Association Rules in Medical Domain

Natalya Shakhovska

Head of Artificial Intelligence Department,

Lviv Polytechnic National University, Ukraine

nataliya.b.shakhovska@lpnu.ua

Abstract: Association rules are a data mining technique used to discover frequent patterns in a data set. In this work, association rules are used in the medical domain, where data sets are generally high dimensional. The chief disadvantage of mining association rules in a high dimensional data set is the huge number of patterns that are discovered, most of which are irrelevant or redundant. This disadvantage is grown when Big data is used. The multidimensional view of the data is well used for data visualization and analysis tasks, but due to the hypercube dissipation, the amount of data, in this case, is greater than the relational representation that is not acceptable to the Big Data. Object representation allows you to store an object in the form of attributes, their characteristics, and relationships between characteristics. For some modification, it can be used for Big Data.

In medical and biological research, as well as in practical medicine, the range of tasks to be solved is so wide that it is possible to use any of the methodologies of Data Mining. An example can be the construction of a diagnostic system or the study of the effectiveness of a surgical intervention.

One of the most advanced areas of medicine is bioinformatics. The object of bioinformatics research is huge amounts of information about DNA sequences and the primary structure of proteins that arose as a result of studying the structure of genomes of microorganisms, mammals, and humans. Abstracted from the specific content of this information, it can be regarded as a set of genetic texts, consisting of extended character sequences. Detection of structural laws in such sequences is a number of tasks, effectively solved by means of Data Mining, for example, by means of sequencing and associative analysis.

The purpose of the study is to identify the most important rules for constructing associative rules. We should analyze not only single parameters and their values but also combining these parameters in groups. Determination of the patterns of constructing associative rules and the division of physical indicators at different levels of the hierarchy.

Keywords: Association Rules, Big Data, System, Personalizing, Patient, Medical Data.