

Mining Best Utility Pattern from RFID Data Warehouse through Genetic Algorithm

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ABSTRACT

Identifying the sequential patterns from a huge database sequence is a main problem in the area of knowledge discovery and data mining. Therefore, only if an efficient mining technique is used the stored information will be helpful. In the earlier effort an innovative data mining technique based on sequential pattern mining and fuzzy logic was used to efficiently mine the RFID data. In a large database, if the entire set of sequential patterns is presented in the result the user may find it difficult to understand and employ the mining result. It is found that even efficient algorithms that have been proposed for mining large amount of sequential patterns from huge databases is a computationally costly task. An efficient data mining system that generates the most favorable sequential pattern is proposed to overcome this issue. Developing a utility considered RFID data mining technique is the main aim of exploration. Generation of dataset from the warehoused RFID data is the first stage in the proposed technique. Then, with various pattern length combinations the sequential patterns are mined and by using the sequential patterns the fuzzy rules are generated. Each pattern has its own utility. From the mined sequential patterns the most favorable sequential pattern is generated by using Genetic Algorithm (GA). To find out the sequential pattern with maximum profit, the fitness function of the GA will be used. The implementation result shows that the proposed mining system performs accurately by extracting the important RFID tags and its combinations, nature of movement of the tags and the optimum sequential patterns. Focusing only on the consequential sequential patterns that the users find interesting leads to productive trade in RFID enabled applications.

Keywords: Data Mining System, RFID, Genetic Algorithm (GA), Fuzzy rules.

INTRODUCTION

As a result of the recent development of information, and accessibility of low-priced storage, huge data collection has been possible throughout the previous decades. Utilizing this information to comprehend competitive benefits, by analyzing the data is the eventual purpose of this huge data collection i.e., determining previously unknown patterns in data that can direct the process of decision making [1] [8]. On the basis of direct handling of the data by a person the conventional data analysis methods are generally based and they are not extendable to large data sets. For competent storage and searching of large data sets primary tools are obtainable in database technology. But, the challenging and unsettled issue is assisting the humans to analyze and understand large masses of data. There is an

assurance that novel techniques and intelligent tools that are presented by the forthcoming data mining field will meet these challenges. The term data mining, which is also called Knowledge Discovery in Databases (KDD), is defined as “The non-trivial extraction of implicit, previously unknown, and potentially useful information from data” [2] [7].

Data mining [3] a multidisciplinary united effort from databases, machine learning, and statistics, is winning in turning masses of data into small valuable pieces. In a real-world application the ultimate goal of a data mining task might be e.g. to allow a company to either improve its marketing, sales, and customer support operations or through better understanding of its customers, recognize a fraudulent customer. Data mining methods have been successfully carried out in a variety of fields