# Introduction

__/__/____

## Definition :—

* Even among machine learning practitioners, there isn't a well accepted definition of what is & what is not machine learning.

* Arthur Samuel (1959) :— Machine Learning: Field of study that gives computers the ability to learn without being explicitly programmed.
  - This definition is somewhat informal and old.

* Tom Mitchell (1998) :—
  Well-posed Learning Problem: A computer program is said to learn from experience E with respect to some task T and some performance measure P if its performance on T, as measured by P, improves by experience E.

## Types of Machine Learning :—

(i) Supervised learning → "right answers given"
(ii) Unsupervised Learning
(iii) Others → Reinforcement learning, Recommender Systems etc.

★ Note → Regression: Predict Continuous Valued Output.
Classification: Discrete valued output.

★ Supervised Learning :-

In every example of our data set, we are told what is the correct answer that the algorithm has to predict.

- Having a idea that there is a relationship between input & output.

Types of Supervised Learning :-

(i) Regression :- Goal is to predict results within a continuous output, meaning we are trying to map input variables to some continuous function.

Eg :- Given a picture of a person, predict the age of the person.

(ii) Classification :- Goal is to predict results in a discrete output. In other words, we are trying to map variables into discrete categories.

Eg :- Predict whether it will rain or not, given the humidity in air.

Unsupervised learning :—

It allows us to approach problems with little or no idea what our results should look like.

- There is no feedback based on the prediction results.