Effective page recommendation algorithms based on distributed learning automata and weighted association rules

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Publisher
Pergamon Press, Inc. Tarrytown, NY, USA

ABSTRACT

Different efforts have been done to address the problem of information overload on the Internet. Recommender systems aim at directing users through this information space, toward the resources that best meet their needs and interests by extracting knowledge from the previous users' interactions. In this paper, we propose three algorithms to solve the web page recommendation problem. In our first algorithm, we use distributed learning automata to learn the behavior of previous users' and recommend pages to the current user based on learned patterns. By introducing a novel weighted association rule mining algorithm, we present our second algorithm for recommendation purpose. Also, a novel method is proposed to pure the current session window. One of the challenging problems in recommendation systems is dealing with unvisited or newly added pages. By considering this problem and improving the efficiency of first two algorithms we present a hybrid algorithm based on distributed learning automata and proposed weighted association rule mining algorithm. In the hybrid algorithm we employ the HITS algorithm to extend the recommendation set. Our experiments on real data set show that the hybrid algorithm performs better than the other algorithms we compared to and, at the same time, it is less complex than other proposed algorithms with respect to memory usage and computational cost too.

REFERENCES

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INDEX TERMS

Keywords: Learning automata, Machine learning, Personalization, Web mining