An Empirical Study on Member Classification for Electronic Commerce Websites Utilizing Decision Tree

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Abstract

Due to the increase of Internet users in Taiwan, e-commerce has begun to prevail again after the dot-com crisis. Nowadays, more and more consumers are willing to shop online, resulting in a huge growth of online shopping websites. In practice, administrators of these websites insufficiently analyze the consumer behavior of their members and yet classify them only by a few criteria. Without accurate classification of members, marketing cannot effectively reach potential consumers. As a result, members' repurchase rate can hardly be improved, further affecting business performance. For administrators of online shopping websites, if they can quickly find out core customers from the member database and adopt effective marketing strategies based on their attributes, they can enhance sales performance, increase market share, and consequently benefit from the effect of adopted marketing strategies.

The objectives of this study are threefold: (1) Exploring the current member management mechanism and development of e-commerce in Taiwan. (2) Using decision tree to propose an automatic member classification model for e-commerce service providers in Taiwan. (3) Investigating the classification accuracy of the proposed model.

Based on member attributes of a member database, such as hours of using Internet, expenditure, and shopping frequency, four e-commerce member classification models are constructed and compared using decision tree C4.5 algorithm. The models are further modified to enhance the efficiency of automatic classification. These models can assist e-commerce service providers to automatically classify their members and more efficiently locate core customer groups, so as to set up effective marketing strategies and thus enhance their competitive advantages.