Title:
Introducing an Incremental method for frequent patterns mining from uncertain data

Abstract:
In some applications such as social networking, medical sciences, sensors and agriculture mostly data is uncertain. Frequent pattern mining and knowledge discovery from this data is very valuable. There have been introduced a number of efficient algorithms for frequent pattern mining from uncertain data. Since the most of these algorithms are designed for static environments, when data is changed, added or deleted then these algorithms are unable to adopt with incremental mining and they are run from scratch which is very costly. In this research, a method is proposed for incremental frequent pattern mining from uncertain data. In the proposed method a new tree structure called IPUF-tree and an efficient algorithm for mining this tree called IPUF-growth are introduced. The proposed tree includes a dynamic structure based on distinct possibilities maintenance, which able to keeps all of the frequent and infrequent patterns and adopt with incremental mining. The database is captured by IPUF-tree by only two database scans. IPUF-tree is restructured for incremental data and there is no need to rebuild tree from scratch. Then, IPUF-growth algorithm is used for incremental frequent pattern mining. The efficiency and performance of the proposed method are experimentally evaluated by several experiments on different synthetic and real data sets. Experimental results show that the proposed method can reduce the total time of incremental frequent pattern mining from uncertain data.

Keywords:
Keywords: Uncertain data, Frequent pattern mining, PUF- tree, Incremental mining