World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Recommender Systems Using Ensemble Techniques

Authors : Yeonjeong Lee, Kyoung-jae Kim, Youngtae Kim

Abstract : This study proposes a novel recommender system that uses data mining and multi-model ensemble techniques to enhance the recommendation performance through reflecting the precise user's preference. The proposed model consists of two steps. In the first step, this study uses logistic regression, decision trees, and artificial neural networks to predict customers who have high likelihood to purchase products in each product group. Then, this study combines the results of each predictor using the multi-model ensemble techniques such as bagging and bumping. In the second step, this study uses the market basket analysis to extract association rules for co-purchased products. Finally, the system selects customers who have high likelihood to purchase products in each product group and recommends proper products from same or different product groups to them through above two steps. We test the usability of the proposed system by using prototype and real-world transaction and profile data. In addition, we survey about user satisfaction for the recommended product list from the proposed system and the randomly selected product lists. The results also show that the proposed system may be useful in real-world online shopping store.

Keywords : product recommender system, ensemble technique, association rules, decision tree, artificial neural networks
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020

Open Science Index, Mathematical and Computational Sciences Vol:14, No:12, 2020 publications.waset.org/abstracts/1875/pdf