Association rules: from zero to hero

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Abstract

This talk focuses on an unsupervised learning method called Association Rules. This method is often used to discover interesting relationships hidden in large datasets. The disclosed relationships can be represented as rules on frequent itemsets. Association rules have been originally devised for mining transactions in databases.

The research of association rules started as early as the 1960s, although the framework of association rule learning was brought into the database community by Agrawal and colleagues in the early 1990s. It was proposed for discovering regularities between products in a large database of customer transactions recorded by point-of-sale systems in supermarkets. In later years, it expanded to web contexts, such as mining path traversal patterns and usage patterns to facilitate organization of web pages.

We focus on Apriori algorithm, one of the earliest and the most fundamental algorithms for generating association rules. We provide examples and codes to run Apriori in different languages and programming environments.

We will finally explore the existing connections and future research opportunities between Association Rules and Big Network Analytics methodologies.