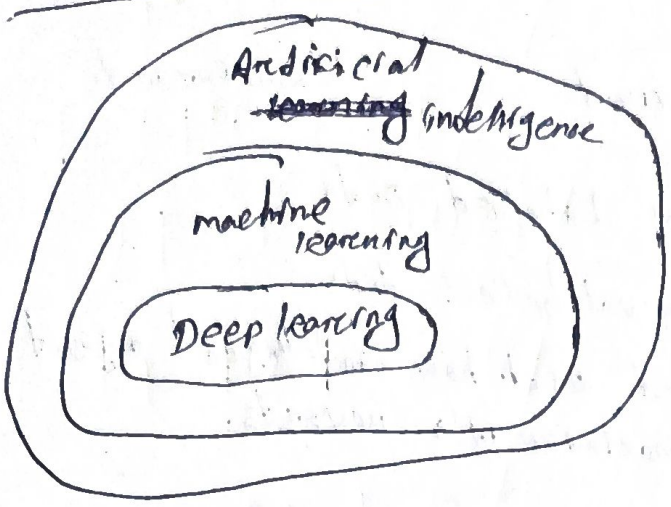
Machine learning



AI

Branch of CS that is concerned with building smart & intelligent machines.

→ can think, make decession.

ML

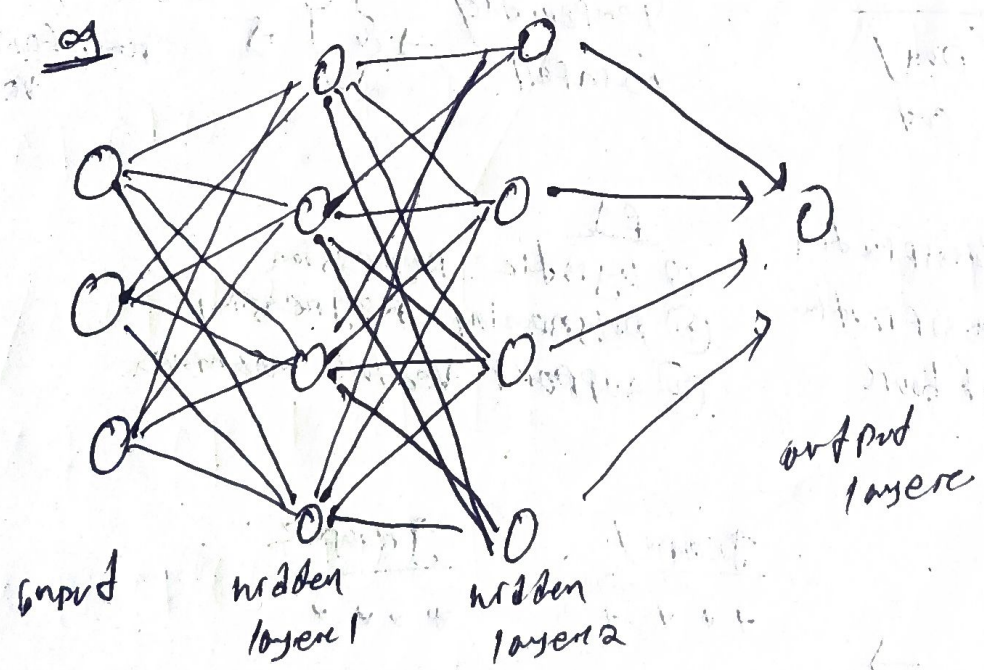
It is a technique to implement AI that can learn from the data by themselves without being explicitly programmed

→ a child sees and learn from it.

DL

It is a subfield of ML that uses Artificial neural networks to learn from the data

Ex



Types of ML

① supervised unsupervised Reinforced

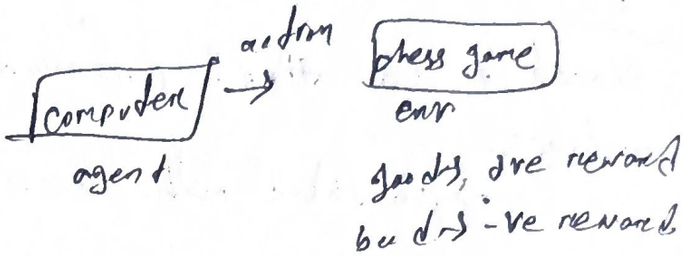
supervised - Algorithm learning from Labelled Data.

unsupervised - Algorithm learning from unlabelled data

Reinforcement - Area of ML concerned with how intelligent agent take actions in an environment to maximize it's rewards.

↳ main aspect.

① Environment
② Agent
③ Action
④ Reward



supervised

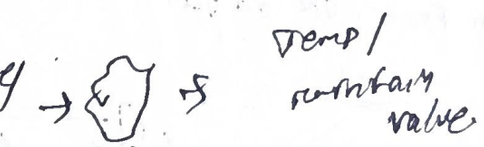
① classification

→ about predicting a class or discrete values.
eg → male / female
true / false.

eg
① Decision tree classification
② Random forest classification
③ K-nearest Neighbour

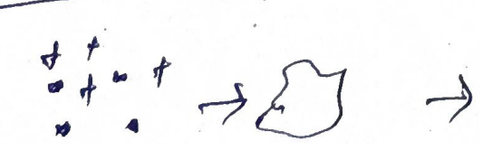
② Regression

→ about predicting a qty or continuous values
eg → salary, age, price



eg
① Logistic regression
② Polynomial regression
③ Support Vector machine

unsupervised



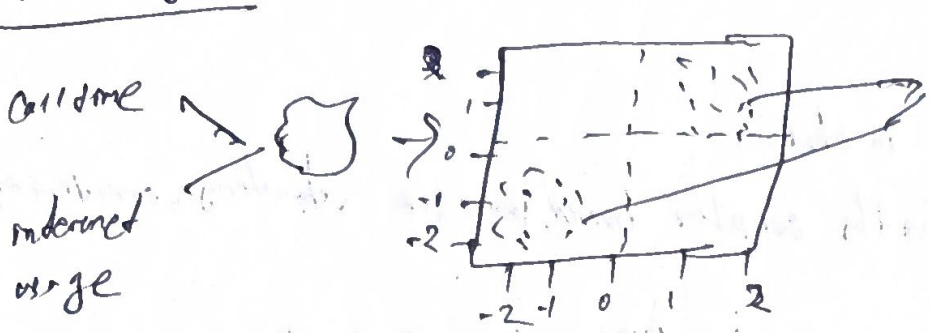
① clustering

→ involves grouping the similar Data points.

② Association

→ used to find important relationship btw. data points.

clustering



Association

Consider a supermarket;

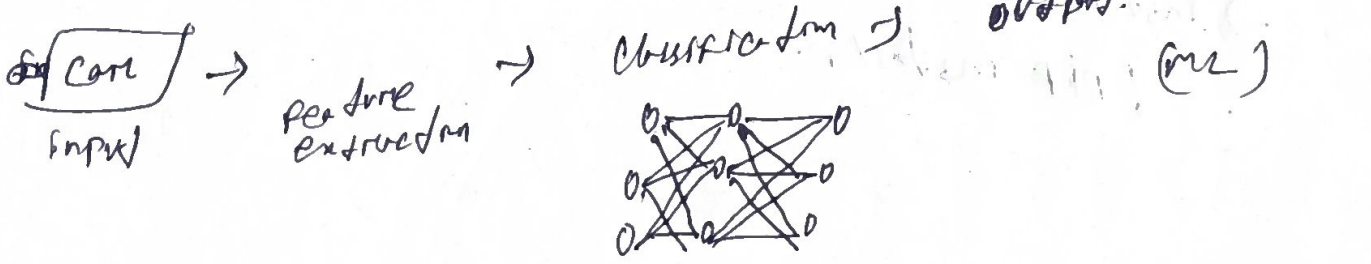
Customer 1	C-2	
→ Bread	→ Bread	then if C-3 buys bread then.
→ milk	→ milk	definitely a chance to buy milk.
→ Rice	→ Rice	
→ wheat	→ Butter	

unsupervised learning Algorithms

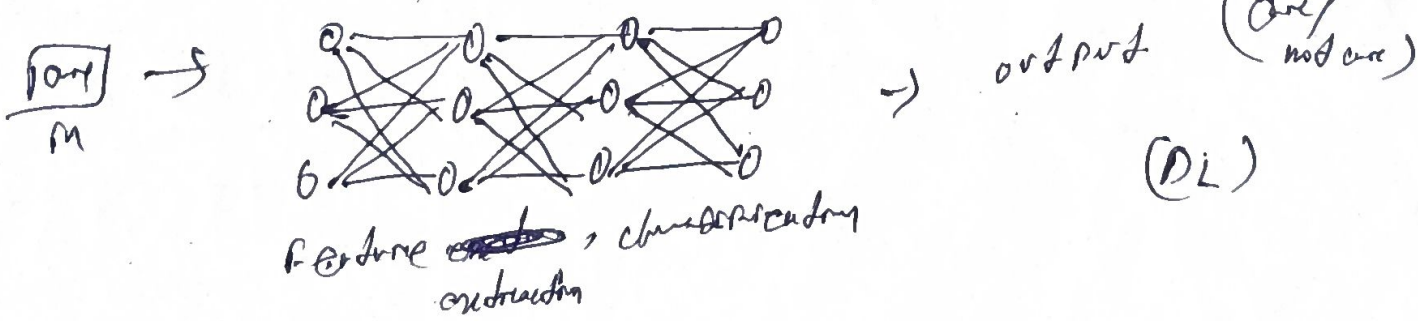
1) K-means - clustering
2) Hierarchical clustering.
3) principal component analysis
4) Apriori
5) ECLAT

~~Deep learning~~

ML Vs DL



DL



Deep learning

-> sub field of ML

-> There was a game go machine

which was ~~accepte~~ profoundly complex board game of , tendency, creativity

and ingenuity.

complex than chess with 10^{170} possible configs.

and it beat a 18 times champion.

application

-> health care -> comp. vision

-> Autonomous car -> NLP

Google colab

-> cloud based app to run python program

-> to get system specification

! cat /proc/cpuinfo

-> Ram info

! cat /proc/meminfo

-> install libraries

! pip install.