Nora Khalaf Almutairi

Abstract

Recommender systems are widely used in e-commerce to save users' time and help them make more satisfying decisions. E-commerce can provide their users with better-personalized suggestions that may suit their preferences. However, the cold start problem is an inherent challenge in recommender systems that faces e-commerce when users are new to the system, and they have limited interaction experience with the system. To address the cold start problem and provide different solutions, analyzing different users' behavior during sessions spent on the business website needs more investigations. We solve the user cold start problem by applying the behavioral targeting technique to study the users' pattern of clicks on items and categories without the knowing explicit feedback such as ratings or written reviews. Behavioral targeting is a technique used to match suitable advertisements to the right user on a commercial website. In this research, a Collaborative Filtering technique is used to identify similar users in the context of their clicks' behaviors. We have applied the collaborative Filtering technique using the K-nearest neighbor model to classify users based on their clicks. To conduct the study, we used a real dataset from an online bookstore containing users' behavior such as clicks on category and purchases. The K-nearest neighbor were predicted with K= ٥and for evaluation the predictions result we used the classification report metrics: accuracy, recall, precision, and the F١-score along with the confusion metrics. Results showed that studying user clicks can provide meaningful information about user interest, and can apply to user collaborative filtering approach to find user recommendations. The model achieved an accuracy of ٪٣٤, which is consider low accuracy rate for a recommender system. However, for user cold start problem, it is acceptable to suggest recommendations that are ٪٣٤accurate to new user who have