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Abstract
In our real life, the sale volume of the supermarkets and the department stores is often varied with the seasonal variation. To attract consumers and get better sale volume, the proprietors of supermarkets or department stores often hold all kinds of the sale promotions which offer customers good discount of merchandise. Therefore, price is one of the important factors which will affect the behaviors of the customers during these promotions.
The traditional association mining stressed on the relations between merchandise and comprehended. The purpose of association mining is to know what merchandise was often bought together by customers. For example, the diapers and the beers may be bought together. However, it couldn't show that in what discount when the merchandise be bought. If we used the traditional association mining, we couldn't know the potential relation between merchandise and discounts. Maybe association rules implied the relationship between the merchandise and discount and this relationship possibly increase sales volume.
For a long time, the price has been one of the main factors which will affect consumers' behavior. In this paper, we propose an algorithm EFI_FP (An Efficient Approach For Filtering Frequent Price Itemsets). The properties of EFI_FP algorithm are as following: first, the algorithm uses two phrase filtration mechanisms to reduce a huge number of infrequent itemsets; second, to mine frequent patterns which are the combination of merchandises for sale at the different level of price; third, when the specified merchandise is on sale, it can make sure that the other merchandises can be bought at the same time. Because it has level relationship among the merchandises, we propose another algorithm MLEFI_FP (Multiple Level Efficient Apporach for Filtering Frequent Price Itemsets). MLEFI_FP algorithm is extended from EFI_FP algorithm. It can mine the multi-level price patterns which own the multi-level relationships among merchandises during these promotions. The addition of relationship makes the mining association rules are more significant.
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