

PRIOR KNOWLEDGE

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PRIOR KNOWLEDGE:

Prior knowledge is the information and educational context a learner already has before they learn new information. A learner's understanding of educational material can be improved by taking advantage of their prior knowledge before dealing with the new material. General understanding about the way students learn states that the success of learning is determined by how much the learner already knows about a given topic or related topics.

Prior knowledge refers to the information, no matter how limited, a learner has at the start of learning a new topic. This knowledge will likely have been gathered over time in a variety of ways. If the prior knowledge is correct and consistent with the new information being taught, the effect on learning is positive. However, if prior knowledge conflicts with new information, the effect on new learning can be negative

MACHINE LEARNING:

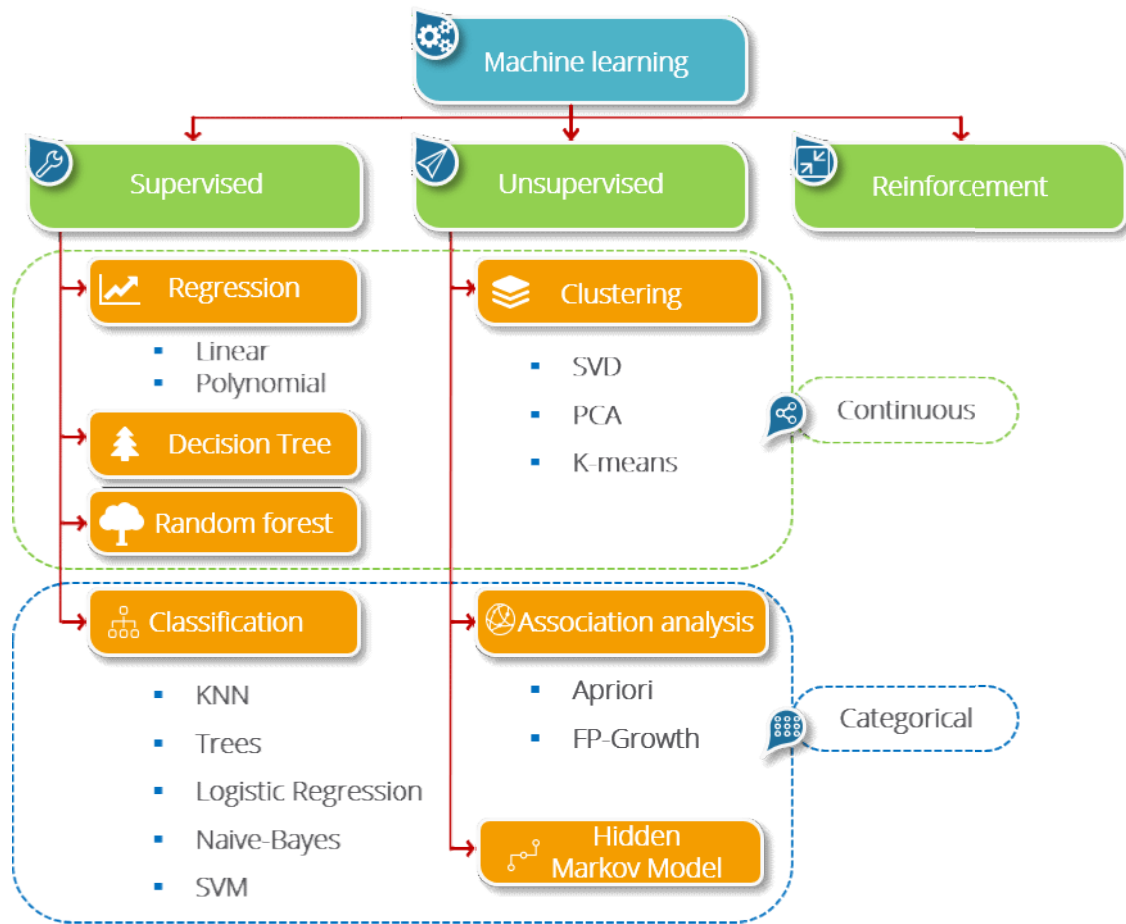
Machine learning (ML) is a field of inquiry devoted to understanding and building methods that 'learn', that is, methods that leverage data to improve performance on some set of tasks. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as training data, in order to make predictions or decisions without being explicitly programmed to do so.

SUPERVISED LEARNING:

Supervised learning algorithms build a mathematical model of a set of data that contains both the inputs and the desired outputs. The data is known as training data, and consists of a set of training examples. Each training example has one or more inputs and the desired output, also known as a supervisory signal. In the mathematical model, each training example is represented by an array or vector, sometimes called a feature vector, and the training data is represented by a matrix. Through iterative optimization of an objective function, supervised learning algorithms learn a function that can be used to predict the output associated with new inputs. An optimal function will allow the algorithm to correctly determine the output for inputs that were not a part of the training data. An algorithm that improves the accuracy of its outputs or predictions over time is said to have learned to perform that task.

UNSUPERVISED LEARNING:

Unsupervised learning algorithms take a set of data that contains only inputs, and find structure in the data, like grouping or clustering of data points. The algorithms, therefore, learn from test data that has not been labeled, classified or categorized. Instead of responding to feedback, unsupervised learning algorithms identify commonalities in the data and react based on the presence or absence of such commonalities in each new piece of data. A central application of unsupervised learning is in the field of density estimation in statistics, such as finding the probability density function. Though unsupervised learning encompasses other domains involving summarizing and explaining data features.



CLASSIFICATION:

Classification is one of the most important tasks in data mining. It refers to a process of assigning pre-defined class labels to instances based on their attributes. There is a similarity between classification and clustering, it looks similar, but it is different. The major difference between classification and clustering is that classification includes the leveling of items according to their membership in pre-defined groups. Let's understand this concept with the help of an example; suppose you are using a self-organizing map neural network algorithm for image recognition where there are 10 different kinds of objects. If you label each image with one of these 10 classes, the classification task is solved.

CLUSTERING:

Clustering refers to a technique of grouping objects so that objects with the same functionalities come together and objects with different functionalities go apart. In other words, we can say that clustering is a process of portioning a data set into a set of meaningful subclasses, known as clusters. Clustering is the same as classification in which data is grouped. Though, unlike classification, the groups are not previously defined. Instead, the grouping is achieved by determining similarities between data according to characteristics found in the real data. The groups are called Clusters.

REGRESSION:

A regression is a statistical technique that relates a dependent variable to one or more independent (explanatory) variables. A regression model is able to show whether changes observed in the dependent variable are associated with changes in one or more of the explanatory variables.

PYTHON FLASK:

Flask is a web framework, it's a Python module that lets you develop web applications easily. It's has 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.