22/02/2024

INTRODUCTION TO MACHINE LEARNING

MODULE 1: Machine Learning - Basics

MODULE 2: Python Basics for Machine Learning

MODULE 3: Python Libraries for ML (Numpy, Pandas, Matplotlib, Seaborn)

MODULE 4: Data Collection and Pre processing.

ML USE CASE 1: Rock Vs Mine Prediction

ML USE CASE 2: Diabetes Prediction

ML USE CASE 3: Spam Mail Prediction.

101 Difference between AI, ML and DL

Artificial Intelligence ⇒ concerned in building smart & intelligent machines

Bike, watch → Non-intelligent machines

Autonomous cars, Google Assistant → Intelligent machines

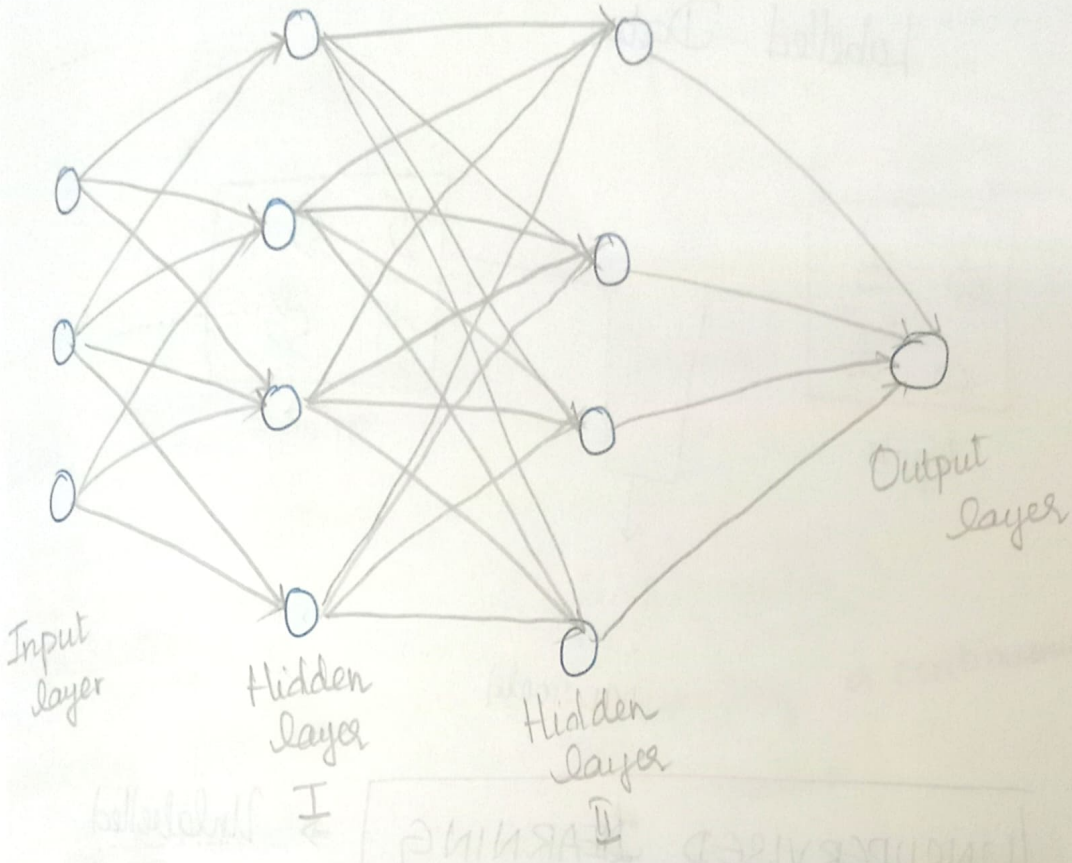
Machine Learning ⇒ technique to Implement AI that can learn from the data by themselves without being explicitly programmed.

Iron Man & Captain America. | Dog or Cat

⇓

Machine learns to classify them through given data.

Deep Learning ⇒ uses Artificial Neural networks to learn from data.



1.02 Classifications of Machine Learning

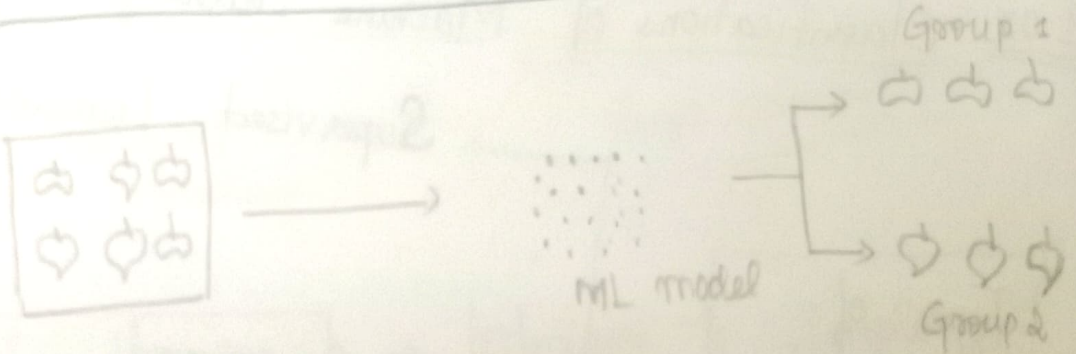
Types of Machine Learning.

- Supervised Learning
- UnSupervised Learning.
- Reinforcement Learning

SUPERVISED LEARNING

→ Machine learning algorithm learns from Labelled Data

UNSUPERVISED LEARNING → Unlabelled Data



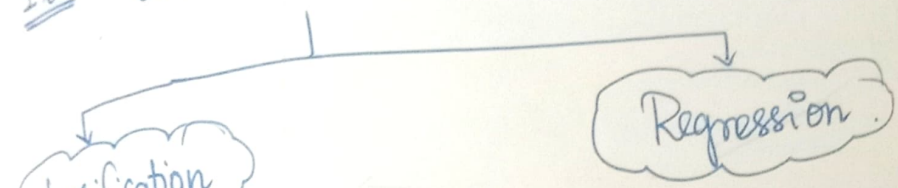
REINFORCEMENT LEARNING

⇒ How intelligent agents takes actions in an environment to maximize its rewards.

1. Environment
2. Agent
3. Action
4. Reward.

moves - Action
pos/Neg - Reward

1.03 Supervised Learning : Labelled Data.



predicting class (or) discrete values.

Eg: True/False, Male/Female.

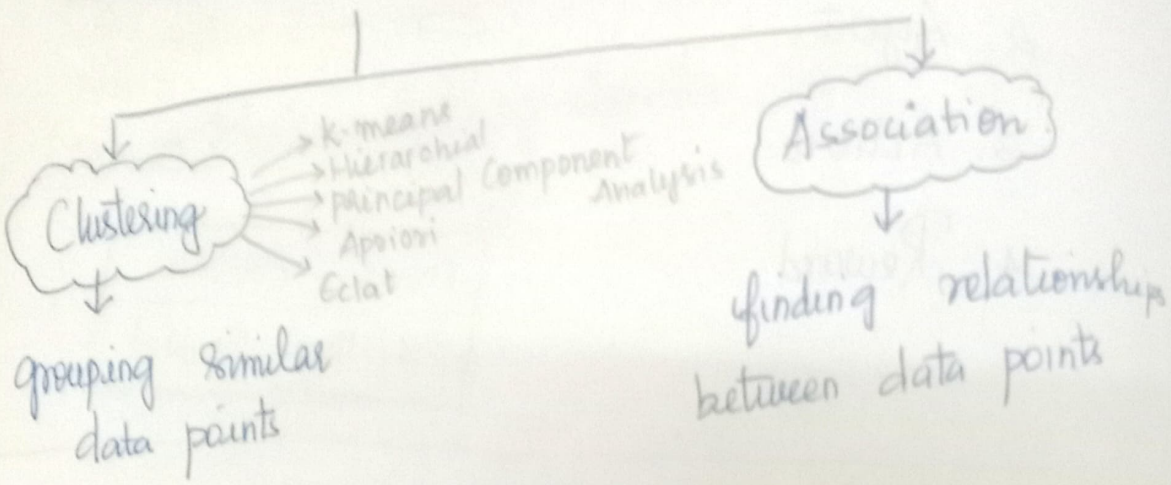
1. Decision Tree
2. Random Forest
3. K-nearest Neighbour

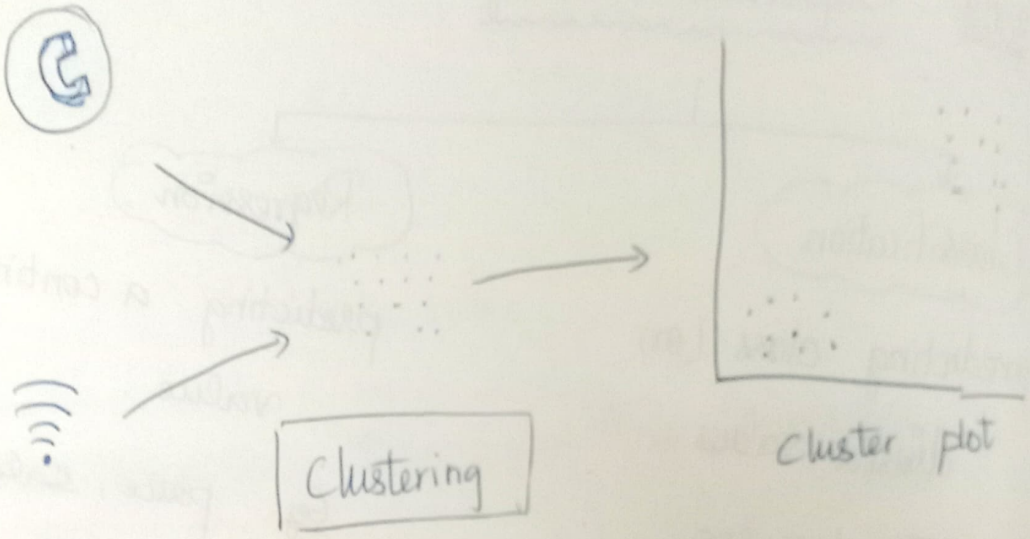
predicting a continuous value.

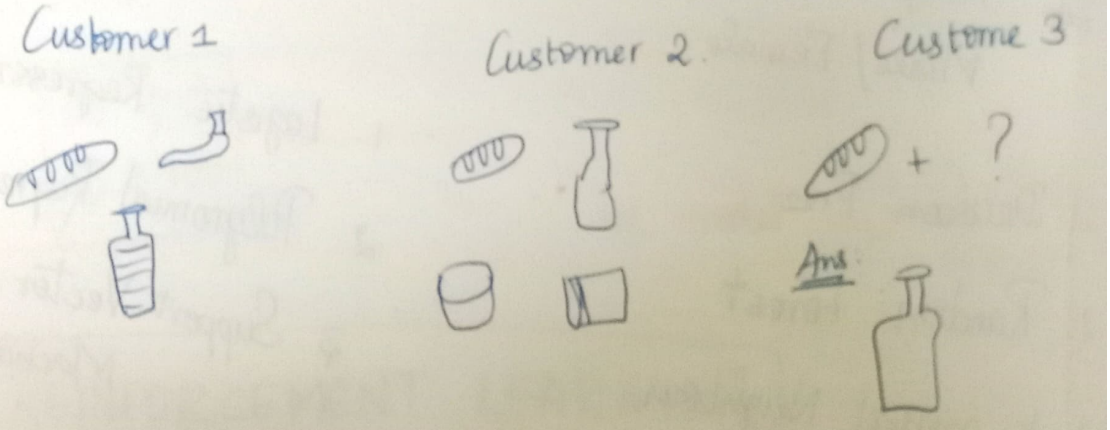
Eg: price, salary, age.

1. Logistic Regression
2. Polynomial Regression
3. Support Vector Machines

1.04 Unsupervised Learning : Unlabelled Data







Eg: Netflix, Flipkart

Association

1.05

DEEP LEARNING

Deep Mind

(Artificial Neural networks)

Three layers

- → Input Layer
- → Hidden layers
- → Output Layer.

Machine Learning	Input → Feature Extraction → Classification → output
Deep Learning	Input → Feature Extraction + Classification → Output.

⇒ Neural networks are so much Powerful than any machine Learning algorithms

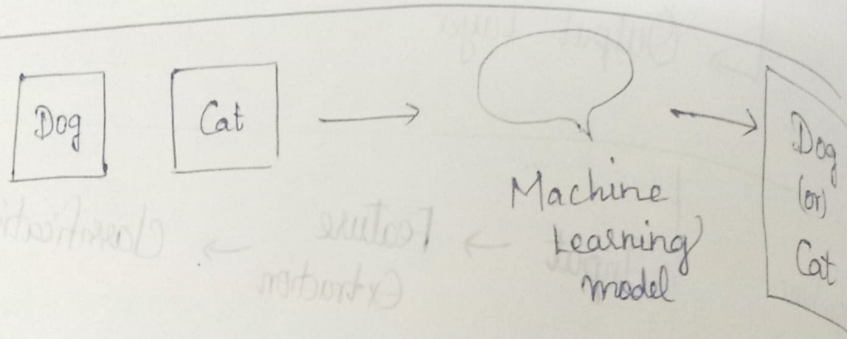
Where Deep Learning's used?

1) Health Care
2) Autonomous Cars
3) Computer Vision
4) Natural Language Processing.

Topics to be Covered next

1. Importance of Data in Machine Learning.
2. Where to collect the Data ?
3. Demonstration of Data Collection.

01.



02.

- Kaggle - website
- UCI Machine learning repository.
- Google Dataset Search