ABSTRACT

Social Tagging Systems (STS) are very popular web application so that millions of people join the systems and actively share their contents. This enormous number of users floods STS with contents and tags in an unrestrained way in that threatening the capability of the system for relevant content retrieval and information sharing. Recommender Systems (RS) is a known successful method for information overload problem by filtering the relevant contents over the non-relevant contents. Besides managing folksonomy information, STS also handles social network information of its users. Both information can be used by RS to generate a good recommendation for its users.

This work proposes an enhanced method for an existing hybrid recommender system, by incorporating social network information into the input of the hybrid recommender. The recommendation generation process includes Random Walk with Restart (RWR) alongside Content-Based Filtering (CBF) and Collaborative Filtering (CF) methods. Some parameters are introduced in the system to control weight contribution of each method.

A comprehensive experiment with a set of a real-world open data set in two areas, social bookmark (Delicious.com) and music sharing (Last.fm) to test the proposed hybrid recommender system. The outcomes exhibit that this hybrid can give improvement compared to an existing method in terms of accuracy. The proposed hybrid achieves 24.4% higher than RWR on the Delicious dataset, and 53.85% higher than CBF on Lastfm dataset. By these observational tests, it can be inferred that the proposed hybrid recommender utilizing social network information owned by Social Tagging Systems can enhance the recommendation accuracy.

Keywords: social tagging system, hybrid recommender system, random walk with restart, content-based, collaborative filtering, delicious, lastfm