

Increasing the Speed of the Apriori Algorithm by Dimension Reduction

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Abstract : The most basic and important decision-making tool for industrial and service managers is understanding the market and customer behavior. In this regard, the Apriori algorithm, as one of the well-known machine learning methods, is used to identify customer preferences. On the other hand, with the increasing diversity of goods and services and the speed of changing customer behavior, we are faced with big data. Also, due to the large number of competitors and changing customer behavior, there is an urgent need for continuous analysis of this big data. While the speed of the Apriori algorithm decreases with increasing data volume. In this paper, the big data PCA method is used to reduce the dimension of the data in order to increase the speed of Apriori algorithm. Then, in the simulation section, the results are examined by generating data with different volumes and different diversity. The results show that when using this method, the speed of the a priori algorithm increases significantly.

Keywords : association rules, Apriori algorithm, big data, big data PCA, market basket analysis

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