MACHINE LEARNING

WHAT IS MACHINE LEARNING?

Machine learning (ML) is the subset of artificial intelligence (AI) that focuses on building systems that learn—or improve performance—based on the data they consume. Artificial intelligence is a broad term that refers to systems or machines that mimic human intelligence.

Machine learning algorithms are the engines of machine learning, meaning it is the algorithms that turn a data set into a model. Which kind of algorithm works best (supervised, unsupervised, classification, regression, etc.) depends on the kind of problem you're solving, the computing resources available, and the nature of the data.

TYPES OF MACHINE LEARNING:-

Based on the methods and way of learning, machine learning is divided into mainly four types, which are:

1. ### Supervised Machine Learning

Supervised machine learning is based on supervision. It means in the supervised learning technique, we train the machines using the "labelled" dataset, and based on the training, the machine predicts the output. Here, the labelled data specifies that some of the inputs are already mapped to the output. More preciously, we can say; first, we train the machine with the input and corresponding output, and then we ask the machine to predict the output using the test dataset.

2. ### Unsupervised Machine Learning

Unsupervised learning is different from the Supervised learning technique; as its name suggests, there is no need for supervision. It means, in unsupervised machine learning, the machine is trained using the unlabeled dataset, and the machine predicts the output without any supervision.

3. ### Semi-Supervised Machine Learning

Semi-Supervised learning is a type of Machine Learning algorithm that lies between Supervised and Unsupervised machine learning. It represents the intermediate ground between Supervised (With Labelled training data) and Unsupervised learning (with no labelled training data) algorithms and uses the combination of labelled and unlabelled datasets during the training period.

4. Reinforcement Learning

Reinforcement learning works on a feedback-based process, in which an AI agent (A software component) automatically explore its surrounding by hitting & trail, taking action, learning from experiences, and improving its performance. Agent gets rewarded for each good action and get punished for each bad action; hence the goal of reinforcement learning agent is to maximize the rewards.

APPLICATIONS OF MACHINE LEARNING

1. Image Recognition

2. Speech Recognition

3. Traffic prediction

4. Product recommendations

5. Self-driving cars

6. Email Spam and Malware Filtering

7. Virtual Personal Assistant

8. Stock Market trading

9. Medical Diagnosis

10. Automatic Language Translation