**Association rule learning** is a kind of unsupervised learning technique that tests for the reliance of one data element on another data element and design appropriately so that it can be more cost-effective. It tries to discover some interesting relations or associations between the variables of the dataset. It depends on various rules to find interesting relations between variables in the database.

The association rule learning is the most important approach of machine learning, and it is employed in Market Basket analysis, Web usage mining, continuous production, etc. In market basket analysis, it is an approach used by several big retailers to find the relations between items.

Web mining can be viewed as the application of adapted data mining methods to the internet, although data mining is defined as the application of the algorithm to discover patterns on mostly structured data fixed into a knowledge discovery process.

Web mining has a distinctive property to support a collection of multiple data types. The web has several aspects that yield multiple approaches for the mining process, such as web pages including text, web pages are connected via hyperlinks, and user activity can be monitored via web server logs.

In market basket analysis, customer buying habits are analyzed by finding associations between the different items that customers place in their shopping baskets. By discovering such associations, retailers produce marketing methods by analyzing which elements are frequently purchased by users. This association can lead to increased sales by supporting retailers to do selective marketing and plan for their shelf area.

**Types of Association Rule Learning**

There are the following types of Association rule learning which are as follows −

**Apriori Algorithm** − This algorithm needs frequent datasets to produce association rules. It is designed to work on databases that include transactions. This algorithm needs a breadth-first search and hash tree to compute the itemset efficiently.

It is generally used for market basket analysis and support to learn the products that can be purchased together. It can be used in the healthcare area to discover drug reactions for patients.

**Eclat Algorithm** − The Eclat algorithm represents Equivalence Class Transformation. This algorithm needs a depth-first search method to discover frequent itemsets in a transaction database. It implements quicker execution than Apriori Algorithm.

**F-P Growth Algorithm** − The F-P growth algorithm represents Frequent Pattern. It is the enhanced version of the Apriori Algorithm. It describes the database in the form of a tree structure that is referred to as a frequent pattern or tree. This frequent tree aims to extract the most frequent patterns.