Results and Discussions on Transaction Splitting Technique for Mining Differential Private Frequent Itemsets

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Abstract

Many researchers are now working on designing of data mining algorithms which also provides differential privacy. Especially so, in mining of frequent itemsets. Individual privacy may get affected by revealing frequent itemsets. Therefore, a frequent itemset mining algorithm with differential privacy is important which will follow two phase process of preprocessing and mining. This paper discusses diagonal splitting of transactions in splitting mechanism. As proposed mechanism, diagonally splits each transaction then size of transaction reduces, resulting in complexity and processing time reduction. By splitting the transaction diagonally, it divides the transaction in two subparts. This paper demonstrated the performance of diagonal algorithm through experiments on real datasets. Result has been taken on various threshold values and calculated f-score measure for output frequent itemsets. Time taken for frequent itemset mining also studied. An experimental comparison with existing algorithms shows that diagonal splitting algorithm achieves better F-score measure and is about an order of magnitude faster for various top k frequent item mining.
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References


Index Terms

Computer Science Information Sciences

Keywords

Differential, Privacy, Transaction, Splitting, Diagonally.