

Machine Learning

Training a model and then predicting result from it is called machine Learning

TYPES Of ML

There are 3 types of machine learning

- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Supervised Learning

working under supervision.

Training Data yani input or output available ho or us labled data k based pa model Tayar karthy han. Pir us model ma new input pass karthy han or dakty han k value output a raha ha ya ni

- 1) Input data --> Learning algo----> model
- 2) New input ---> Model --->new o/p

Types of supervised Learning

- * classification
 - * for categories
- * Regression
 - * For numerical

Algo for Supervised Learning

- * Nearest Neighbor
 - It can be used for both classification and regression problems.
- * Naive Bayes
 - It is a classification technique based on Bayes' theorem with an assumption of independence between predictors. Naive Bayes classifier assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature.
- * Decision Trees
 - It is a type of supervised learning algorithm that is mostly used for classification problems. It works for both categorical and continuous dependent variables
- * Linear Regression
 - It is used to estimate real values (baryani ki sale) based on continuous variable
- * Support Vector Machines (SVM)
 - It is a classification method we plot each data item as a point in n-

dimensional space.

Unsupervised Learning

- * No Teaching
- * Self Learning
- * No labeling data
- * kud patern dakhta ha.
- * Is me input ni daithy han pir us ki based pa cluster banthy han.
- * Bahr ki dunian ko dakh k differece chiza k group kud sa banata ha.
- * k Mean clustering ka use hota ha
- * Jab data a gaya cluster sa pir same category k logo ko ik jaga dal daitha ha

Algo for UnSupervised Learning

- * K-Mean clustering
 - It is a type of unsupervised algorithm which solves the clustering problem. Its procedure follows a simple and easy way to classify a given data set through a certain number of clusters
- * Hierarchical clustering
 - is an algorithm that groups similar objects into groups called clusters. The endpoint is a set of clusters, where each cluster is distinct from each other cluster.
- * probability clustering

Semisupervised Learning

- * Mixture of 1-2
- * tora sa data daity han like 20% 30% 50% and put in clustering as well pir dono algo ko run karthy han pir model train ho jatha ha or pir use karthy han.
- * is ma masla ik hota ha k missing values ziada athi ha lakin tension koi ni ha.

Reinforcement Learning

- * Is ma on based of reward model training kar raha hota ha.
- * Football red card show that not to do this again in other game.

Agent--->Action---> environment --> State, reward --> Agent
Jis tara is chilly ma ham seekh rahy han

Algo for Reinforcement Learning

- * Model free Reinforcement Learning

- Policy Optimization

- Policy optimization is an effective reinforcement learning approach to solve continuous control tasks

- Q-Learning

- Q-learning is a model-free reinforcement learning algorithm to learn the value of an action in a particular state. It does not require a model of the environment, and it can handle problems with stochastic transitions and rewards without requiring adaptations

- * Model-Based Reinforcement Learning

- Learn the model (first model learns)

- Given the model (second step after the model learn it gives output)