

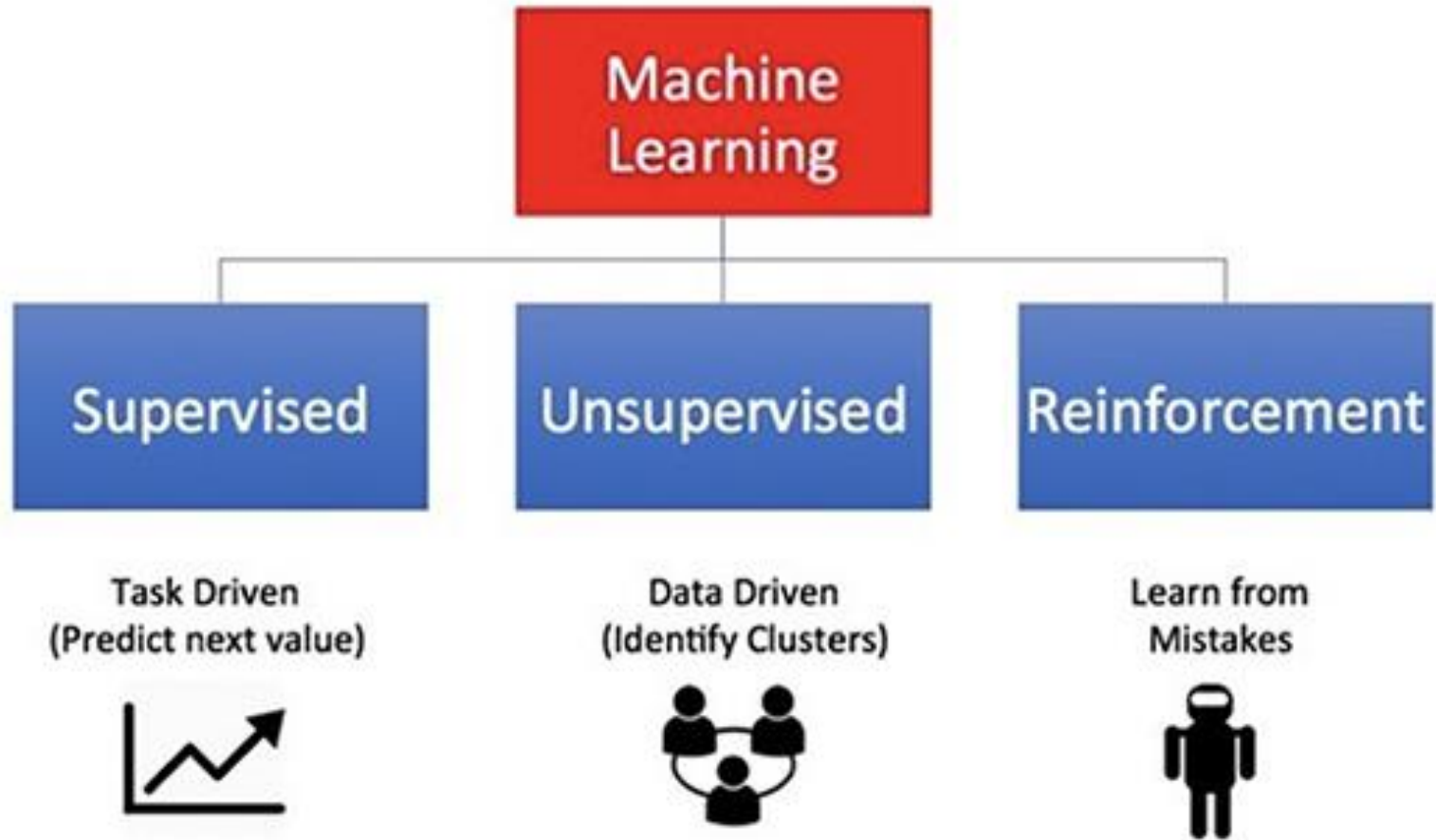
Machine Learning

- Unsupervised Learning -

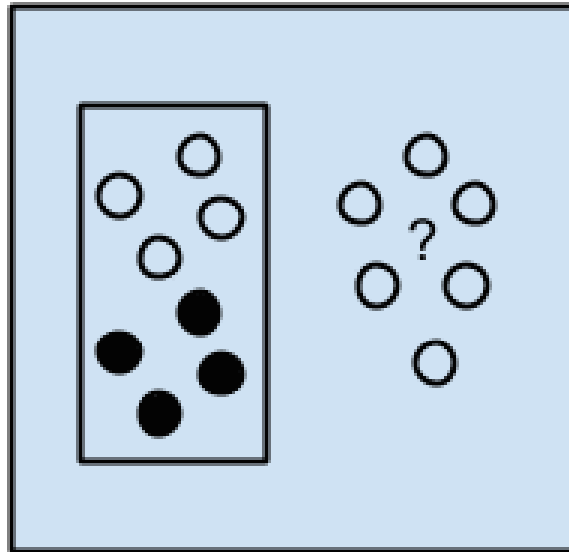
2022. 4. 29

정 준 수 PhD

Types of Machine Learning



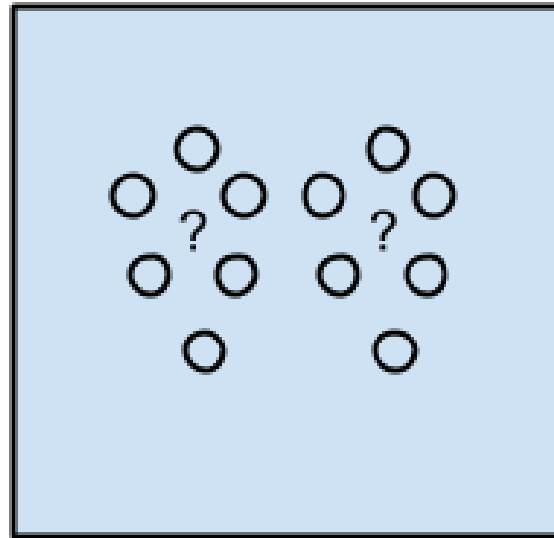
Supervised Learning



Supervised Learning
Algorithms

Example problems are classification and regression.

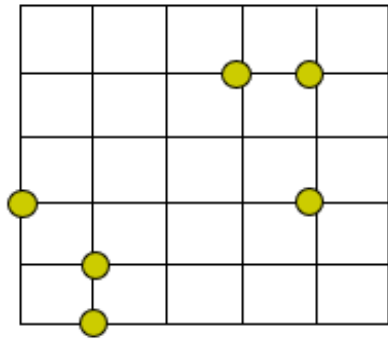
Unsupervised Learning



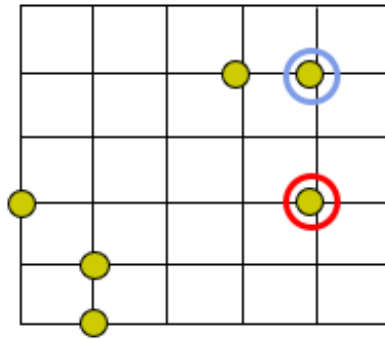
Unsupervised Learning
Algorithms

Input data is not labeled and does not have a known result.

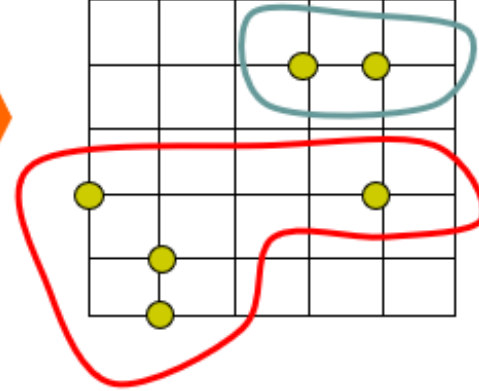
Example problems are clustering, dimensionality reduction and association rule learning.



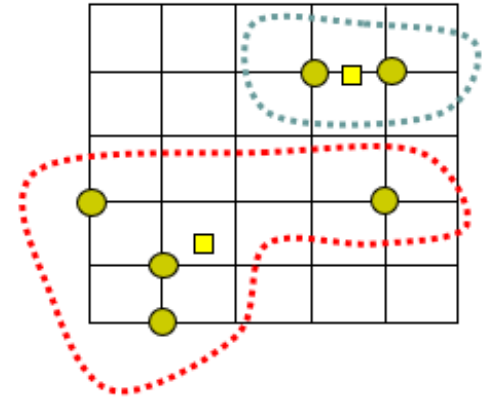
Input Data



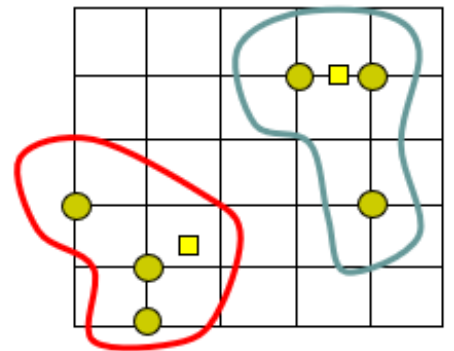
Random Centroids



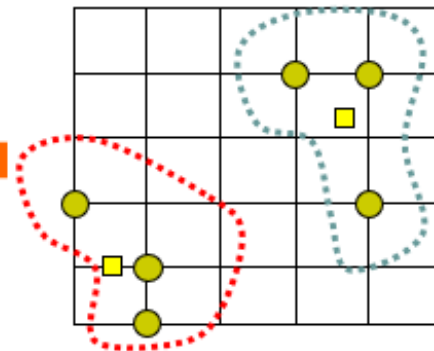
Assignment



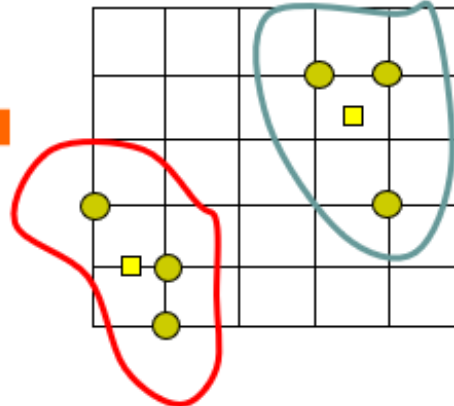
New Centroids
& (Check)



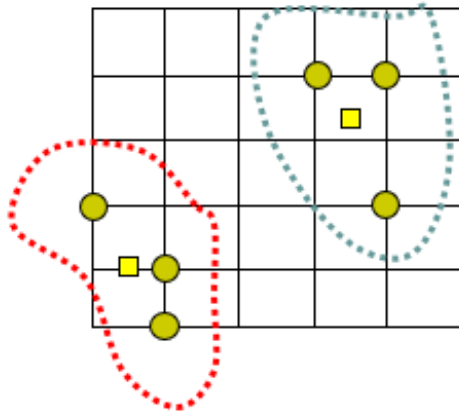
Assignment



New Centroids
& (check)

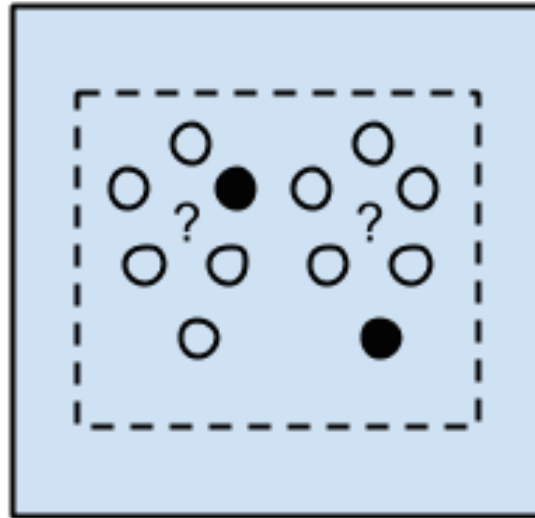


Assignment



Centroids & (check)

Semi-Supervised Learning



Semi-supervised
Learning Algorithms

Input data is a mixture of labeled and unlabelled examples.

Example problems are classification and regression.

Clustering Algorithms

Clustering, like regression, describes the class of problem and the class of methods

Clustering methods are typically organized by the modeling approaches such as centroid-based and hierarchal. All methods are concerned with using the inherent structures in the data to best organize the data into groups of maximum commonality.

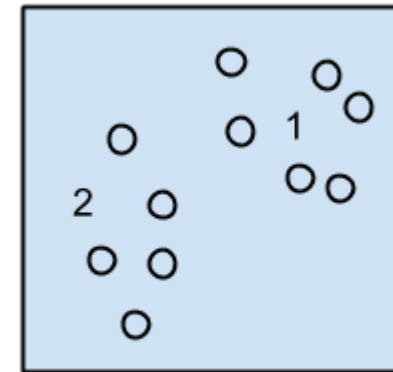
The most popular clustering algorithms are:

k-Means

k-Medians

Expectation Maximisation (EM)

Hierarchical Clustering



Clustering Algorithms

[출처] <https://machinelearningmastery.com/a-tour-of-machine-learning-algorithms/>

K-means

<https://scikit-learn.org/stable/modules/clustering.html#k-means>

In Depth: k-Means Clustering

<https://jakevdp.github.io/PythonDataScienceHandbook/05.11-k-means.html>

