Title:
Incremental Method for Mining Frequent Patterns From Weighted Uncertain Data

Abstract:
One of the important tasks of knowledge discovery and data mining is frequent pattern mining. In mining frequent pattern, there are two limitations: same importance items and Uncertain data collected, so frequent pattern mining from uncertain weighted data is a very important research field in data mining. SPO-tree algorithm is one of the effective algorithms to mining incremental frequent pattern from certain data. SPO-tree algorithm in the build tree, after entering each transaction needs to rebuild the tree by the formula. The calculation of this formula at any stage of the lengthy and time-consuming transactions. On the other hand, because reordering is done by the local information may be reorder branch again. So take time to build tree. In this study, the proposed method for building faster tree in SPO-tree algorithm is FSPO-tree algorithm. FSPO algorithm is proposed for certain data. The FPSO-tree algorithm calculates the formulas and reordering after entering all transactions carried out so the tree can be built in less time. Sorting is done based on general data and every branch only once reordered. The proposed method FPSO used in mining incremental frequent pattern in uncertain weighted data. The proposed algorithm IUWF based on FSPO-tree is suggested. The proposed algorithm IUWF used a tree algorithm to incremental mining frequent pattern in uncertain weighted data. IUWF proposed algorithm compared with non-incremental algorithm U-WFI that uses a tree structure to mining frequent pattern in uncertain weighted data. IUWF need only once read the database and if the transaction adding to the database no need to start from the beginning of the mining process. In order to investigating the efficiency, suggested method has been evaluated on different data sets, including dense and sparse. The experimental results showed that proposed method FSPO-tree is more efficient, in terms of runtime, in contrast with SPO-tree algorithm and also The experimental results showed that proposed method IUWF is more efficient, in terms of runtime, in contrast with U-WFI algorithm.

Keywords:
Uncertain Weighted data, Certain Data, Incremental Frequent pattern mining, Sorting reduction, SPO-tree