Shelf Layout With Integrating Data Mining And Multi-Dimensional Scaling

Abstract

Thanks to information, communication and technological improvements in these days, data mining method are used to obtain significant results from very large data sets. In terms of businesses, decisionmaking in product design, placement, layout and so on issues are of vital importance. Association rules taking part in data mining topic is used so much especially in marketing research in the market basket. The MultiDimensional scaling (MDS) method is also frequently used for the positioning of products in the marketing field. MDS is measured similarities between products, units and so on according to the method of Euclidean space. Relations between products or units are visualized in two or three dimensions using MDS method according to the purpose. The aim of this study is to determine the product shelf layout using association rules according to the relationship map of the products generated by MDS. Together with the association rules (conviction ratios) used in data mining field, proximity coefficients between products were calculated and used in MDS analyze. Product groups were created by using MDS and proximity coefficient combinations made up between products. Shelf layout ensuring similar products in line with side by side was determined with the help of association rules. The applicability of the proposed method for products and alternative shelf layout was presented visually. 750 shopping and customers who purchase products in the same shelf made up the data of this study. In this study, placement of the products designed to maximize the benefit level for customers in terms of time and convenience.

Keywords: Data Mining, Apriori Algorithm, Association Rules, Multidimensional Scaling, Market Basket Analysis, Shelf Layout.