Novel community recommendation based on a user-community total relation.

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Summary: With the exponential increase of Web communities, community recommendation has become increasingly important in sifting valuable and interesting communities for users. In this paper, we study the problem of novel community recommendation, and propose a method based on a user-community total relation (i.e., user-user, community-community, and user-community interactions). Our novel recommendation method suggests communities that the target user has not seen but is potentially interested in, in order to broaden the user’s horizon. Specifically, a Weighted Latent Dirichlet Allocation (WLDA) algorithm improves recommendation accuracy utilizing social relations. A definition of community novelty together with an algorithm for novelty computation are further proposed based on the total relation. Finally, a multi-objective optimization strategy improves the overall recommendation quality by combining accuracy and novelty scores. Experimental results on a real dataset show that our proposed method outperforms state-of-the-art recommendation methods on both accuracy and novelty.

Keywords: Novel community recommendation; user-community total relation; weighted Latent Dirichlet Allocation; novelty

doi:10.1007/978-3-319-05813-9_19