

# Group Recommendation for Smart TV

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Watching TV is one of the activities that people do together. According to the surveys [2], in most cases watch television parents with children, groups of siblings but also friends. None of us, however, have identical interests with the others and therefore everyone cannot be equally satisfied all the same. At a time when there are 'smart' televisions that can ever offer a specific program from large databases, we can increase the satisfaction of users with recommendations of contents that is the most attractive opportunity for specific group and opportunity. When recommending to groups, we cannot recommend an individual list of programs to each user from the group. It is necessary to choose to all together and try as much as possible to satisfy the whole group. There, as with many other activities, we show that we are sociable individuals. We are often willing to offer a compromise and would rather watch together program, which is not quite optimal to us, then to watch more attractive program individually.

The group is in the domain of group recommendations made by set of individuals who collectively perform some activity. We always recommend a common content to whole group. Therefore, we need to know which users is currently the group made form. We also need to know what content individual users like.

The existing recommendation approaches store information about an individual user in the user model. In model we represent information about what users are interested in and what content they prefer. Based on models, we can recommend a relevant content to the users and subsequently to the groups.

In basic terms, the user profile is made up of a set of pairs [category, value], where value is a number from the interval  $<0, 1>$ . The size refers to the interest of the user for a category of items (such as comedies). Based on users rating or the time user views the items of a given category we can determine her interest in this category, and thus gradually model her profile [3].

When we already know the composition of the group and the individual preferences of group members, the further question offers here. It is how to recommend common content for the whole group. First standard approach is to aggregate user profiles into group profile and then creates a common recommendation

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for the group represented by one model. The second approach is to create recommendations for each user and then aggregate the results into a common group list [1, 3].

There are three common approaches of results aggregation. First approach consists of techniques based on the majority, where is selected component most preferred by users. There may be a disadvantage of ignoring minorities especially in large groups. The second approach is represented by methods based on consensus among the group members. Here we take into account all members and the recommended item is chosen from the average of all preferences. The third approach includes border strategies. These include dictatorial method in which we choose only by one dominant group member, least misery method where we select the solution with the smallest dissatisfaction of members or vice versa method with greatest pleasure for group members.

Recommendation for multimedia content uses mostly collaborative recommendation and a recommendation based on the content. Both approaches are able to achieve very good results. Collaborative approach is based on the assumption that if certain content, that user hasn't seen yet, is liked by similar users (similar to in mean of preferences) it is likely that she will like it too. Content-based approach, for change, generates recommendations only on the basis of items similarity. There is an assumption that if a user liked a particular item and there is a similar one, not seen by the user, she will probably like it too.

When recommending to the group we want to achieve pleasure of all its members. On the one hand, we want to ensure maximum satisfaction of the group. On the other hand, we think that the group pleased as a whole is not enough. If the group is not completely homogeneous, it can ignore satisfaction of members whose view is the minority [1]. It would discourage them from further use of the service. Conversely, if users will be satisfied with the recommended content and they will see satisfaction of other members of their group too, there is a greater chance that they will use the service using this recommender in the future.

*Acknowledgement.* This work was partially supported by the Scientific Grant Agency of Slovak Republic, grant No. VG1/0675/11.

## References

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