

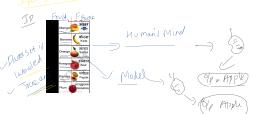
## Naive Methods

### Learning based Algorithms



To imitate Human mind

#### Supervised Learning



#### Unsupervised Learning



#### Supervised Learning

- In a supervised learning model, the dataset which is fed to the machine is labelled.
- In other words, we can say that the dataset is known to the position with it training the model only when model is able to label the data.
- A label is some information which can be used as a key for each.

#### Unsupervised Learning

- An unsupervised learning model works on unlabeled dataset. This means that the data which is fed to the machine is random and there is no possibility that the person who is training the model does not have any information regarding it.
- The unsupervised learning models are used to identify relationships, patterns and trends out of the data which is fed into it.
- It helps the user in understanding what the data is about and what are the major features identified by the model in the data.

## Reinforcement Learning



→ RL is an area of Machine Learning concerned with how software agents ought to take actions in an environment in order to maximize some notion of cumulative reward.

RL is one of the three basic ML paradigm, alongside Supervised & Unsupervised learning.

→ In RL, the machine is not given examples of correct input-output pair, but a method is provided to the machine to measure its performance in the form of reward.

→ Reinforcement learning methods resemble how humans & animals learn, the machine learns out numerous activities and gets rewarded whenever it does something well.

Ex - Amazon Web Service (AWS) DeepRacer

SIR

1) Print("Shishir") ↗

DIR

Shishir.

2) "Unexpected indent"

Mr. JoJo,  
My Name is Obo.

Point("Hello")  
Print("Hello")

(Underlined)  
↗ S 5 ↗  
Print("Hello")  
Print("Hello")

## Supervised Learning

- ✓ Regression.

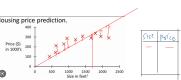
- ✓ Classification.

Regression → Such models work on continuous data.

### Types of Regression

Linear regression, Stepwise regression.

Ridge ↗ are

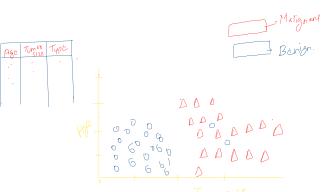


### Classification

→ data is classified according to the labels

### Types of classification

Ex Logistic Regression, Naive Bayes, Support Vector machines, Stochastic Gradient Descent.



## Unsupervised Learning

- Clustering

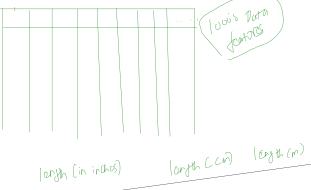
- Dimensionality reduction.



Model ↗ refers to the unsupervised learning algo which can cluster the unknown data according to the patterns or trends identified out of it.

## Dimensionality reduction

helps to solve unsupervised learning problem



→ used basically for two purposes:

→ Data compression

→ Visualization

Two main classes of algo :

- ✓ Linear algebra method.
- ✓ Manifold learning methods.