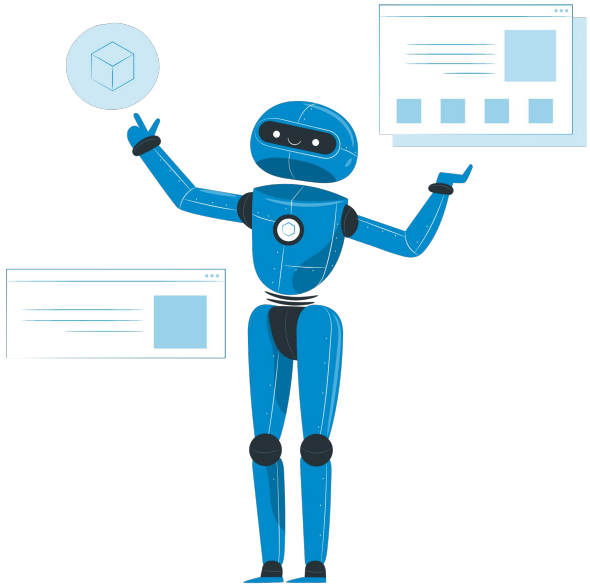
Types of Machine Learning

There are **three** main types of machine learning:

1. Supervised Machine Learning
2. Unsupervised Machine Learning
3. Reinforcement Learning



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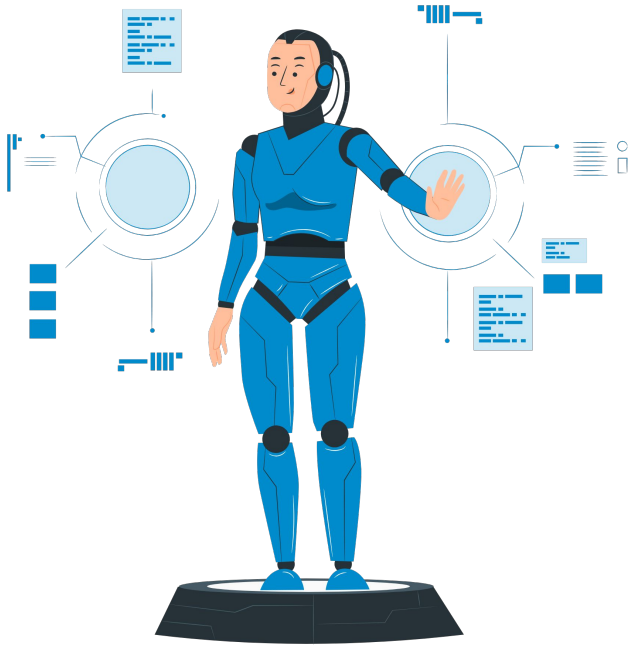
Supervised Machine Learning

1 Supervised Machine Learning

In supervised learning there is a **dependent** or a **Target Variable** and the goal is to **predict the target variable** based on input or independent variables.



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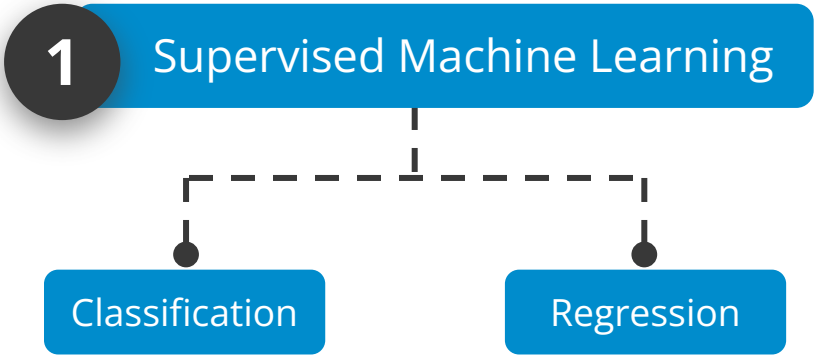
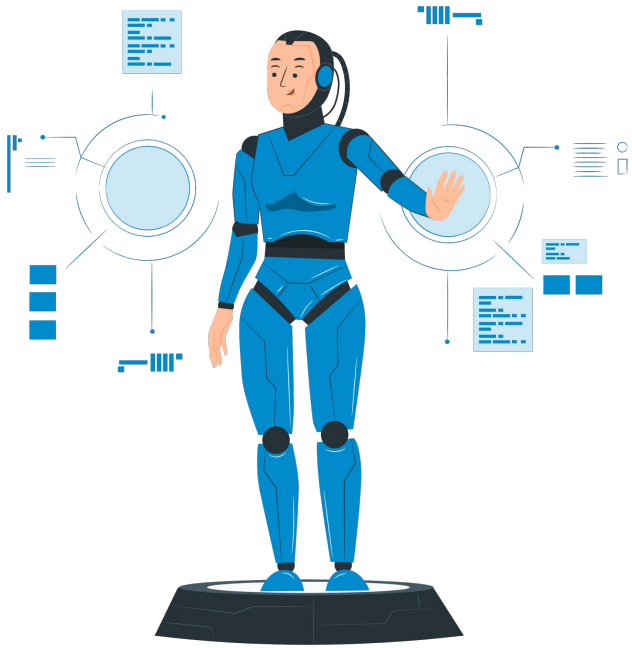
Supervised Machine Learning





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Supervised Machine Learning

Classification

The target variable is categorical

Predict spam email

Predict a movie genre

Predict customer churn

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Supervised Machine Learning

Regression

The target variable is continuous

House price prediction

Customer lifetime value

Predict future temperature

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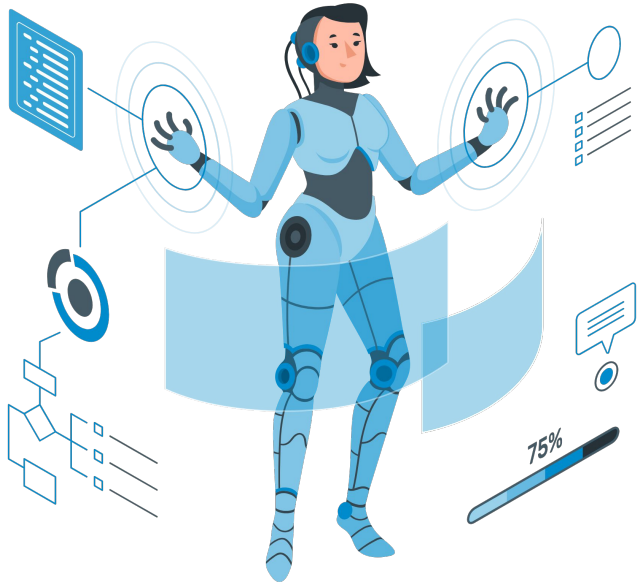
Unsupervised Machine Learning

2 Unsupervised Machine Learning

Unsupervised learning is where there is **No Target Variable** to predict. It focuses on finding hidden patterns and relationships within the data and grouping the observations with similar patterns.



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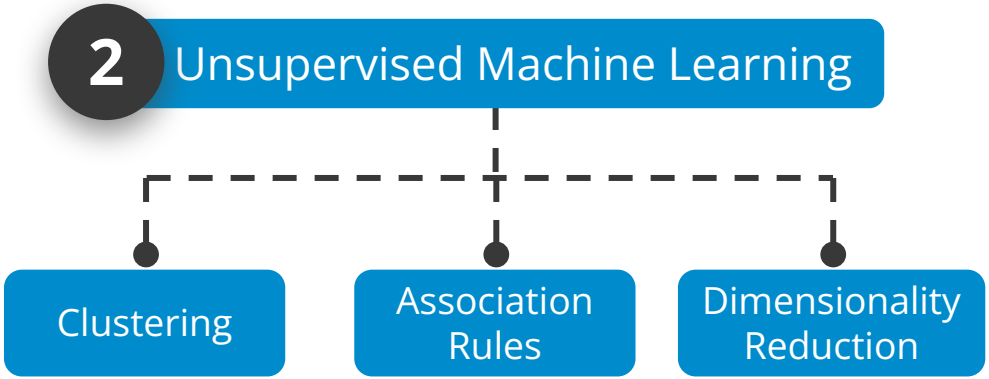
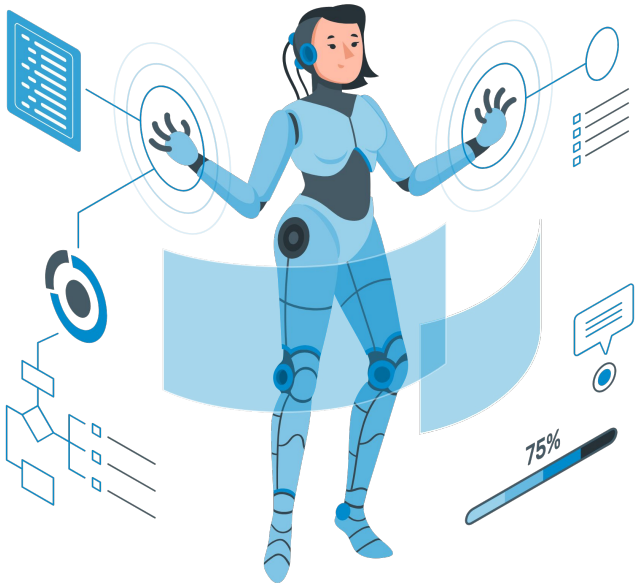
Unsupervised Machine Learning





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Unsupervised Machine Learning

1 Clustering

Clustering is used to organize similar objects into groups.

2 Association Rules

This technique used to find some interesting relations or associations among the features of the dataset.

3 Dimensionality Reduction

This technique used to reduce the number of features in a dataset while trying to retain the most important information from the data.

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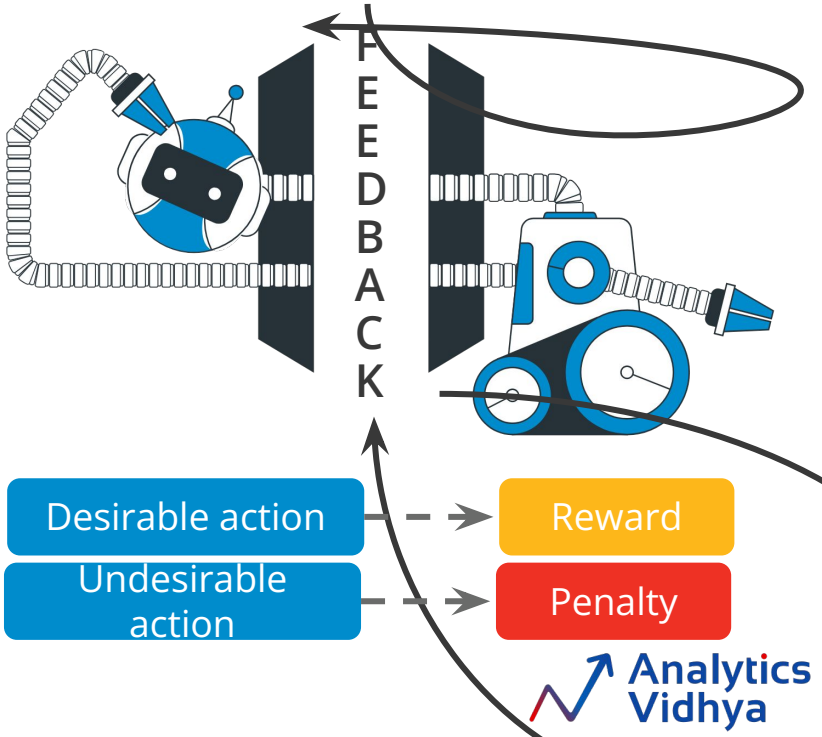
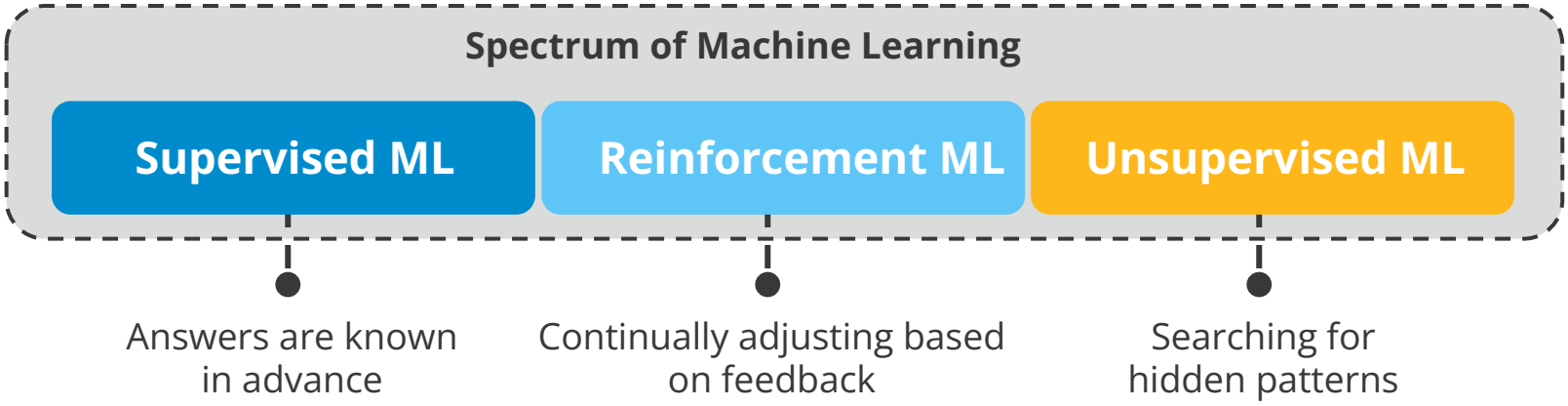
Reinforcement Machine Learning

3 Reinforcement Machine Learning

In this method, the algorithms **make Decisions Based on Feedback** from the environment. The algorithms follow a trial and error approach.



Spectrum of Machine Learning



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