



Machine Learning

Ariful Islam

Batch No:
01

Power by
Black Origin

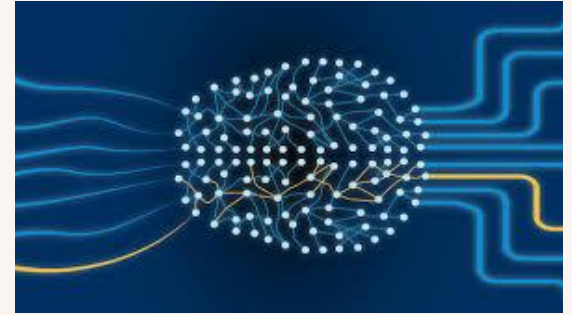
AI vs ML vs DL



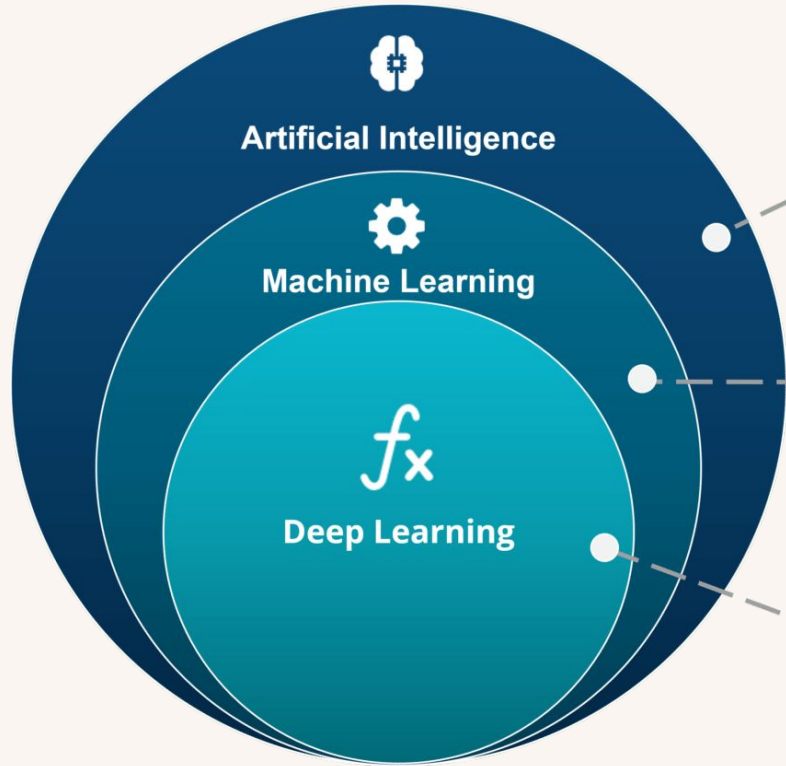
Artificial Intelligence



Machine Learning



Deep Learning



Artificial Intelligence

A Technique which enables machines to mimic human behaviour

Machine Learning

Subset of AI technique which use statistical methods to enable machines to improve with experience

Deep Learning

Subset of ML which make the computation of multi-layer neural network feasible

Artificial Intelligence

Artificial Intelligence is a branch of Computer Science that is concerned with building **Smart & Intelligent** machines

Non-Intelligent Machine



Intelligent Machine



Machine Learning

Machine learning is a technique to implement AI that can **Learn from the data** by themselves without being explicitly programmed

Iron man

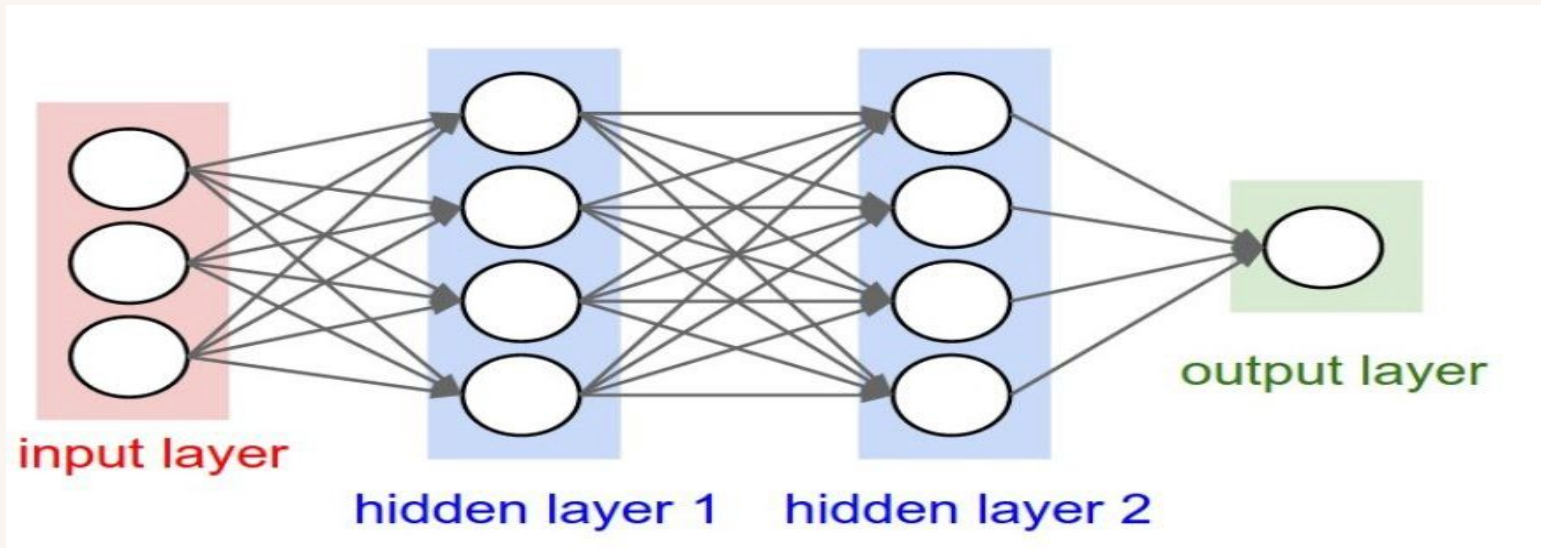


Captain America



Deep Learning

Deep learning is a subfield of Machine Learning that uses **Artificial Neural Networks** to learn from the data.



Machine Learning

Machine learning is a technique to implement AI that can **Learn from the data** by themselves without being explicitly programmed

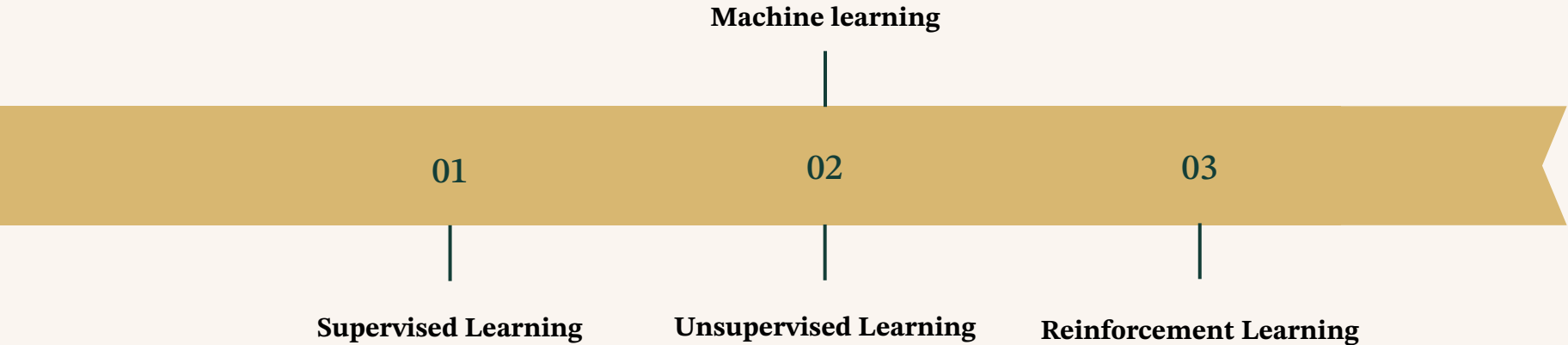
Dog



Cat

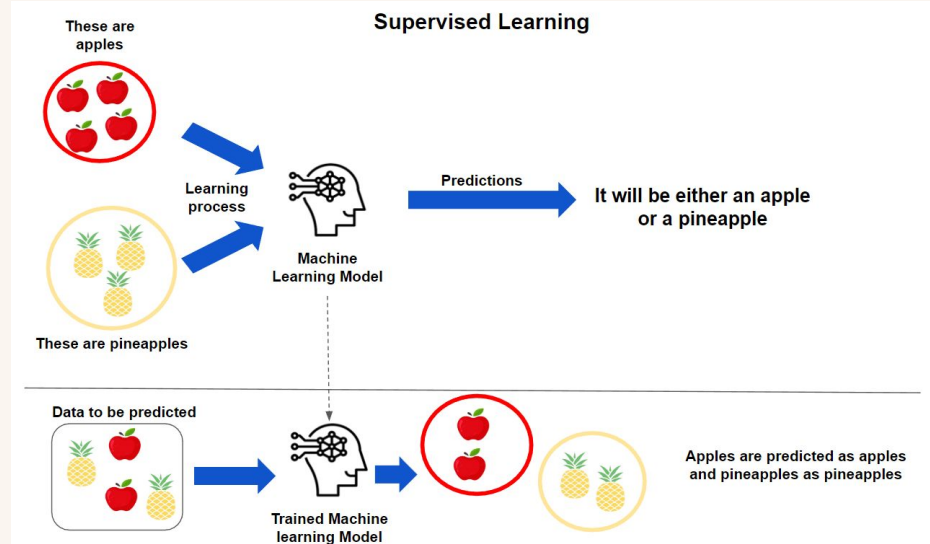


Types of Machine Learning



Supervised Learning

In **Supervised learning**, the Machine Learning algorithm learns from **Labelled Data**



Types of Supervised Learning

Supervised learning

01

Classification

Classification is about predicting a class or discrete values

Eg: male or female; True or False

02

Regression

Regression is about predicting a quantity or continuous values

Eg: salary; age; price

Supervised Learning Algorithms

Classification:

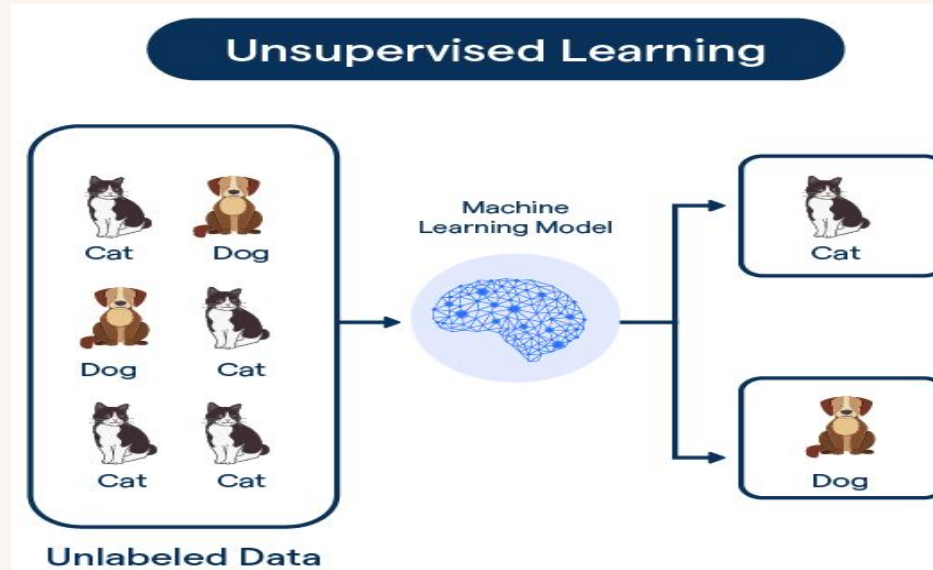
1. Decision Tree Classification
2. Random Forest Classification
3. K-nearest Neighbor

Regression:

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

Unsupervised Learning

In **Unsupervised learning**, the Machine Learning algorithm learns form **Unlabelled Data**



Types of Unsupervised Learning

Unsupervised learning

01

Clustering

Clustering is an unsupervised task which involves grouping the similar data points

02

Association

Association is an unsupervised task that is used to find important relationship between data points

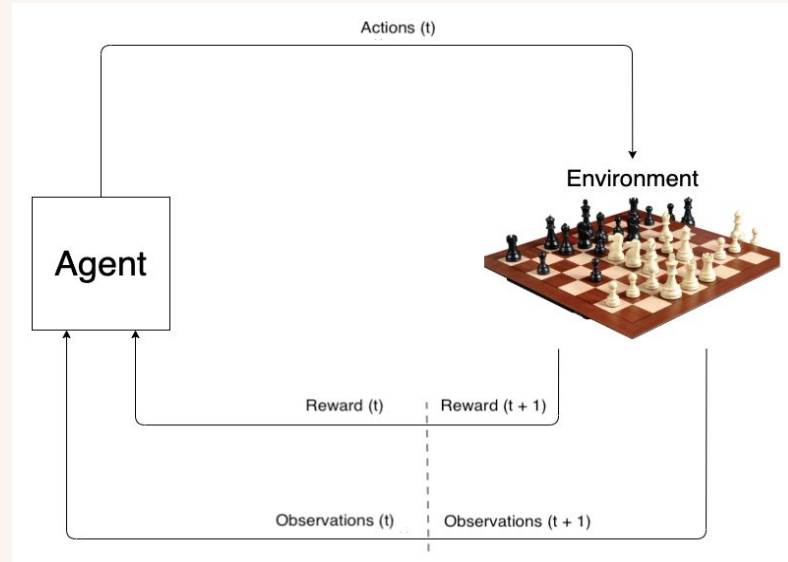
Unsupervised Learning Algorithms

1. K-Means Clustering
2. Hierarchical Clustering
3. Principal Component Analysis (PCA)
4. Apriori
5. Eclat

Reinforcement Learning

Reinforcement learning is an area of Machine Learning concerned with how intelligent agents take actions in an environment to maximize its rewards

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



NumPy, Pandas, Matplotlib, Seaborn