Application of Item-Based Collaborative Filtering Method for Recommendation System for Tourist Destinations

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Abstract

Tourist destination recommendation systems have become an important part of the tourism sector, as tourists are often faced with many diverse local and international tourist destinations. As one of the main tourist destination cities in Indonesia, Bandung, which has abundant tourism potential such as a lot of history, food, and interesting natural scenery. So there is a need for a filtering tool that can provide recommendations to tourists. In this study, we built a tourist destination recommendation system in Bandung by applying Item-based Collaboarative Filtering and using the KNN classification algorithm. This research tests the Brute-force algorithm parameters and also KD-Tree to find the closest item to the reference tourist destination that has been determined by the user, and also the Chebyshev Distance, Euclidean Distance, and Manhattan Distance metric parameters to calculate item similarity. Several algorithm parameters and metrics are selected to find the best parameters in recommending tourist destinations that match user preferences as determined by the MAE evaluation metric. The test results show that the system built is adequate in providing recommendations to users by applying the KD-Tree algorithm parameters and the Chebyshev Distance metric getting quite good performance with an MAE value of 1.36 which has a lower prediction error than other tests, with a time to make recommendations for 9.2 milliseconds which is faster than other tests.

Keywords: recommendation system, item-based collaborative filtering, KNN, MAE, tourist destination, city of bandung.