

ASSOCIATION RULE MINING USING MARKET BASKET ANALYSIS

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ASSOCIATION RULE MINING USING MARKET BASKET ANALYSIS

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ABSTRACT

(BAHASA MELAYU)

Perolehan pengetahuan dalam pangkalan data merupakan satu bidang yang mempunyai matlamat untuk mengekstrak pengetahuan yang berguna daripada koleksi data yang banyak. Terdapat pelbagai aplikasi yang menggunakan kaedah perolehan pengetahuan ini terutama syarikat - syarikat atau aplikasi - aplikasi yang menggunakan pangkalan data yang besar dalam aktiviti seharian. Ini disebabkan oleh kaedah ini amat berguna untuk meningkatkan keberkesanan kepada syarikat terutamanya dalam strategi pemasaran. Analisis 'Market Basket' merupakan salah satu teknik yang terdapat dalam perlombongan data yang boleh digunakan dalam strategi pemasaran. Analisis ini adalah bertujuan untuk melihat hubungan yang wujud di antara produk - produk yang dibeli oleh pengguna. Ia juga digunakan untuk mengenalpasti kelakuan pembeli dan barangan yang menarik minat pembeli. Hasil daripada analisis ini dapat membantu peniaga dalam membuat promosi kepada barangan tertentu, memperbaiki susun atur barangan di dalam kedai dan juga membantu dalam strategi pemasaran silang. Untuk merealisasikan analisis ini, perlombongan petua hubungan merupakan teknik yang popular digunakan untuk analisis market basket. Ini disebabkan oleh kebolehan yang ada pada kaedah ini dan ia boleh digunakan untuk mengekstrak petua daripada semua transaksi yang ada. Kajian ini adalah bertujuan untuk menganalisis transaksi -- transaksi menggunakan kaedah analisis market basket untuk menghasilkan petua berkaitan dengan barangan yang biasa dibeli oleh pengguna. Analisis ini juga menggunakan kaedah yang statistik. Hasil daripada kedua -- dua kaedah akan di bandingkan dan seterusnya 'rules' yang diperolehi dengan menggunakan petua hubungan akan disahkan berdasarkan hasil yang diperolehi daripada kaedah statistik.

ABSTRACT

(English)

Knowledge discovery in databases (KDD) is a field whose goal is to extract usable knowledge from a collection of data (Pazzani et al., 1997). Many applications have applied knowledge discovery especially for the company or any applications that use large database in their company activities. This is because that knowledge discovery is very important to extract the useful knowledge in order to improve marketing strategy. Market Basket Analysis (MBA) is one of data mining techniques that can be used in marketing strategy. Its purpose is to find interesting relationships among retail products. Market basket analysis is used to understand customers buying habits and preferences. The results of this analysis can help the retailers to design promotions, arrange shelf or catalogue items and develop cross marketing strategies. To do the analysis, association rules mining is the popular technique for market basket analysis because of their potential in extracting rules between items in transactions. This study presents the analysis using market basket to find the new rules of items that purchased together in transactions. The result of statistical analysis is also presented in this studying in order to compare and then to validate the rules that obtained from apriori algorithm.

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Chapter 1

Introduction

1.1 Context Of The Study

Knowledge Discovery of Database (KDD) is the process of looking in the database to find hidden knowledge patterns without a predetermined idea or hypothesis about what the patterns may be (Chen, 2001). For example, the database stores the information transaction patterns done by the customers and the initiative of KDD is to find the interesting patterns where user does not have to address the relevant questions first.

Data Mining is the non-trivial extraction of implicit, previously unknown, interesting and potentially useful information (usually in the form of knowledge patterns or models) from data. The extracted knowledge is used to describe the hidden regularity of data, to make prediction or to aid human users in other ways. The ever-increasing popularity of data mining is due to demands from various real world applications in decision-making. The objective of data mining can be categorized into two general categories; prediction and knowledge discovery. Discovery or description focuses on finding human interpretable patterns describing the data. The relative importance of prediction and description for particular data mining can vary considerably. However, in the context of knowledge discovery, description tends to be more important than prediction. This is in contrast to pattern recognition and machine learning applications, where prediction is often the primary goal. While prediction, involves using some variables or fields in database to predict unknown or future values of other variables of interest.

To best apply the data mining techniques, it must be fully integrated with a data warehouse as well as flexible interactive business analysis tools. Many data mining tools currently operate outside of the warehouse, requiring extra steps for

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