

Explain one example of Supervised and Unsupervised Learning.

Machine learning approaches include supervised and unsupervised learning. However, both strategies are employed in various contexts and with various datasets.

Supervised Machine Learning:

Supervised learning is a machine learning technique that involves training models with labelled data. Models in supervised learning must discover a mapping function to connect the input variable (X) to the output variable (Y).

$$Y = f(X)$$

To train the model, supervised learning requires supervision, similar to how a student learns in the presence of a teacher. There are two sorts of issues that can be solved with supervised learning: classification and regression.

Example: we have an image of many sorts of fruits. Our supervised learning model's job is to recognise the fruits and classify them appropriately. So, in order to recognise a picture in supervised learning, we'll provide both input and output data, which means we'll train the model based on the form, size, colour, and taste of each fruit. After the training, we'll put the model to the test by feeding it a new batch of fruits. The model will recognise the fruit and, using a suitable algorithm, predict the outcome.

Unsupervised Machine Learning:

Unsupervised learning is another machine learning method that uses unlabeled input data to discover patterns. Unsupervised learning aims to extract structure and patterns from unstructured data. There is no need for monitoring when learning unsupervised. Instead, it searches the data for patterns on its own.

Clustering and Association are two sorts of issues that can be solved using unsupervised learning.

Example: We will use the example presented above to better understand unsupervised learning. In contrast to supervised learning, we shall not give any supervision to the model in this case. We will simply feed the model with the input dataset and let it detect patterns in the data. The model will train itself and separate the fruits into distinct groups based on the most comparable attributes between them, using a suitable method.