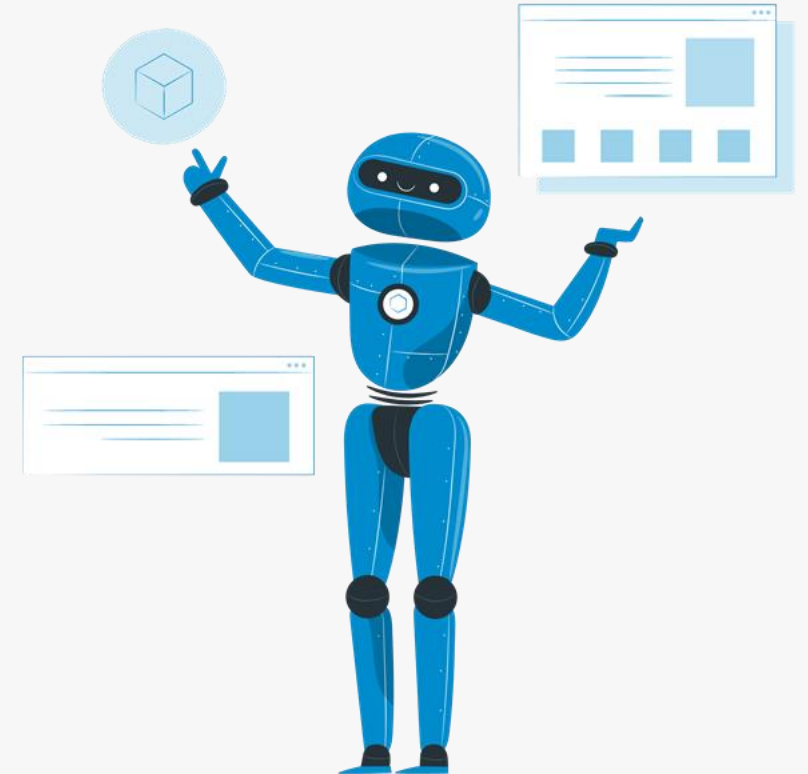


# Types of Machine Learning

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

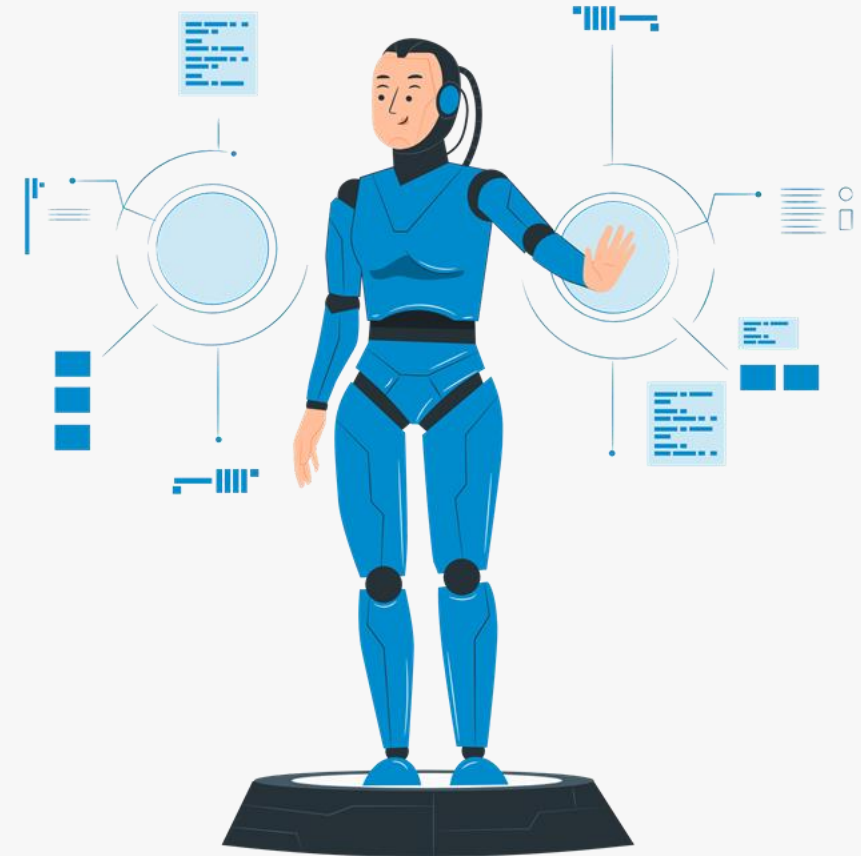
- 1 Supervised Machine Learning
- 2 Unsupervised Machine Learning
- 3 Reinforcement Learning



# 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.

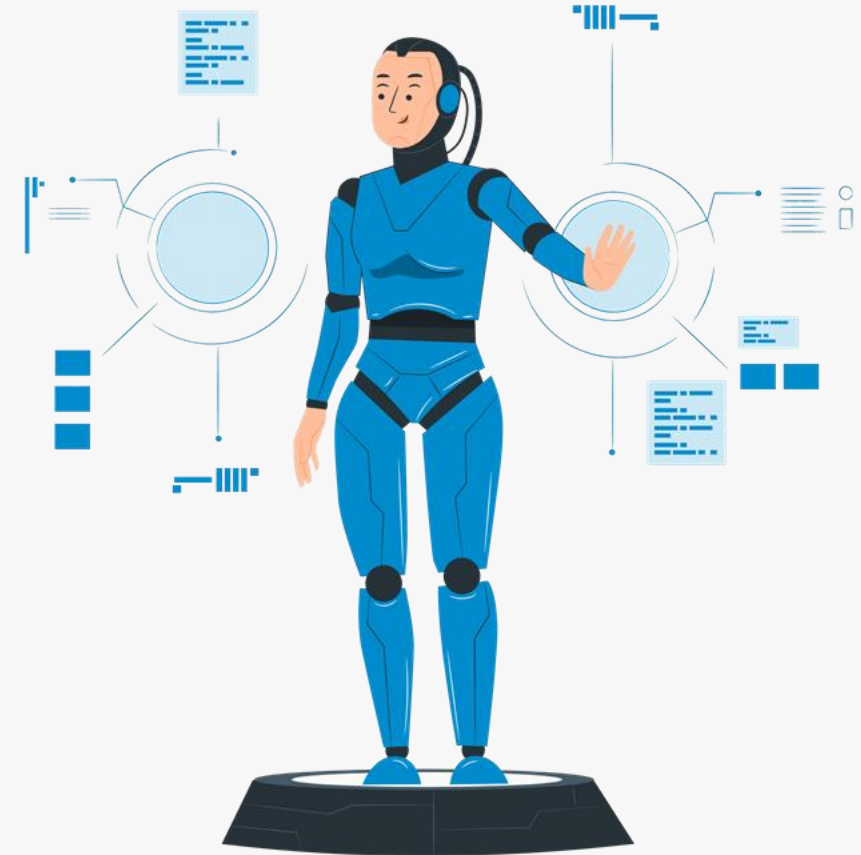


# Supervised Machine Learning

## 1 Supervised Machine Learning

Classification

Regression



# Supervised Machine Learning

## Classification

The target variable is categorical



Predict spam email



Predict a movie genre



Predict customer churn

# Supervised Machine Learning

## Classification

The target variable is categorical

“Identify which products will sell more than 1000 units”

# Supervised Machine Learning

## Regression

The target variable is continuous



House price prediction



Customer lifetime value



Predict future temperature

# Supervised Machine Learning

## Regression

The target variable is continuous

“Predict units sold for products”

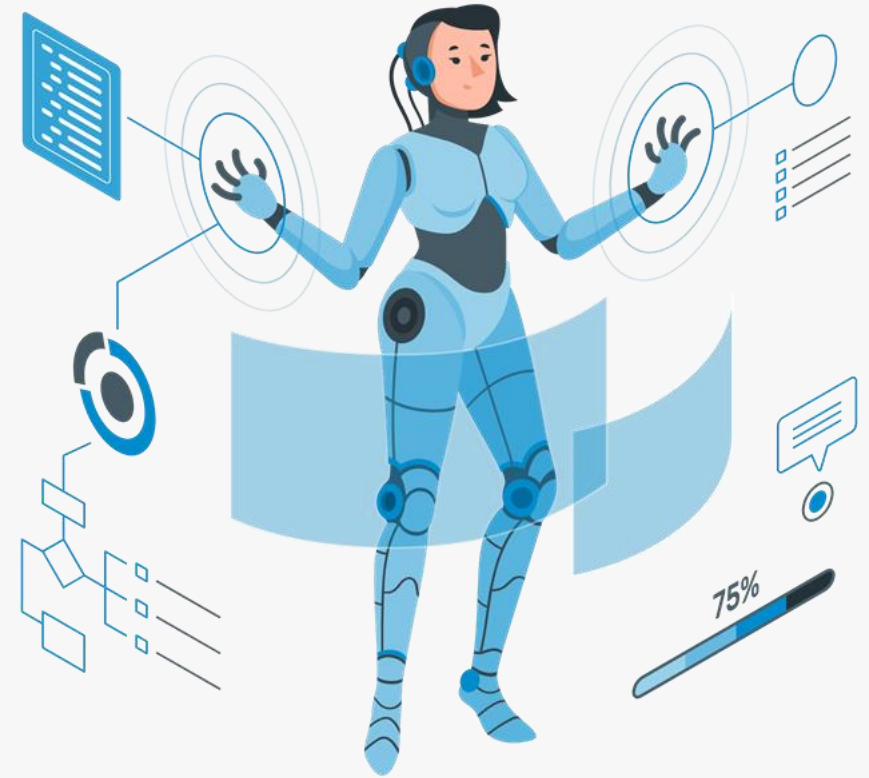


Here, “Units\_sold” is a continuous variable

# 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.





# Unsupervised Machine Learning

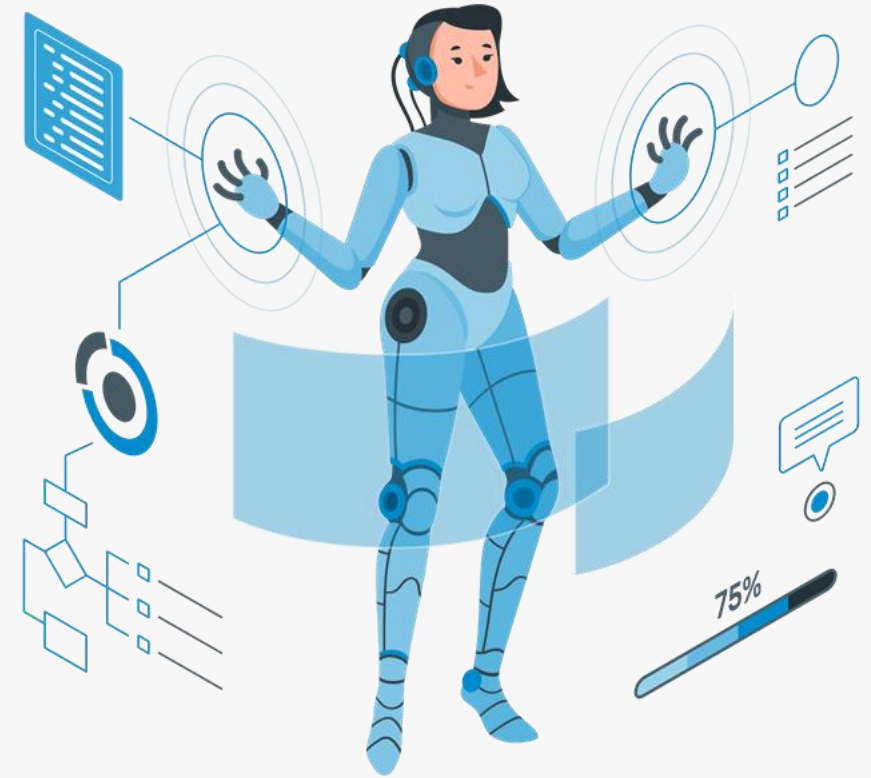
## 2

## Unsupervised Machine Learning

Clustering

Association  
Rules

Dimensionality  
Reduction



# Unsupervised Machine Learning

1

## Clustering

Clustering is used to organize similar objects into groups.

# 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.

# 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.

# Unsupervised Machine Learning



Synergix Solutions has found that its marketing strategies based on the existing segments are not very effective. They want to try out new-age bundled online marketing strategies which would require them to group similar products together irrespective of the segment.

# Unsupervised Machine Learning

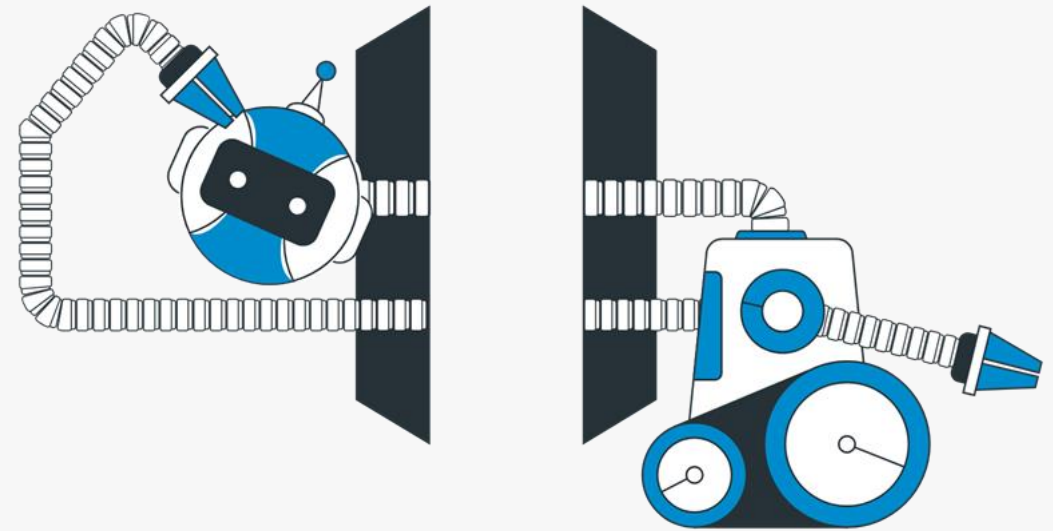


1. Identify the factors to predict units sold for products
2. Identify which products will sell more than 1000 units
3. Create a new-age bundled online marketing strategy

# Reinforcement Machine Learning

## 3 Reinforcement Machine Learning

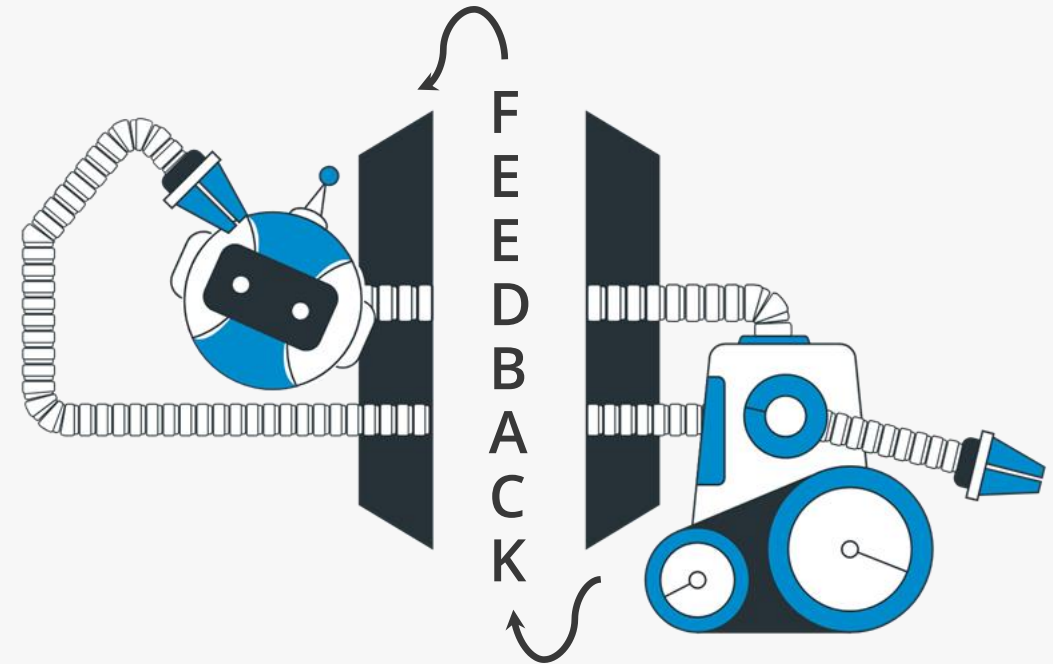
In this method, the algorithms **make Decisions Based on Feedback** from the environment. The algorithms follow a trial and error approach.



# 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.



Desirable action

Reward

Undesirable action

Penalty



# Spectrum of Machine Learning

