

DivText

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RECOMMENDATION SYSTEM BASED ON RESULT DIVERSIFICATION

a) Description of the Problem

With the increasing growth in the number of web sites, users are overloaded with massive amount of data. Obviously, it is useful for users to have an effective and efficient recommendation system. That recommendation system enables users to obtain information they really need and to save their time. As providing accurate recommendations are important, also providing other utilities such as diversification of topics without harming accuracy too much is important. Our project will consist of a *top-N* recommendation system for text documents that is capable of generating diverse results.

b) Motivation/Importance

In literature, there are three main methods to recommend documents: content-based method, collaborative method and hybrid method. Although these methods give effective results to users, how to make results diverse is still a problem. Also it has been noted that even though the documents recommended by a recommendation system high accuracy, thus having high similarity value with users activity and similarity with other users, such systems are tend to have a monotonous behavior. Furthermore recent studies showed that using diversity actually increases the user satisfaction which is the primary goal of IR systems [1], [2]. The main value added activity of our project will be the capability of giving diverse recommendations for the user.

c) Methodology

In our project we plan to build a *top-N* recommendation system using *topic-diversity* based on resulting documents. We plan to monitor the recent activities of the users and construct the similarity between users based on their activities then with the help of topic-diversity we will build our recommendation system.

Recent activities of users are of more importance because they reflect users' current tastes. Also if two users have similar tastes then probably the difference between their patterns will give us a good idea of what might be a reasonable choice to recommend. As it is clear that these are solely based on increasing the accuracy measures such as precision, recall, or MAE etc. user satisfaction is assumed to be parallel with accuracy. As this may be true in some sense, giving obvious results, or results that may be reached without so much of an effort doesn't give a good evaluation from the users' perspective. So we use an optimization function rather than just using accuracy. Our optimization function consists of a diversity measure with an accuracy measure. Although it is intuitively obvious, several studies showed that increasing the diversity may decrease the accuracy [1], [2]. Also changing the user's behavior may automatically raise diversity.

d) Expected Results

We expect to get a better user satisfaction than traditional recommendation systems. We believe that diversity in recommendation systems will increase the duration that users used the system, the range of topics that they examined, the ratio of satisfied needs, and will decrease the time it takes users to find something,

e) References

[1] Avoiding monotony: Improving the diversity of recommendation lists, *M.Zhang, N. Hurley, RecSys' 08*.

[2] Improving recommendation lists through topic diversification, *C.N. Ziegler, S.M. McNee, J.A. Konstan, G. Lausen, WWW '05*.