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论文

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基于项权值变化和SCCI 框架的加权正负关联规则挖掘

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Weighted positive and negative association rules mining based on dynamic item weight and SCCI framework

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摘要

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摘要

给出项权值变化的数据模型形式化表示, 构建新的加权项集剪枝策略及其模式评价框架SCCI (support confidence-correlation-interest), 提出基于项权值变化和SCCI 评价框架的加权正负关联规则挖掘算法. 该算法考虑了项权值变化的数据特点, 采用新的剪枝方法和评价框架, 通过项集权值简单计算和比较, 挖掘有效的加权正负关联规则. 实验结果表明, 该算法能够有效地减少候选项集数量和挖掘时间, 挖掘出有趣的关联模式, 避免无效模式出现, 挖掘效率高于相比较的现有算法, 解决了项权值变化的加权负模式挖掘问题.

关键词: 数据挖掘, 加权关联模式, 正负关联规则, 频繁项集

Abstract :

The formal definition of data model for dynamic item weight is given, and a new pruning strategy for weighted itemsets, as well as an evaluation framework, support-confidence-correlation-interest(SCCI), of weighted association patterns is proposed. Based on dynamic item weight and SCCI, an algorithm for the mining of weighted positive and negative association rules is presented. With the characteristics of the dynamic item weighted data taken into consideration, new pruning methods and evaluation standards are used. Effective weighted frequent itemsets, as well as negative itemsets are mined from the massive weighted database by using the proposed algorithm, and valid weighted positive and negative association rules can be mined by means of simple computation and comparison of itemset weight. The experimental results show that, by using the proposed algorithm, the mining time and the number of candidate itemsets are effectively reduced. Interesting association patterns are obtained, and ineffective patterns are successfully avoided. Compared with the existing mining algorithms, the mining efficiency of this approach is greatly improved, and the problem of the mining of weighted negative patterns is solved based on dynamic item weight.

Key words: data mining weighted association pattern positive and negative association rule frequent itemset

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