* Machine learning Process:

Gathering data

Data preparation — Data exploration
— Data preprocessing

Data wrangling — Missing values, duplicate

Data Analysis

Train Model

Test Model → Deployment.
Select data
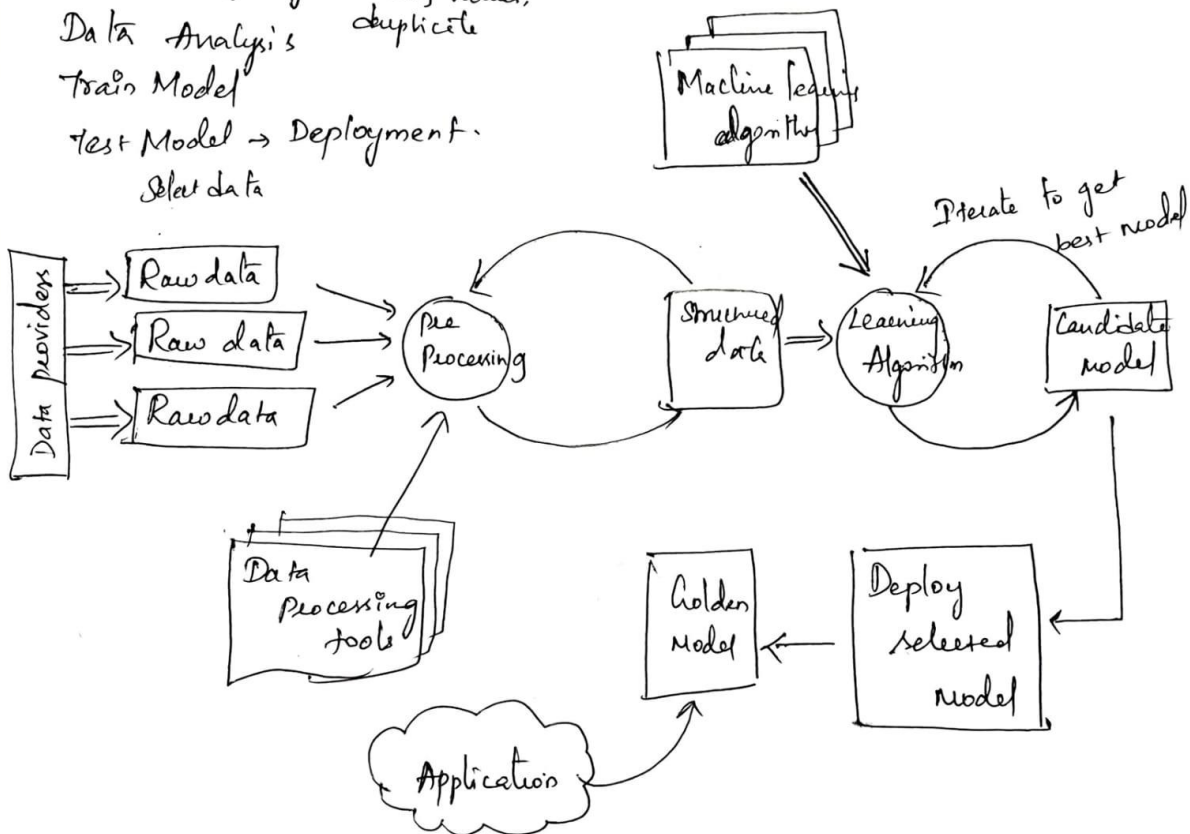
WEIGHTS and BIASES:

→ Commonly referred as w and b. are the learnable parameters of some machine learning models including neural n/w's.

→ Neurons are basic units of neural n/w.

→ In ANN, each neuron in a layer is connected to some or all of the neurons in next layer.

→ When the i/p are transmitted b/w neurons, the weights are applied to the i/p along with the bias.

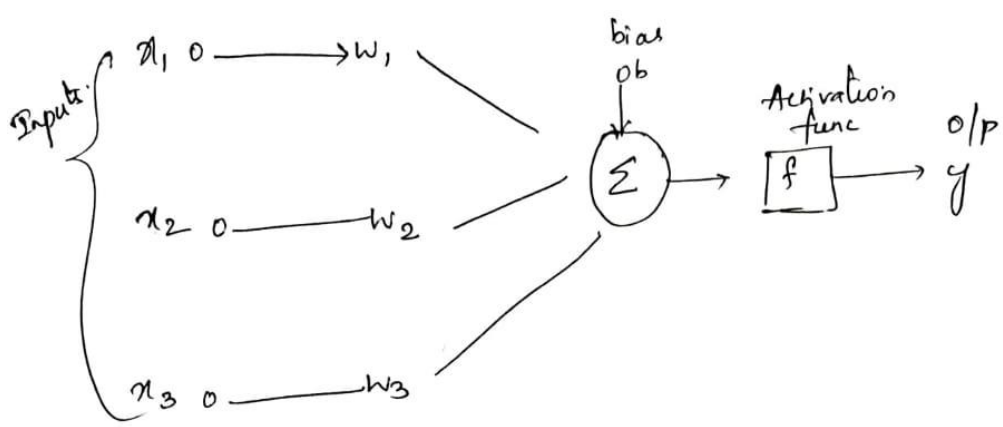$$Y = \sum (weight * input) + bias$$

⇒ Weights control the signal b/w two neurons. Weights decide how much influence the i/p will have on the o/p.

⇒ Biases which are constant, are an additional i/p into the next layer that will always have the value of 1.

⇒ Bias units are not influenced by the previous layer (no incoming connections) but they do have outgoing connections with their own weights.

→ The bias unit guarantees that even when all the i/p are zeros there will still be an activation in the neuron.

weight → Strength of the Connection.   ③

Inputs:
x_1 0 ——————→ W_1

x_2 0 ——————— W_2 bias
ob

x_3 0 ——————— W_3

Σ → Activation func f → o/p y

eg: dog & cat identification
_____
Layers
weights.

Feature eg:

i/p   hidden layers   o/p.

$\Sigma w_i x_i$ + bias term

$y = mx + c$

Tenure	Age	Salary	Attri
1			
3			
5			
8			

Tenure $\xrightarrow{0.4}$ O

Age $\xrightarrow{0.6}$ O

Salary $\xrightarrow{0.8}$ O

O eg: 0.1   (neurons)

bias term

O/p

Inside the neuron
→ activation func

$$f(x) = \frac{1}{1 + e^{-x}}$$

$$x = b + \sum_{i=1}^{N} a_i w_i$$

$$a_{out} = g(x)$$