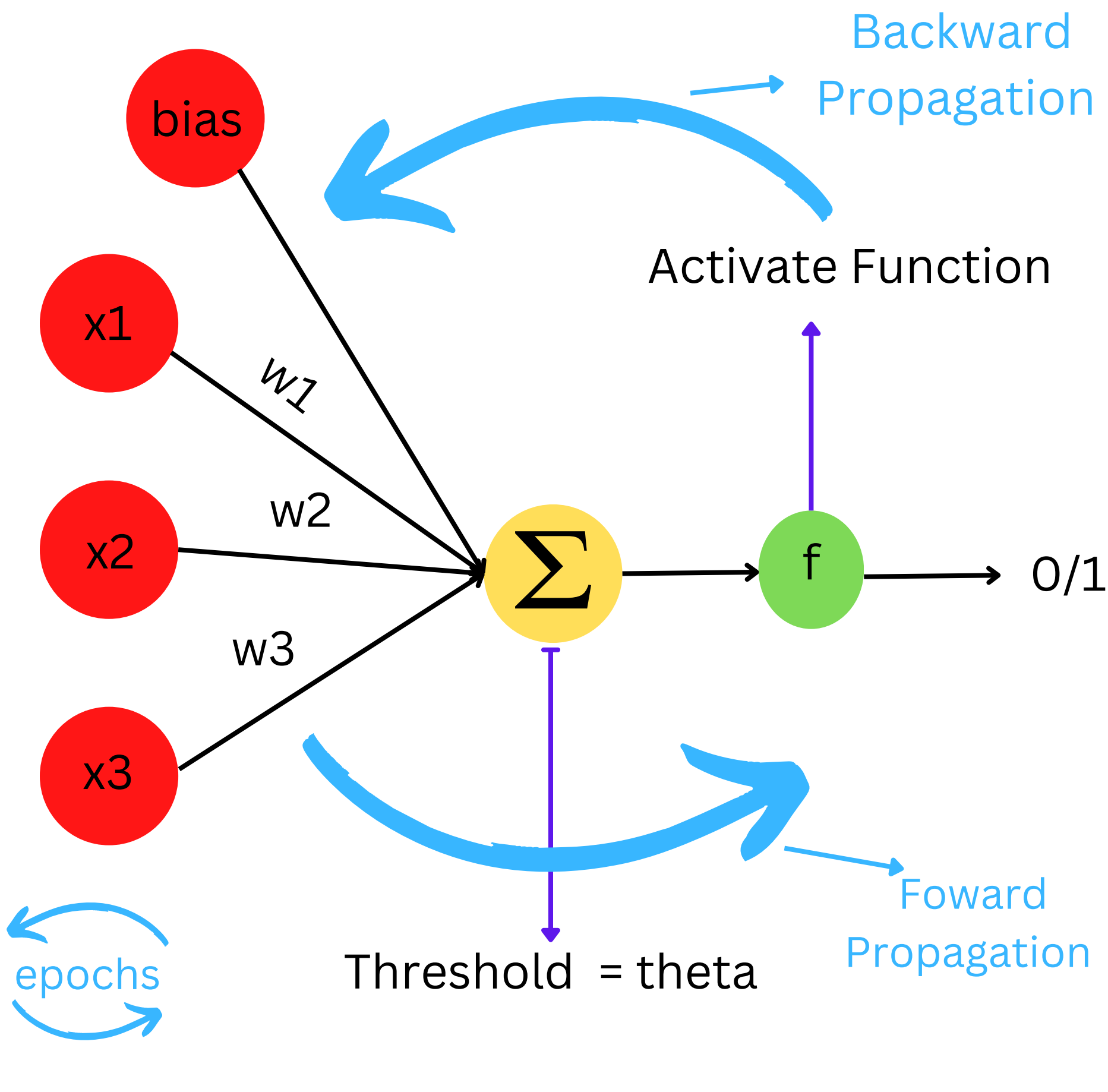
PERCEPTRON

perceptron is a **single layer** Neural Network

Perceptron is a linear classifier (binary). It is used in machine learning and deep learning. It is the primary step to learn Deep Learning Technologies. **Perceptron is a building block of an Artificial Neural Network.** This algorithm enables neurons to learn elements and processes them one by one during preparation .

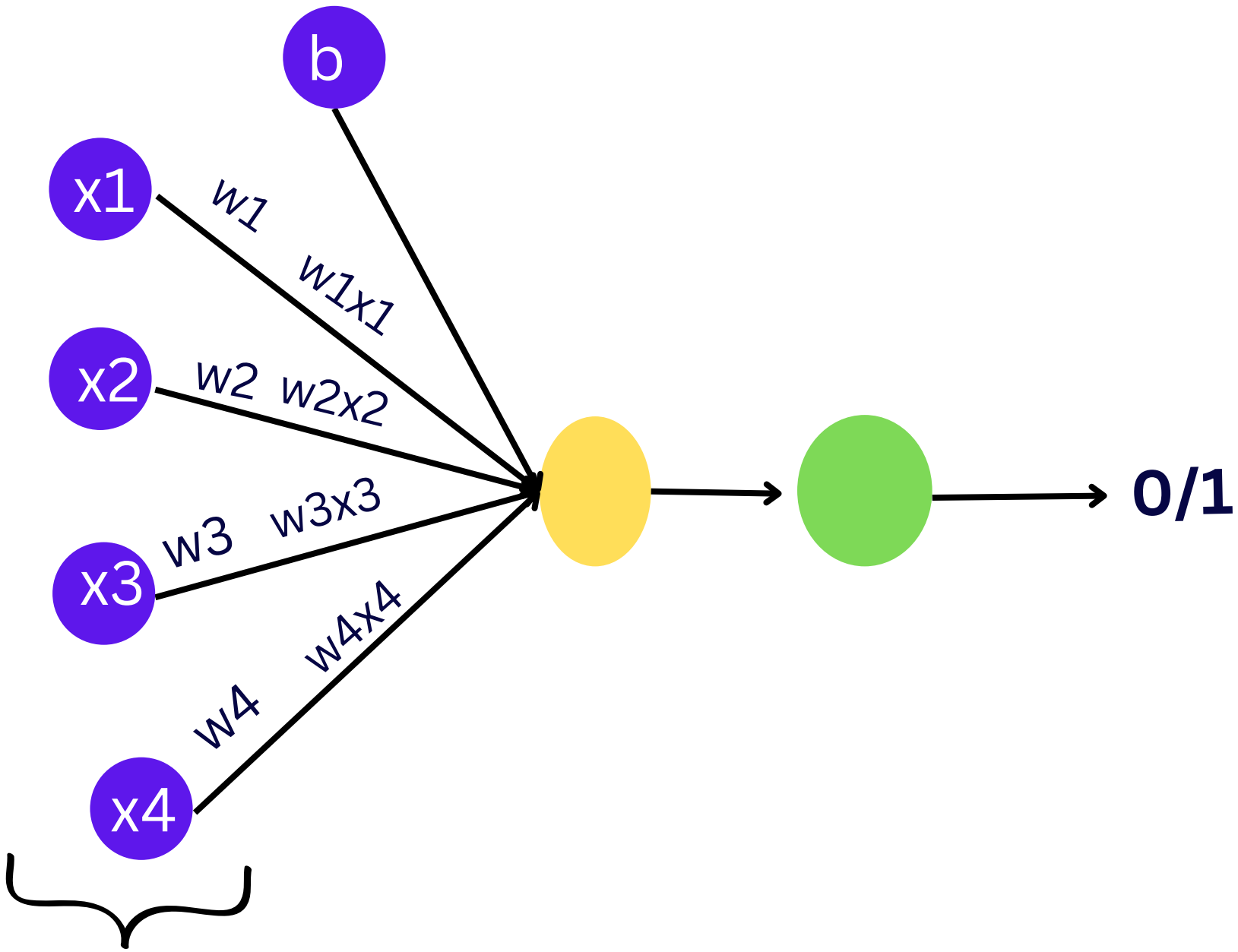
Perceptron consists 4 parts:

1. **Input Values or Input Layers**
2. **Weights and Bias**
3. **NetSum**
4. **Activation Function**


Backward
Propagation
bias
Activate Function
x1
w1
w2
x2
Σ
f
0/1
w3
x3
epochs
Threshold = theta
Foward
Propagation

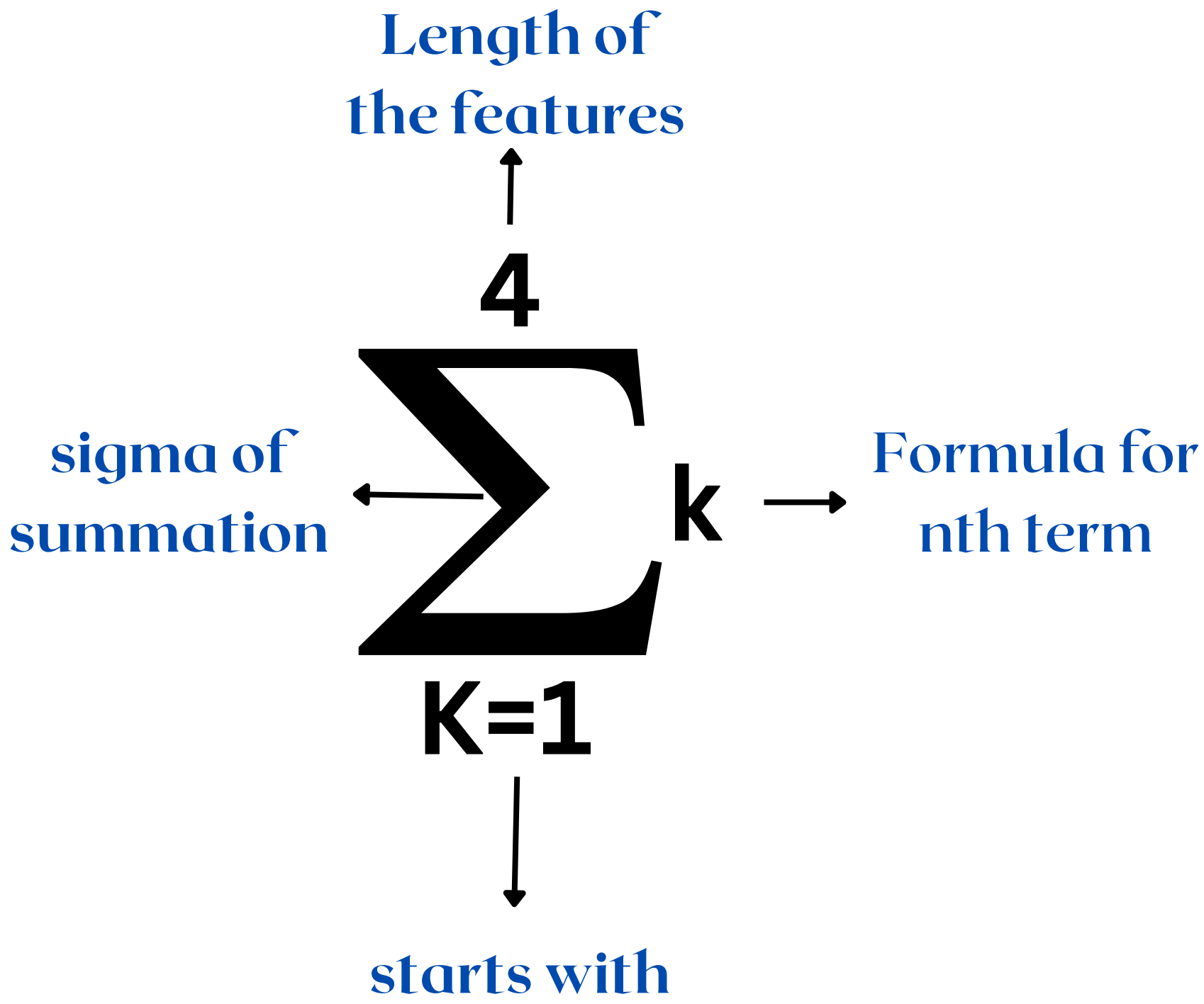
How Does is works?

1) All the inputs of **x** are multiple with their weights **w**.



Multiplying inputs with their weights

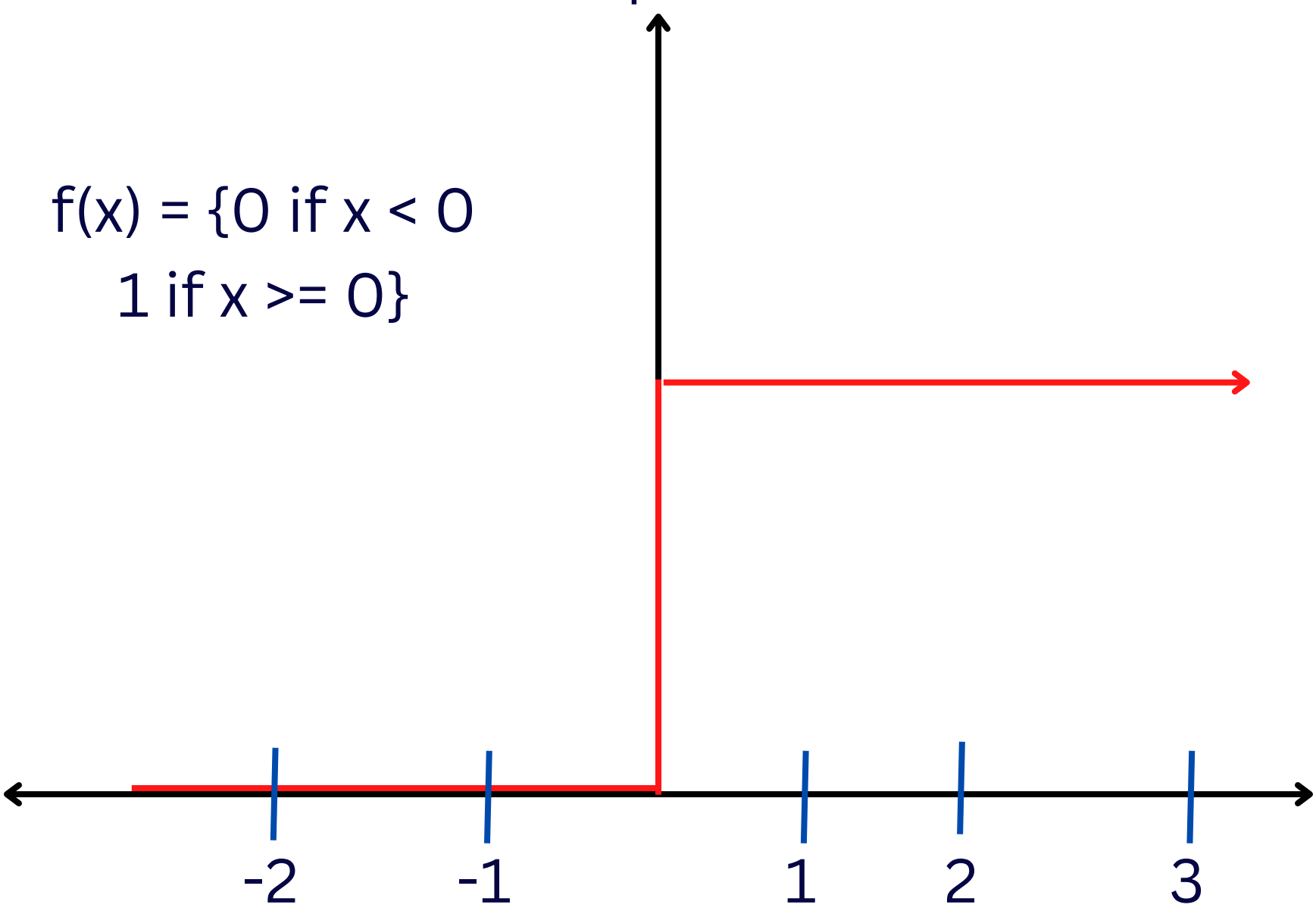
2) Add all the multiple values and call them with weighted sum.



3) Apply the weighted sum to the correct Activation Function.

unit step (threshold)

f(x) = {0 if x < 0
1 if x >= 0}



Why do we need to Activate Function?

Activate Function: This will use to get the output of node. It has also known as Transfer Function.

It is used to determine the output of Neural Network likes Yes or No, It maps the resulting values in between 0 and 1 or -1 to 1, It depends on the function that we take.

Types of Activate Functions:

1. **Linear Activation Function:** It can be separable.
2. **Non-Linear Activation Functions**: It cannot be separable.