Discovering the constraint-based association rules in an archive for unique Bulgarian bells[*]

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Abstract

Discovering the association rules is a data mining task [2] in which the goal is to find interesting relationships between the attributes of the analyzed data. Once found, the association rules can be used for supporting decision making in different areas. An association rule shows the frequently occurring patterns of given data items in the database. The association rules are introduced in [1] and they are utilized for identifying correlation relationships among a set of items in a database.

In numerous cases the algorithms generate a large number of association rules, often thousands or even millions. It is almost impossible for the end users to encompass or validate such a large number of association rules, limiting the results of the data mining is therefore helpful. The different approaches for reducing the number of the association rules are proposed. With some of them, only those rules that meet intended criteria are generated.

Discovering the constraint-based association rules, introduced in [3], provides for the user the possibility to determine the format and partially the content of the returned rules. The users have the opportunity to issue the hypotheses on kind of constraints or templates. The system attempts to confirm those hypotheses by searching rules that satisfy the given constraints.

This paper presents an application that discovers the constraint-based association rules. It allows the association analysis of the different characteristics of the bells. Detailed information about the examined bells is maintained in an audio and video archive of unique Bulgarian bells. The data of the archive is accessible from [4]. The application is realized with Java and SQL and provides the possibility for finding the association rules of the data obtained after applying the methods of digital processing of signals for analysis of bell sounds.

References

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