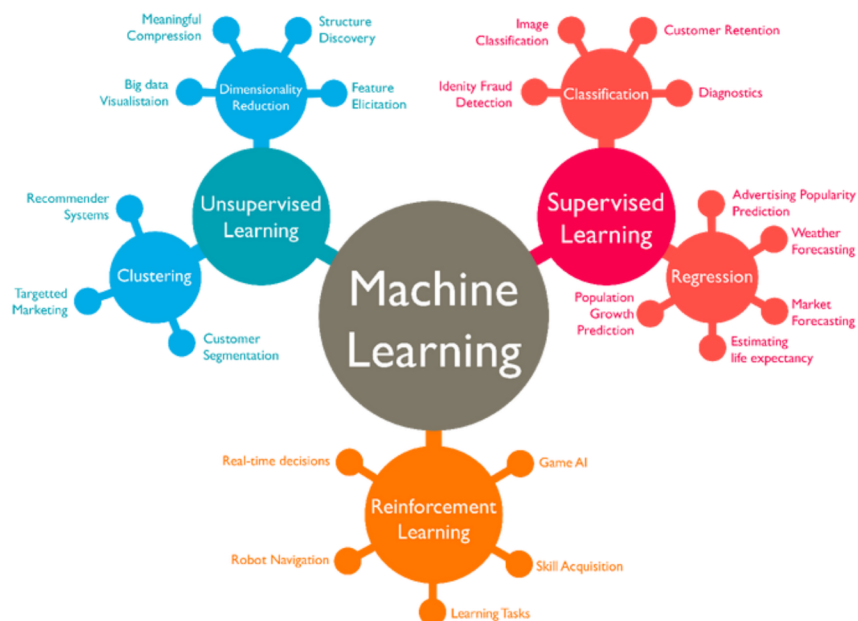


Day 7: Machine Learning Algorithms





What is Machine Learning

- Machine learning is the subset of AI, which enables the machine to automatically learn from data, improve performance from past experiences and make predictions.
- There are various machine learning algorithms used to solve different business problems. Data is fed into these models and the model is trained. The trained model is used to perform prediction of unseen/unknown data.
- Data is preprocessed before passing into the model. So far we have seen all data preprocessing techniques in the previous posts.
- Based on the way of learning, the machine learning is divided into three main types. Let's see them in detail.



Supervised Learning

- In supervised learning, the algorithm is trained on the labelled data. The labelled data contains the input as well as the corresponding output (target).
- The model is trained on known labels to predict the unknown labels.
- The labelled data works as supervisor that teaches the algorithm to make correct predictions.
- These type of algorithms, finds the mapping function between input and output which is used to predict unknown labels.
- These algorithms are highly accurate due to training on labelled data.
- Regression and classification are the two supervised machine learning algorithms.



Unsupervised Learning

- In unsupervised learning, the algorithm is trained on unlabelled data that means the target is unknown.
- There is no data available for supervision. The output is predicted without any supervision.
- There is no reference to check the accuracy of the model.
- The purpose of unsupervised learning is to group the data based on the similarity, pattern.
- Clustering, dimensionality reduction and association are the unsupervised machine learning algorithms.



Reinforcement Learning

- Reinforcement learning is the feedback based machine learning technique in which agent learns from its trial/error and past experiences.
- Agent gets reward on each good action and punishment on each bad action. In this way it improves the performance.
- There is no labelled data like the supervised learning.
- The main goal is to maximise the rewards.
- Games, robotics, recommendation system are the examples of reinforcement learning.