URN etd-0407109-183714-1110
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Statistics This thesis had been viewed 33 times. Download 0 times.
Department
Year 2005
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title A Gradational Scanning and Filtering Algorithm for Data Mining and Applications
Date of Defense 0000-00-00
Page Count 139

Keyword
Gradational Scanning
Data Mining
Association Rule
closed correlated pattern
multiple store

Abstract
Due to transactions, documents and data are transformed into electronic types. The large number of data has been accumulated. Today, the science and technology make a great progress. Therefore, data mining technology becomes more important than before in recent years. It is generally applied in commerce and the decisions making. In data mining territory, mining association rules plays a quite important position.
First of all, we propose a new algorithm－GSA(Gradational Scanning Algorithm) for mining association rules. GSA basically use the concept of Ck+1=Ck*Ck to generate the candidates. It also utilizes the concept of gradational scanning and the filtration mechanisms to reduce the number of candidates. CSA uses filtration mechanisms to reduce a great number of candidates which are very possible to be frequent itemsets and improves the performance of the GDA. The GSA needs to scan the Database four times at least and at most six times to finish the mining process.
However, the GSA Algorithm is the same as general association mining algorithms which will often derive a large number of frequent itemsets and association rules. We propose new algorithms－CC_GDA and CC_GSA to mining closed correlated patterns for solving the traditional association mining problem. These algorithms use the concept of closed itemsets mining which is proposed by N. Pasquier. It also utilizes the advantages of GDA and GSA algorithm and uses concept of all-confidence to determine whether the frequent itemsets will be the useful information. The CC_GDA and CC_GSA algorithm can avoid losing information from mining closed itemsets; it is also very important to mine a small number of these patterns which are correlated.
Furthermore, we propose the GSA_TP (Gradational Scanning Algorithm for mining Time-Place association rules) by modifying the calculation on supports and confidences in order to mining useful information efficiently and accurately in chain of retail stores.
Advisory Committee Jen-peng Huang - advisor

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Date of Submission 2006-07-24