SUPERVISED AND UNSUPERVISED ML

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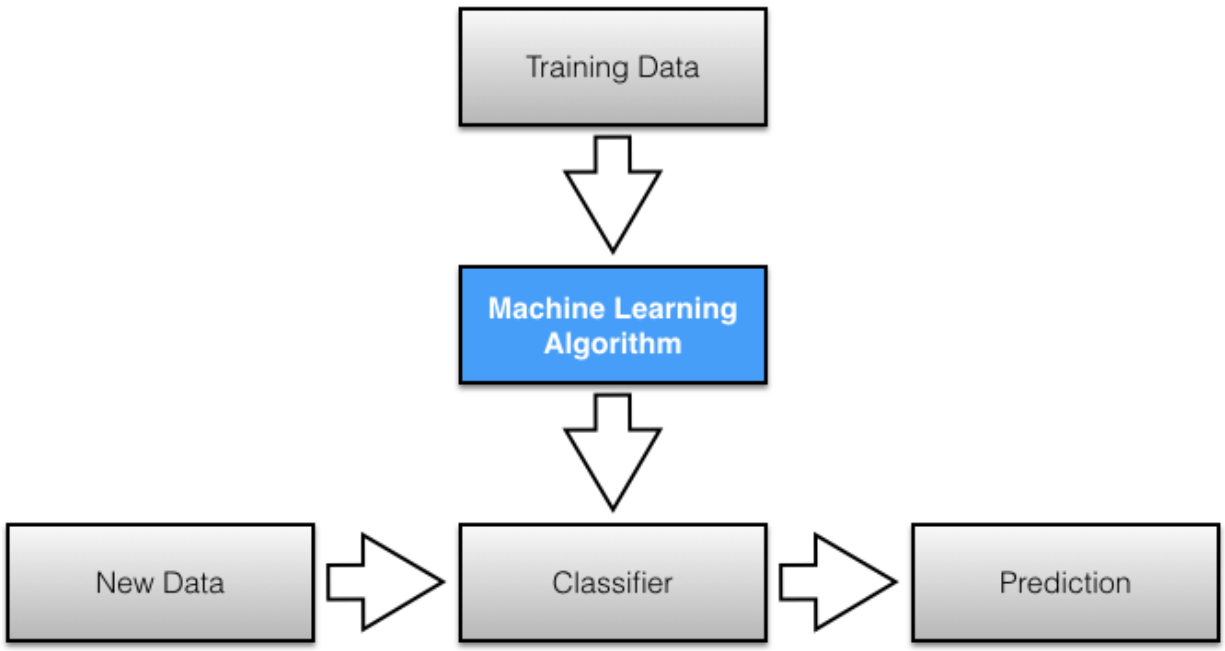
Supervised Learning

The data that collected here is labeled and so you know what input needs to be mapped to what output.

In supervised or Inductive machine learning, our main goal is to learn a target function that can be used to predict the values of a class. The process of applying supervised ML to a real-world problem is described in below figure.



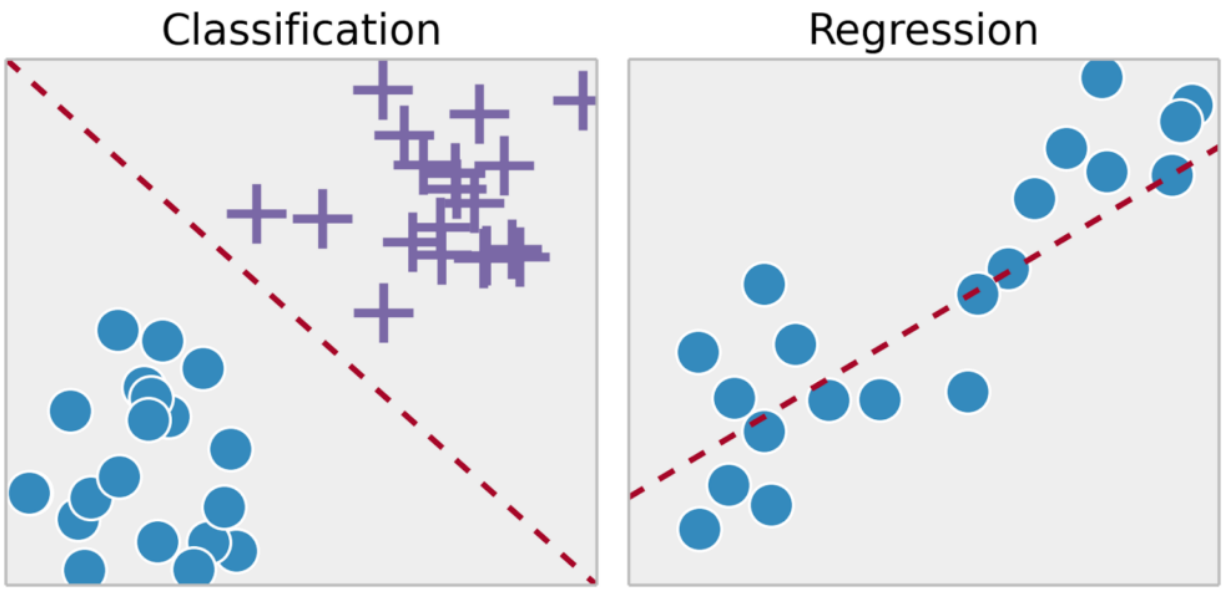
Types of Supervised Learning

Supervised Learning has been broadly classified into 2 types.

- Regression
- Classification

Classification : It is a Supervised Learning task where output is having defined labels(discrete value). The goal here is to predict discrete values belonging to a particular class and evaluate on the basis of accuracy.
It can be either binary or multi class classification. In binary classification, model predicts either 0 or 1 ; but in case of multi class classification, model predicts more than one class.

Regression: It is a Supervised Learning task where output is having continuous value.



Some popular Supervised Learning algorithms are discussed below:

- Linear Regression
- Nearest Neighbor
- Guassian Naive Bayes
- Decision Trees
- Support Vector Machine (SVM)
- Random Forest

Unsupervised Learning

Here the task of the machine is to group unsorted information according to similarities, patterns, and differences without any prior training of data.

It allows the model to work on its own to discover patterns and information that was previously undetected. It mainly deals with unlabelled data.

Types of Unsupervised Learning:-

Clustering

1. Exclusive (partitioning)
2. Agglomerative
3. Overlapping
4. Probabilistic

Clustering Types

1. Hierarchical clustering
2. K-means clustering
3. Principal Component Analysis
4. Singular Value Decomposition
5. Independent Component Analysis

Thanks!!

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