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Abstract
Group purchasing is the activity in which people who desire to buy the same merchandises join together to bargain or negotiate with sellers for a better price. Similarly, network-group purchasing is the one that recruits buyers through network so as to form a great purchasing demand for the same purpose. However, network-group purchasing has the following problems: (a) taking a long time to recruit enough buyers; (b) not easy for buyers to have a consensus for the bargaining or negotiation strategies; (c) taking a long time to bargain or negotiate.

K-means algorithm is one that best represents of clustering algorithms. However, its critical shortcoming is that it is vulnerable for the regional solutions. To improve this problem, Sanghamitra Bandyopadhyay proposed a genetic algorithm that incorporates with K-means algorithm since genetic algorithms can solve the problem of regional solutions. This proposed algorithm is called K-means Genetic Algorithm (KGA).

To improve the problems of network-group purchasing, this research clusters the preference attributes of buyers in the database. Based on KGA, the center of each cluster is defined as a gene to conduct the clustering. After the initial clustering, if there are not enough buyers in some clusters, clusters will continue to integrate to form a greater purchasing demand until the number of buyers in each cluster is good enough to bargain or negotiate.

It is supposed that the center of each cluster represents the preferences of the cluster. In order to verify, two things will be done: (a) each center will be rounded up and down because the preference attributes must be integers; (b) hypothesis testing is used to check whether or not the rounded center is a good candidate to represent the preferences of the cluster; if not, the mode of each preference attribute of the cluster will be used instead. With the results, the corresponding merchandise will be recommended to the buyers of the cluster for the future network-group purchasing.
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