An Incremental Mining Algorithm for Association Rules based on Minimal Perfect Hashing and Pruning

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Abstract

In the literatures, hash-based association rule mining algorithms are more efficient than Apriori-based algorithms, since they employ hash functions to generate candidate itemsets efficiently. However, when the dataset is updated,
the whole hash table needs to be reconstructed. In this paper, we propose an incremental mining algorithm based on minimal perfect hashing. In our algorithm,
each candidate itemset is hashed into a hash table, and their minimum support value can be verified directly by a hash function for latter mining process.
Even though new items are added, the structure of the proposed hash does not need to be reconstructed. Therefore, experimental results show that the proposed algorithm is more efficient than other hash-based association rule mining algorithms, and is also more efficient than other Apriori-based incremental mining
algorithms for association rules, when the database is dynamically updated.

Keyword：data mining, association rule, incremental mining