

Group Recommendation for Adaptive Social Web-based Applications

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Recommender systems are an integral part of a modern – adaptive web nowadays. The need for the adaptive web increases day by day, while users are generally overwhelmed by hundreds of thousands information. Similarly, the second side – business tries to increase profits or visits of web sites. Personalised recommendation is the most used approach to satisfy both – users and business.

Historically, several approaches have been proposed for the recommendation task. The content-based recommendation uses the similarity between recommended items. The similarity can be computed based on several aspects as simple text similarity, or various enhancements for specific domains as news have been proposed [1,3]. The second and still more and more used approach is the collaborative recommendation. This approach instead of content similarity takes advantage of user's similarity, which is usually computed based on user's rating. While these approaches are designed for the single-user environment, in the last years the phenomenon of social networking and mobile devices bring us to the increasing demand for recommendations designed for groups of users. However the group recommendation developed from the collaborative approach, the main difference is visible - we use inter-group relations in order to provide sufficient recommendation for the whole group of users instead of single-user. While the standard single user recommendation tries to satisfy actual user needs, the group recommendation based on the used strategy and the goal of the recommendation tries to maximize satisfaction of every user of the group.

Various approaches for the personalized recommendation have been proposed in the literature [2]. Hand by hand with the social activity over the web increase; the group recommendation is more popular and researched, while the possibility of the usage of group recommendation approaches within the standard single-user recommendation was raised, but no study explored such an approach. Most of the proposed approaches deals with the TV or music domain, as these are activities which are usually performed in the group of users. While the domains as TV or movies were

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the first and logical choice. More and more new domains are used and researched nowadays.

In our work we focus on the exploring possibilities of using group recommendation not only in the new domains as the scientific papers or collaborative support of the learning process, but we explore the possibility of usage the principles of group recommendation in the single-user environments. These can be used thanks to virtual groups' construction, which on the other side can be replaced with the real or derived groups anytime.

Our results of experiments (statistically significant) support our hypothesis, that recommendation based on the group recommendation principles overcomes the standard collaborative recommendation. Correspondingly, we prove that such an approach is suitable for various domains (news, movie).

Several aspects can be considered when creating virtual groups or when some aggregation is performed due to generate recommendations. The satisfaction of every user is directly influenced by the actual group members, the size of the group and types of relationships within the group respectively. More over the actual satisfaction state of every member influences through the relationship type and intensity the others.

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