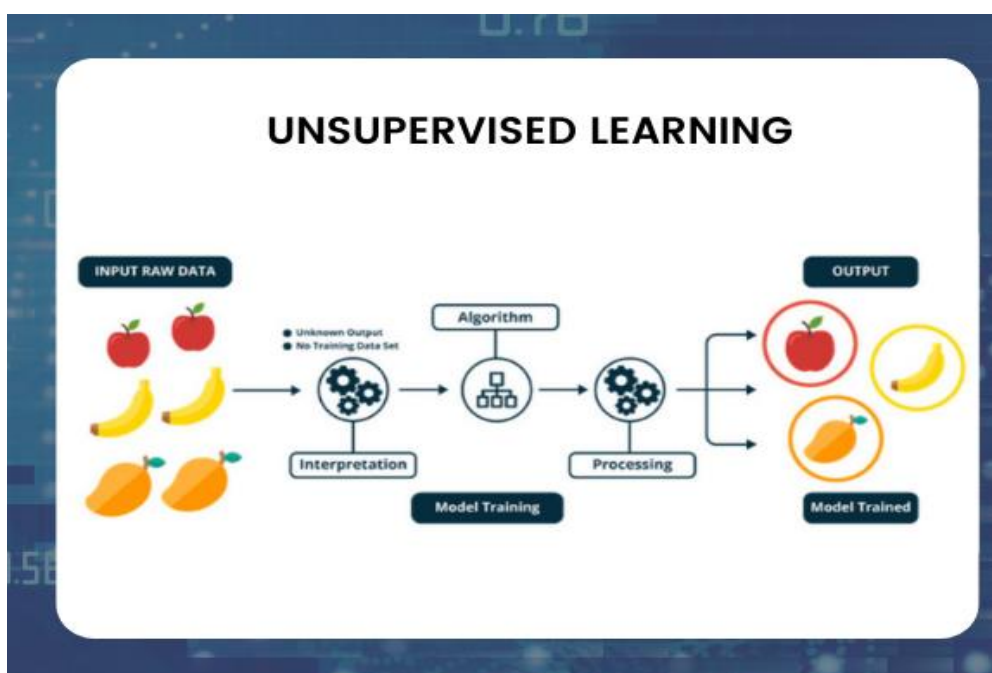
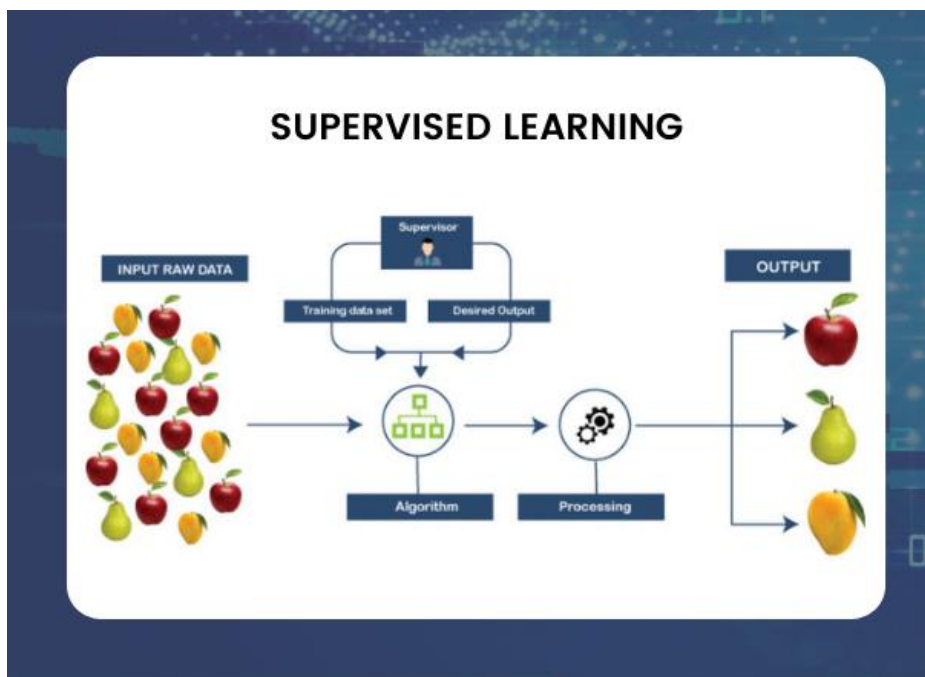


PRIOR KNOWLEDGE

Supervised and unsupervised learning:

In Supervised Learning, the machine learns under supervision. It contains a model that is able to predict with the help of a labeled dataset. A labeled dataset is one where you already know the target answer.



In this case, we have images that are labeled a spoon or a knife. This known data is fed to the machine, which analyzes and learns the association of these images based on its features such as shape, size, sharpness, etc.

Now when a new image is fed to the machine without any label, the machine is able to predict accurately that it is a spoon with the help of the past data.

Classification:

Classification is a process of finding a function which helps in dividing the dataset into classes based on different parameters. In Classification, a computer program is trained on the training dataset and based on that training, it categorizes the data into different classes.

The task of the classification algorithm is to find the mapping function to map the input(x) to the discrete output(y).

Regression:

Regression is a process of finding the correlations between dependent and independent variables. It helps in predicting the continuous variables such as prediction of **Market Trends**, prediction of House prices, etc.

The task of the Regression algorithm is to find the mapping function to map the input variable(x) to the continuous output variable(y).

Clustering:

Clustering is the method of dividing the objects into clusters that are similar between them and are dissimilar to the objects belonging to another cluster.

For example, finding out which customers made similar product purchases. Suppose a telecom company wants to reduce its customer churn rate by providing personalized call and data plans. The behavior of the customers is studied and the model segments the customers with similar traits.

Several strategies are adopted to minimize churn rate and maximize profit through suitable promotions and campaigns.

Artificial Neural Networks:

Artificial Neural Networks (ANN) are algorithms based on brain function and are used to model complicated patterns and forecast issues. The Artificial Neural Network (ANN) is a deep learning method that arose from the concept of the human brain Biological Neural Networks. The development of ANN was the result of an attempt to replicate the workings of the human brain. The workings of ANN are extremely similar to those of biological neural networks, although they are not identical. ANN algorithm accepts only numeric and

structured data. Convolutional Neural Networks (CNN) and Recursive Neural Networks (RNN) are used to accept unstructured and non-numeric data forms such as Image, Text, and Speech.

Convolutional Neural Networks:

A convolutional neural network (CNN or ConvNet), is a network architecture for deep learning which learns directly from data, eliminating the need for manual feature extraction. CNNs are particularly useful for finding patterns in images to recognize objects, faces, and scenes. They can also be quite effective for classifying non-image data such as audio, time series, and signal data.

Flask:

Flask is a web framework, it's a Python module that lets you develop web applications easily. It's having a small and easy-to-extend core: it's a micro framework that doesn't include an ORM (Object Relational Manager) or such features. It does have many cool features like url routing, template engine. It is a WSGI web app framework. Flask is a web application framework written in Python.