UNSUPERVISED LEARNING:

Unsupervised learning is a type of machine learning where the algorithm is given input data without explicit instructions (unlabeled)on what to do with it. The algorithm tries to learn the patterns and structure inherent in the data without being explicitly told how to interpret it. In other words, the algorithm explores the data and tries to find hidden patterns or relationships without the guidance of labeled output. It finds the hidden pattern itself and gives the insight from then given unlabeled dataset.

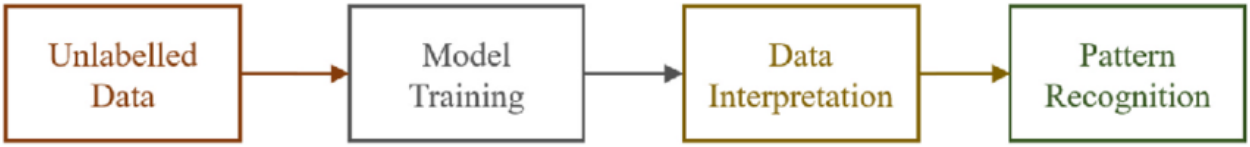

Fig: Flowchart of unsupervised methods *(source: ResearchGate)*

TECHNIQUES OF UNSPERVISED ML ALGORITHMS

1. Clustering:

Clustering is the process of grouping similar data points together based on some similarity metric. The algorithm aims to discover natural groupings or clusters in the data.

Example: K-means clustering is a common algorithm that partitions data into k clusters, where each data point belongs to the cluster with the nearest mean.

2. Association:

Association learning focuses on discovering relationships or associations between variables in large datasets. It identifies patterns where the occurrence of one event is correlated with the occurrence of another.

Example: Apriori algorithm is often used for market basket analysis, identifying associations between products that are frequently purchased together.

UNSUPERVISED LEARNING ALGORITHMS PARTS:

-K-Means Clustering
-KNN (K-Nearest Neighbor)
-Hierarchical Clustering
-Neural Networks/ Deep Learning
-Simple Value Decomposition
-Distribution Models
-Principal Component Analysis
-Apriori Algorithm

ADVANTAGES OF UNSUPERVISED LEARNING:

-Used for more complex task

-helpful in finding pattern in data

-saves a lot of manual work and expense

DISADVANTAGES OF UNSUPERVISED LEARNING:

-Less Accuracy
-Time Consuming
-More the features, More the Complexity