Abstract

Data mining is the process of extracting desirable knowledge or interesting patterns from existing databases for specific purposes. Most conventional data-mining algorithms identify the relationships among transactions using binary values. Transactions with quantitative values are however commonly seen in real-world applications. The fuzzy concepts are used to represent item importance, item quantities, minimum supports and minimum confidences. Each attribute uses only the linguistic term with the maximum cardinality in the mining process. The number of items is thus the same as that of the original attributes, making the processing time reduced. A fuzzy-genetic data-mining algorithm for extracting both association rules and membership functions from quantitative transactions is shown in this paper. It used a combination of large
Fuzzy Genetic Data Mining for Customer Buying Patterns using K-Means Clustering

1-itemsets and membership-function suitability to evaluate the fitness values of chromosomes. The calculation for large 1-itemsets could take a lot of time, especially when the database to be scanned could not totally fed into main memory. In this system, an enhanced approach, called the cluster-based fuzzy-genetic mining algorithm. It divides the chromosomes in a population into clusters by the k-means clustering approach and evaluates each individual according to both cluster and their own information.

References

- M. Sulaiman Khan, Maybin Muyeba, Frans Coenen, &quot;Fuzzy Weighted Association Rule Mining with Weighted Support and Confidence Framework;&quot;, The University of Liverpool, Department of Computer Science, Liverpool, UK.
- Tzung-Pei Hong, Li-Huei Tseng and Been-Chian Chien, &quot;Learning Fuzzy Rules from Incomplete Quantitative Data by Rough Sets;&quot;;
- Tzung-Pei Hong, Ming-Jer Chiang and Shyue-Liang Wang &quot;Mining from Quantitative Data with Linguistic Minimum Supports and Confidences;&quot;, 2002 IEEE Proceedings.
- M. Kaya, R. Alhajj , &quot;Genetic algorithm based framework for mining fuzzy association rules;&quot;, 2004 Elsevier B. V.
Index Terms

Computer Science
Data Mining

Keywords

K-means Clustering Data Mining Fuzzy Set Genetic Algorithm Fuzzy Association
Quantitative
Rules
Transactions