Applications of synthesized patterns in multi database mining (MDM)

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Abstract

The notion of Multi Database Mining has been recognised as an important area in data mining community for determining various novel patterns among item sets that co-occur frequently. This paper shows the kinds of High level patterns, Exceptional Patterns and Suggested patterns and their applications. For giving a comfortable and easy usage, we constructed the multi database mining designed by fusing local patterns and universal techniques. After designing with new fusion, it helps much and provides the company many advantages. In order to improve the performance of various patterns, many multi database mining techniques used which leads to take a fruitful decision in the interstate companies.

Keywords: Association rule, Patterns, Local patters, synthesized patterns

1. Introduction

Many multi branch companies are using their data base only with the support of local branch's data base. The head branch takes all the decision and efforts only based on the data given by the local branches. By all means, the head of the companies want to be self-sufficient and it demands multi way of approach and connection with all the other branches of the company at the single moment. It will help the company to act based on the customer's claim. To make the multi database mining applications new demanding version, the patterns are to be closely modified with strenuous work. Pattern means the set of recurring objects and set of rules. There are two types of patterns: global and local patterns [1]. Researchers classified these patterns under three sections High vote patterns, Exceptional patterns and Suggested patterns. High vote patterns are mostly used in the interstate organizations. This is the common feature among all the local branches. The main purpose of the company's preference for using multi database mining is that it gives more revenues to the organization. The previous researchers of MDM marked comparison with other types of patterns previously. Exceptional patterns are used only by those very few companies need to know the transportation expenses, sales status, resources and non-profitable item details. The local companies' status and position make it specified for the noted policies [2].

2. MDM applications

Number of times of an item set can be of mostly customer bought the items many times in the same transactions. We would consider two incidents of an item set in a data bases:

- The number of transactions of an item set in the database.
- Association rules, traditional techniques, conventional support, and confidence frame work don't support to arrive exact result.

3. Association rule mining among item sets

It tries to find association among transactions determined in a database. It has the possibility of a wide variety of applications such as medical diagnosis, geographical information system, relational database, large data base and distributed database. Multi database mining is used in an organization for general business functions. In an interstate company, Multi database mining is used in many departments like e-commerce and other business functions functionalities too. They need to collect information from all the branches and so it would be better to get connected via internet. Multi database mining helps the company to select the best among the potential customers to display on internet.

- MDM helps the organization to provide valuable information on selecting the best patterns, healthy competitions and pricing policies.
- for analysing customer profiles
- for fixing the product to make online marketing
- for extracting potential patterns to make specific assessment
- for categorising web pages based on similar patterns.

Exceptional patterns in marketing
MDBA helps to do two major business functions - sales and marketing. MDBA'S other functions are:-
- To identify the performance of daily status of marketing sales in interstate company
- To identify the marketing strategies to increase the sales
- Customers feedback relevant to predict the get of the product
- The strategy of Market basket analysers
- To develop the manufacturing plan by the exceptional patterns
- To find the imperfection anomalies and unusual patterns
- To identify the branches having high sales of the exceptional items
- It Reduces the Transportation cost
- To get plan manufacture and/or procure such items

The exceptional patterns [3] in MDM have the ability to identify the situation which leads to major problem. Techniques can use these patterns and correct the problem in advance, these patterns helps the company to plan a good strategy to meet the business crisis and maintain the sale. To reduce transportation cost- human efforts and avoid the expiry time of the products using the exceptional patterns, MDM applications will be helpful to satisfy the needs. Also it is possible to identify those branches of a company having highest sales of the exceptional item of the company. It might plan to manufacture and / or procure such items locally to reduce the cost of communication in all aspect. As a consequence, Exceptional frequency items might affect many assessment of a multi branch company along with the features [4]. Algorithms for mining associates rules and exceptional rule may get useful patterns for improving the performance in all areas like sales, profit and the needed resources.MDM helps to reduce the unwanted expenditures and the transportation cost. It points out the best performing branch among their branches. MDM applications give analytical details of sales and production. As per the analytical details, company can decide to produce the items.

4. Frequent item set

By Instinct, a set of items that occur in many baskets is said to be "**frequent**." To be reserved, we assume that the number of items 'S', called the support threshold. If I is a set of items, the support for I is the amount of baskets for which I is a subset. For example, by analysing transactions of a customer in a shop, one can produce a rule. If one purchases onions and tomatoes, the current transactions displayed on the shelf in a retail shop are a most important resource which makes the customer to buy. A retailer can increase the profit as well as decrease the cost by having proper management and shelf displaying based on buyer's behaviour.

5. Association rule mining in various industry

For finding crucial relations among large databases, Rule based machine learning techniques are used and discovered the important patterns in which items are not necessary to match with in a transaction or this has to be done by analysing data for frequent item set. In this mining, two important measures are used namely support and confidence. This method [5] depends on the following:

- Number of transactions in the database
- Purchased the list of items in each transactions by a customer

Major applications
- Shopping basket data analysis
- Product clustering[6]
- Catalogue design

For example in [7]the rule,{ginger, garlic} --{burger} frequently purchased together [8] and the sales report of a marketing department would specify that if a customer purchase ginger and garlic together then they have to buy burger. This can be achieved based on the above activity in which decision is the important factor in the super market business growth.

6. Health informatics

One of the best domains of association rule mining [9] is business and health industry, where decision making by the marketing expert is to be very effective. This is used for helping physicians to cure patience health issues. It solves the   hypothesis problem with the help of induction of reliable diagnostic rules and it is little bit difficult during the process of correctness induced hypothesis. The reasons behind this are: -

- Unreliable diagnosis test
- Noise presence in training data
- un satisfactory prediction accuracy
- Census data, sequence of protein are the important aspect in medical field.

Business intelligence
It includes:
- Customer login information in customer relationship management
- Document versioning
- The context of workflow management systems which is used by managers in the organization
- Important business investments issues and solutions for higher officials for the purpose of making effective decision[10]
- It act as instrument of providing automated decision making which is done by fact based computerized support systems
- Manages and refines the business information
- Extract the strategic business knowledge and support managerial unstructured decisions.
- To get the right information to the right people at the right time
- To take new decision in day to day transactions with the support of resources, customers and capabilities
- Supports management activities
- Helps the extra enhancement for operating and supporting data in the organization
- Designed for marketing promotions globally

Applications of MDM database mining

A list of the primary applications of EDM is provided the areas of EDM application are:

- Analysis and visualization of data -Data Analysis with visual images
- Providing feedback for supporting instructors - Different opinions examined by the faculties
- Academic representations for the students
- Predicting of student performance in all aspects
- Student representations
- Detecting undesirable student behaviours
- Clustering students according to the criteria
- Collection of Social media data
- Developing the plan notifications

7. Conclusion

In this paper, we briefly reviewed the various multi database mining pattern trends and applications from its commencement to the future. This review would be helpful for researchers to focus on the various issues of multiple databases. The extension methods for mining single level discovering knowledge to multiple level ones, the place of high dimensionality data, different data streams and data interpretation which pose many interesting issues for further investigation in Multiple data base mining and efficient algorithms can be developed for discovering of interesting patterns among multiple heterogeneous data.

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