

Using Implicit Feedback in Recommendation Systems

Peter ŠTUDENT*

*Slovak University of Technology
Faculty of Informatics and Information Technologies
Ilkovičova 3, 842 16 Bratislava, Slovakia
student@fiit.stuba.sk*

The amount of data on the Web is growing day by day and therefore it is still more and more difficult to find content that is interesting for the specific user. This problem has a major impact especially on the news web portals, with a highly dynamic content, with new articles coming very often, which increase a chance that a user will miss an article, which she would considered as important or be simply interested in.

The aim of our work is to analyze the contribution of negative implicit feedback observed from user behaviour to the process of searching for interesting content on the Web and generating automatic recommendations for that content. Main advantage of using implicit feedback in comparison with explicit feedback is not only that there is no unnecessary burden on users to perform redundant operations but implicit feedback brings also a possibility to capture short-term interest [1][2]. One of the indicators falling under negative feedback, which we mainly focus on is information about situations when user immediately leaves a page containing uninteresting content, without reading it.

The aim of introducing negative form of implicit feedback in the process of generating recommendations is to reduce the amount of data processing and increase the speed of generating recommendations compared to traditional systems without this kind of feedback. We have analyzed different forms of adaptation of negative feedback in the process of generating recommendations:

- Elimination of uninteresting items based on the common negative feedback from the group of users that have interest in a group of similar items.
- Elimination of uninteresting items with negative feedback from the group of similar users, where similarity is based on the fact that they have given negative feedback for group of similar items.

* Supervisor: Ján Suchal, Institute of Informatics and Software Engineering

- Identification of groups of similar users, where similarity is based only on common negative feedback; recommendation of unseen items, which were positively evaluated by group members to other users of the group (Figure 1.).

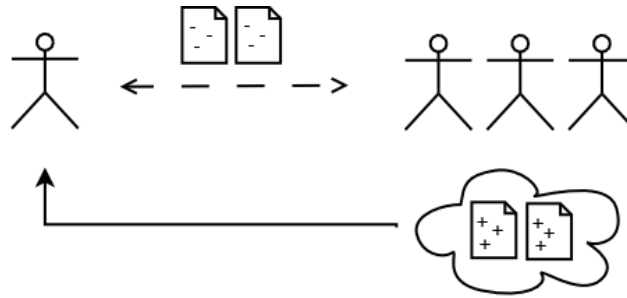


Figure 1. The method for creating recommendations using negative implicit feedback.

Proposed solutions negative implicit feedback utilization in process of creating recommendations are subject to experimental verification on dataset from the existing web news portal. We made a prototype of recommender system based on full text search engine k-nearest neighbour recommendation system [3] with incorporated use of described negative implicit feedback method.

In the current stage of the research we had done synthetic tests which have shown that the last of proposed solution can increase speed of generating recommendations by 5% with almost same quality of generated recommendations compared to traditional recommendation systems.

Acknowledgement. This work was partially supported by the Scientific Grant Agency of Slovak Republic, grant No. VG1/0508/09.

References

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