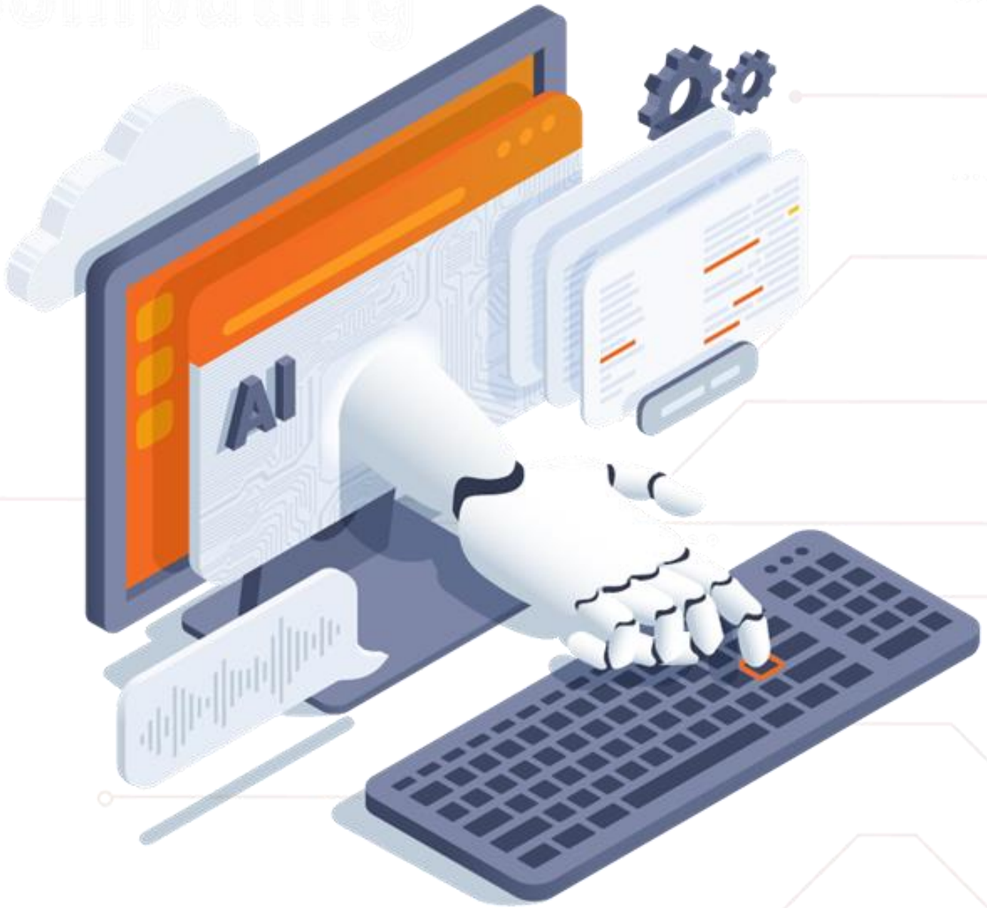

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Unsupervised Learning

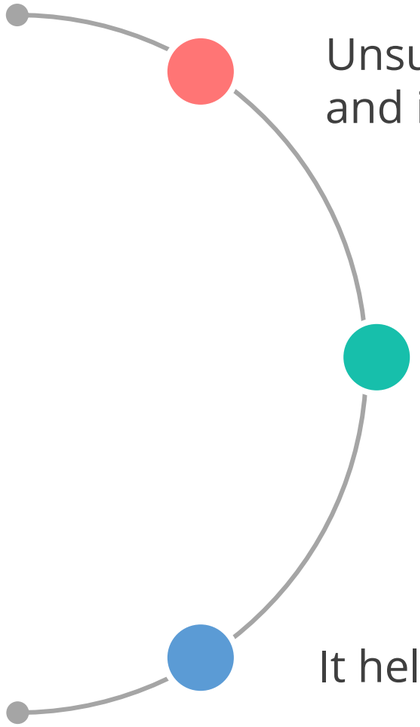
Learning Objectives

By the end of this lesson, you will be able to:

- Explain the mechanism of unsupervised learning
- Describe different clustering techniques

Unsupervised Learning: Overview

Unsupervised Learning: Overview



Unsupervised learning allows the model to work on its own to discover the pattern and information that was previously undetected.

It helps to find out all kind of unknown pattern in data.

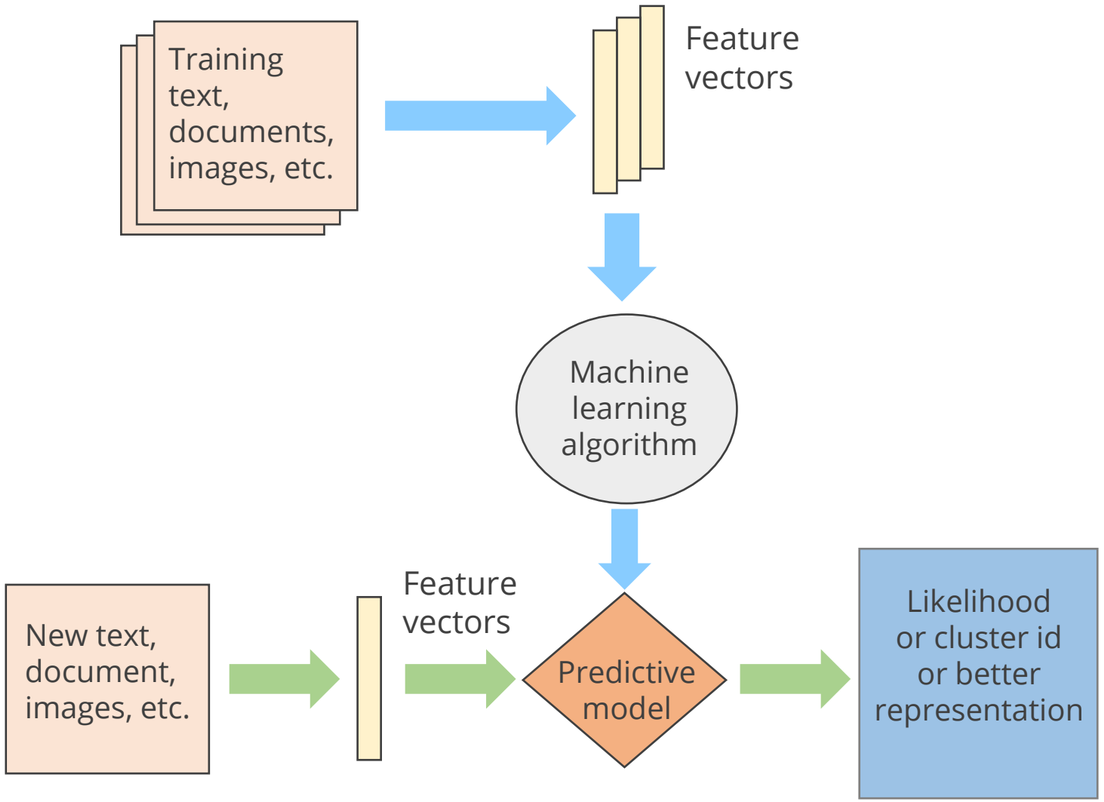
It helps to find out the features required for categorization.

Unsupervised Learning: Real-Life Scenarios

Unsupervised Learning: Process Flow

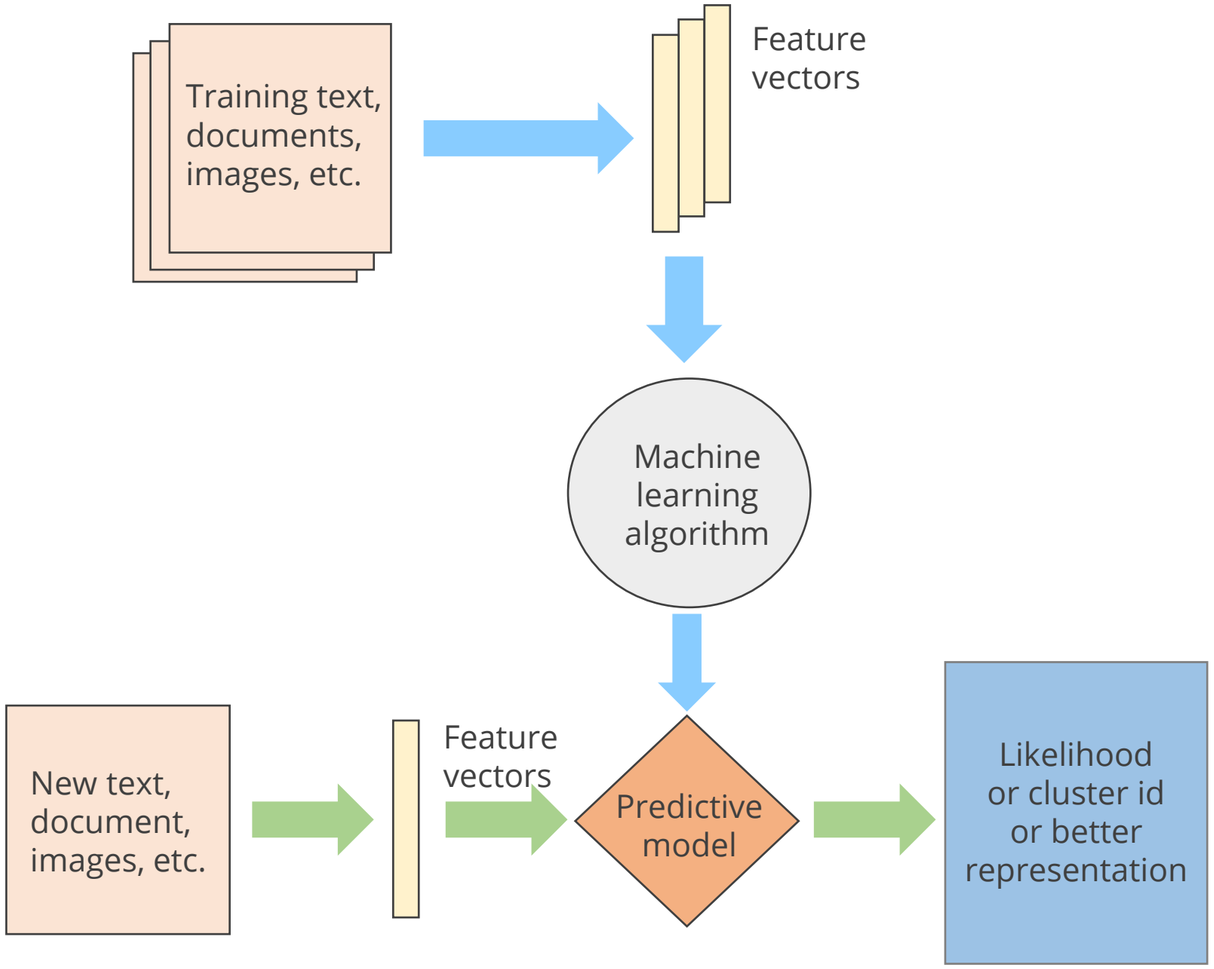
There are no labels on the data. The machine learning algorithm searches for the patterns it can detect.

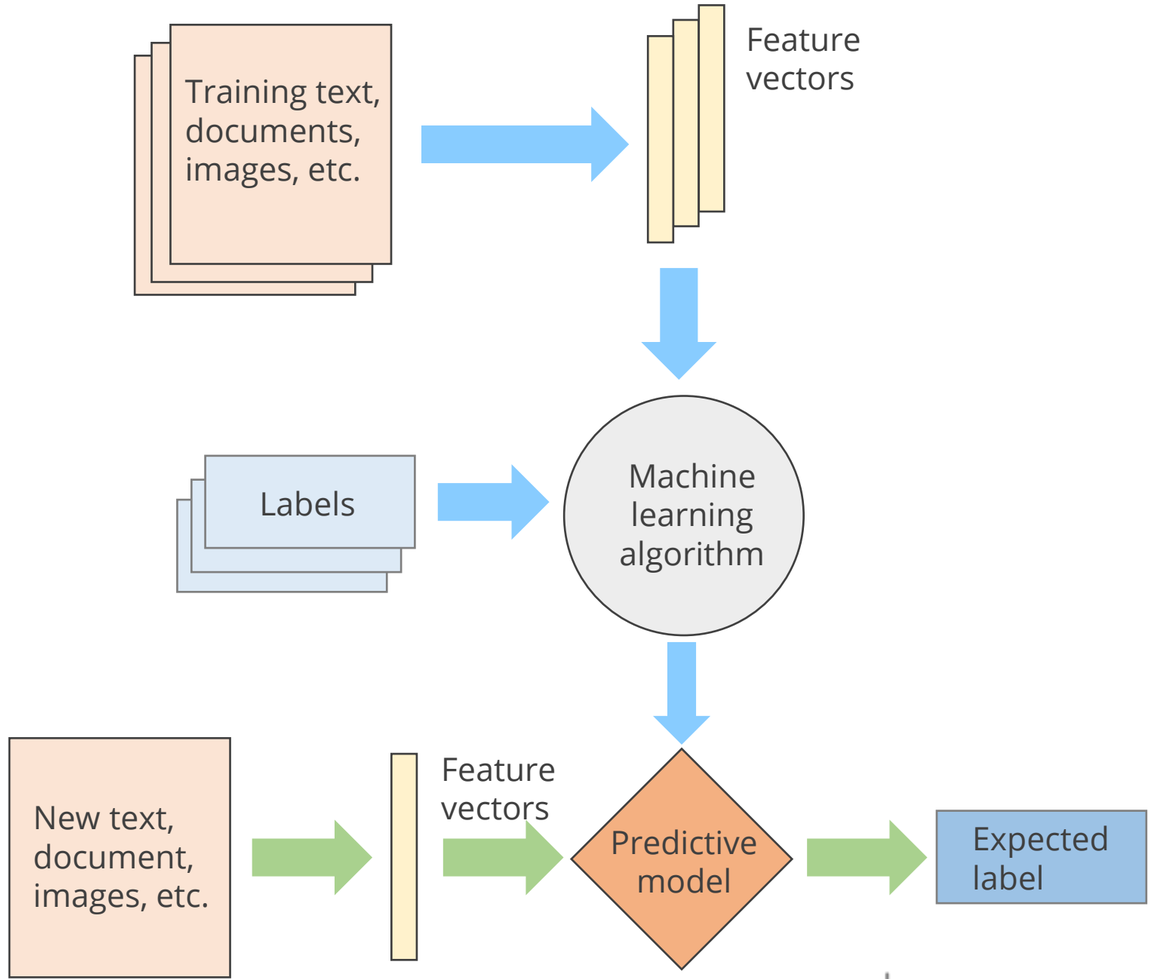
Unsupervised Learning Model



Unsupervised Learning vs. Supervised Learning

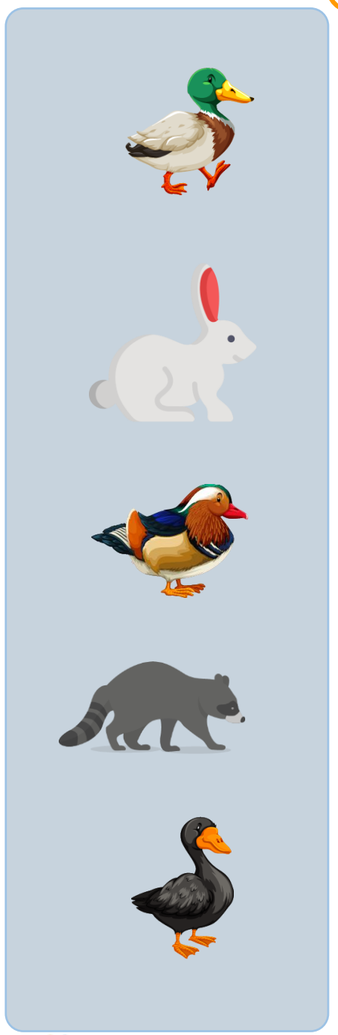
The only difference is the labels in the training data.





Unsupervised Learning: Example

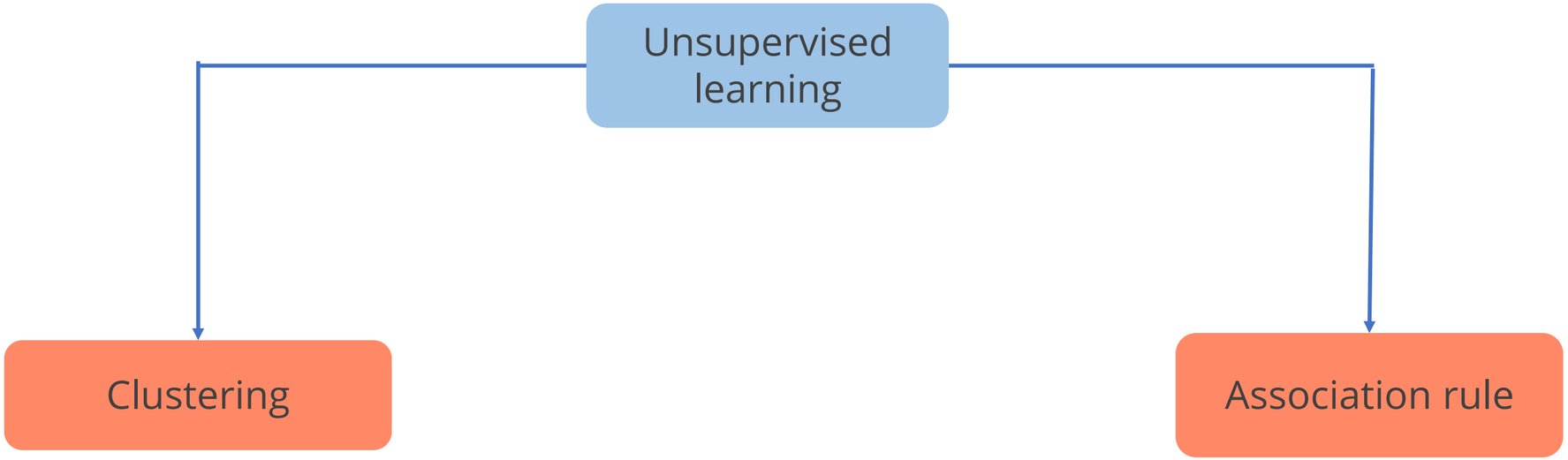
Similar-looking birds/animals are grouped together depending on their characteristics.



Unsupervised learning

Algorithms in Unsupervised Learning

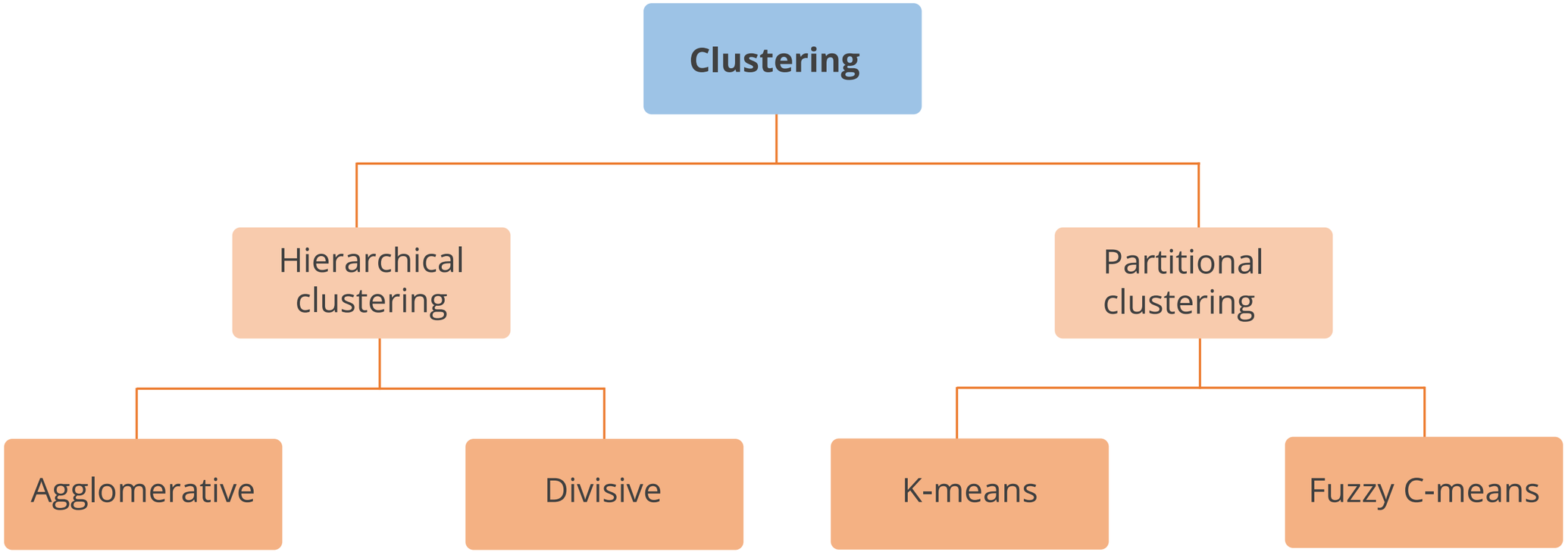
Algorithms Used in Unsupervised Learning



- It is a method of grouping the objects into cluster.
- The grouping is done in such a way that objects with most similarities remain into a group and objects with no or less similarities placed in another groups

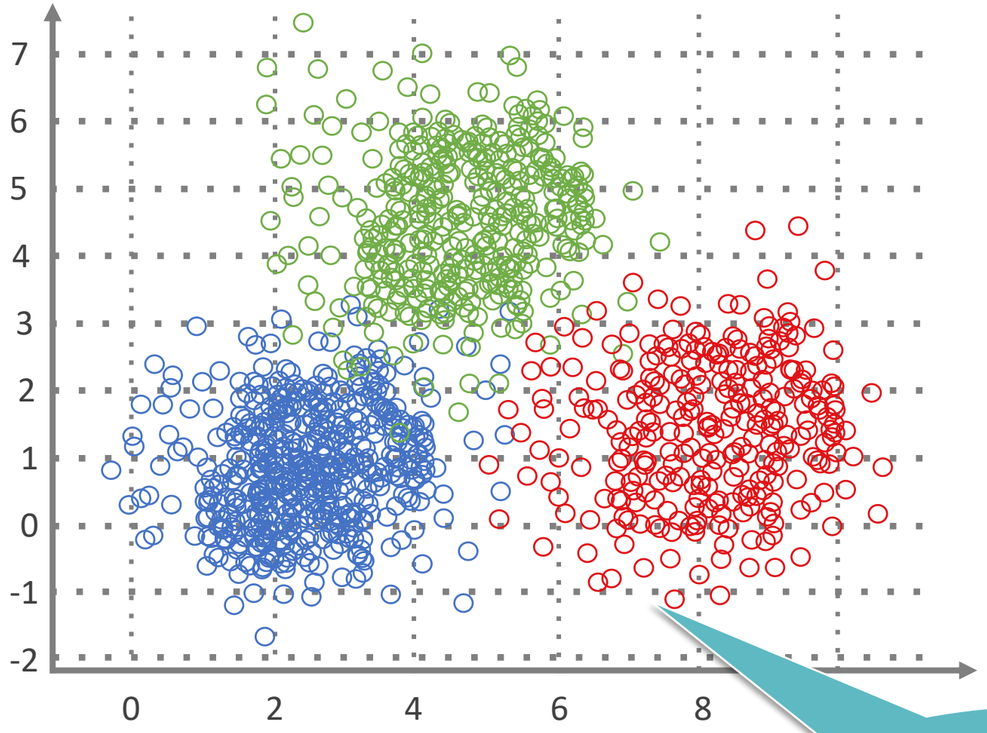
- It is used to find out the relationships between the variables in the large databases.
- For example, people that buy a new home most likely to buy new furniture.

Types of Clustering

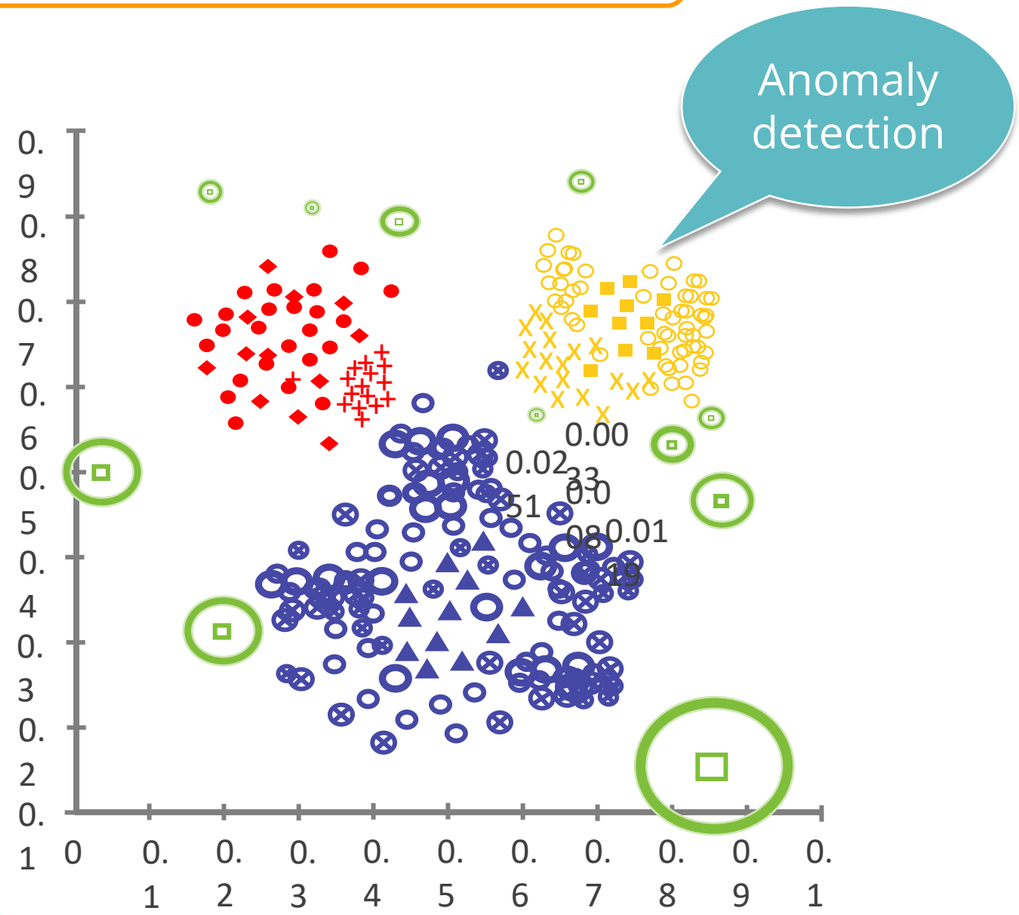


Application of Unsupervised Learning

Unsupervised learning can be used for anomaly detection as well as clustering



Identifying similarities in groups (Clustering)



Key Takeaways

- Unsupervised learning looks for previously undetected patterns.
- Clustering and association are the two algorithms preferred for unsupervised learning implementation.
- In clustering, objects with similarities are placed in one group and objects with no or less similarities are placed in another group.
- Association rule is used to find out the relationships between the variables in the large databases.