

Personalized Recommendation Using Context for New Users

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Each web application using personalized recommendation encounters problems when we do not have historical data about new user.

If a new user comes to the page we have no information about it, only the basic information about him, and therefore we cannot adequately recommend relevant content. Of course we can extract data from extensive registration forms, but this approach usually transfers complexity to the new user. But it is not always possible to obtain data directly from the user during registration, and that is why it is necessary to identify the data dynamically. The aim is to facilitate work with application to user

The very first users' interaction within a personalized system is crucial from the recommender system and user modelling point of view. This activity is critical because in these moments a user creates a relationship and opinion, which are important for user to the next use of the system.

Personalized recommendation may be based on the recommendation of the content or the collaboration. Difference between them lies in the fact that the recommendations based on the content is the content itself, what is object of the analysis but the centre of analysis of collaborative recommendation is recommendation based on the activity or properties of other users. Mostly are used a combination of both approaches [1].

Content recommendation is based on the principle of the interests and preferences of the user, so if I know what the user likes to do than we can to select and assign recommendation according to the content of these data. But in this approach, we run into ambiguity various texts.

Collaborative approach is recommended according to other users. Users are classified into groups based on similar preferences, activities and assessment content. Since this approach is quite simple is quite widespread. The problem with this approach is that it is necessary to have a large number of data of appropriate users.

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Collaborative recommendation is more used in electronic trading against recommendations based on the content which is used in social networks.

In collaborative recommendation are new users asked to evaluate a number of items that have no related link with interest new user. The aim of evaluation is finding the most appropriate items that will be shown the new user [2].

Some approaches seek to limit or completely eliminate participation of user. This means that the user not need fill questionnaires but system chooses the convenient data about user, such as age, location of the user and data allowing the grouping users into classes. In the "cold start" domain some of these attributes may be missing but it can be estimated by the induction, which counts positional vector according to other users in the same community [2].

There are also hybrid approaches, which combine collaborative and content-based recommendation approach. This method is based on the principle of items aggregation according to matrix and then uses the clustered results and content of the items to obtain a decision tree for associating new items with existing [3].

In Our project we want to design recommendation method, which will be recommending related information for the new user according to user context from related and similar users. We want to test our approach on the faculty library system Annota. We use two matrix types. First type is document matrix, which contains similarity of documents according to documents context such as tags and titles. Next type is user matrix. This matrix contains similarity, which is computed by user time context and external data. External data are user publication and school thesis from our faculty information system. User similarity matrix is used to compute the prediction of recommendation according user's neighbours [4] and theirs related documents in Annota application. We extend user neighbours documents by similarity of all documents from Annota.

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References

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