

A Combined Collaborative Filtering Recommendation System

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ABSTRACT: Existed recommendation system collaborating system is facing problems like data sparsity, inaccuracy which are great challenges. The inaccurate prediction especially the big error prediction may reduce the trust of user on the recommender system. Hence the mechanism to find neighbor of user is very important. Using rated items to represent a user, as in conventional collaborative filtering only captures the user's preference at a low level can lead to inaccurate results in some cases. So objective here is to use object typicality based collaborative filtering approach as well as user history for recommendation system which is able to do great deal with above mentioned problems. The distinct feature of the typicality-based CF recommendation is that it selects the 'neighbors' of users by measuring users' similarity based on user typicality degrees in user groups, which differentiates it from previous methods. As well as system is responsible for creating a friendship with similar user so that people who having same interest in movies can become friends with each other.

KEYWORDS: Database, Recommendation system, Collaborative system.

I. INTRODUCTION

There have been many works on recommender systems and most of these works focus on developing new methods of recommending items to users. The objective of recommender systems is to assist users to find out items which they would be interested in. Items can be of any type, such as movies, jokes, restaurants, books, news articles, and so on. Currently, recommendation methods are mainly classified into collaborative filtering (CF), content based (CB), and hybrid methods. For the reason that we are focusing on proposing a new CF method, we will introduce the related works about CF methods in more details. Collaborative Filtering (CF) recommendation methods predict the preferences of active users on items based on the preferences of other similar users or items. For the reason that CF methods do not require well-structured item descriptions, they are more often implemented than CB methods, and many collaborative systems are developed in academia and industry. There are two kinds of CF methods, namely user-based CF approach and item-based CF approach. The basic idea of user-based CF approach is to provide recommendation of an item for a user based on the opinions of other likeminded users on that item. The user-based CF approach first finds out a set of nearest "neighbors" (similar users) for each user, who share similar favorites or interests. Then, the rating of a user on an unrated item is predicted based on the ratings given by the user's 'neighbors' on the item. The basic idea of item-based CF approach is to provide a user with the recommendation of an item based on the other items with high correlations. Unlike the user-based CF, the item-based CF approach first finds out a set of nearest "neighbors" (similar items) for each item. The item-based CF recommender systems try to predict a user's rating on an item based on the ratings given by the user on the neighbors of the target item. Collaborative filtering (CF) is an important and popular technology for recommender systems. Currently, almost all collaborative filtering methods measure users' similarity (or items' similarity) based on corated items of users (or common users of items). using rated items to represent a user, as in conventional collaborative filtering, only captures the user's preference at a low level (i.e., item level). Measuring user's similarity based on such a low-level representation of user's corated items of users can lead to inaccurate results in some cases. People require recommender systems to predict user's preferences or ratings as accurately as possible. However, some predictions provided by current systems may be very different from the actual preferences or ratings given by users. So to provide all these services to user with fulfilling their requirements we have focuses on a combined collaborative filtering system which is based on object typicality concept. As well as system is responsible for creating a friendship with similar user so that people who having same interest in movies can become friends with each other.

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II. HARDWARE AND SOFTWARE USED

HARDWARE:

System : 32-bit/64-bit
Hard Disk : 100GB
RAM: 2GB.

SOFTWARE:

Operating system : Windows 7
Language: JAVA
IDE: Eclipse
Database: MySQL Query Browser

III. METHODOLOGY

We borrow the idea of object typicality from cognitive psychology and propose a typicality-based CF recommendation approach. The mechanism of typicality-based CF recommendation is as follows:

1. We cluster all items into several item groups. For example, we can cluster all movies into “war movies,” “romance movies,” and so on.
2. We form a user group corresponding to each item group (i.e., a set of users who like items of a particular item group), with all users having different typicality degrees in each of the user groups.
3. So this the typicality approach of proposed system. With this we are going to use the history of user We build a user-typicality matrix and measure users’ similarities based on users’ typicality degrees in all user groups so as to select a set of “neighbors” of each user.
4. So typicality based matrix will look like figure 1.1

	g_1	g_2	g_3	g_4	g_5	g_6
U_1	0.87	0.75	0.92	0.12	0.32	0.28
U_2	0.34	0.21	0.38	0.89	0.85	0.94
\vdots	\dots	\dots	\dots	\dots	\dots	\dots
U_k	0.81	0.79	0.89	0.15	0.29	0.31
\vdots	\dots	\dots	\dots	\dots	\dots	\dots
U_m	0.41	0.22	0.35	0.90	0.88	0.92

Figure 5.1: An Example Of User Rating Matrix In Typicality Based Collaborative Filtering.

After calculation of accurate recommendation user can continue with further communication

Where user can do following tasks:

- Get accurate recommendations.
- Send request to similar users.
- Update user profile information.
- Message to friends(similar users).

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IV. ARCHITECTURE OF SYSTEM

Figure 1.2 shows the system architecture of combined collaborative filtering system. It consists user input, database, and related output. User need to be give an input in the form of his/her interest in movies category like romantic, comedy, horror, action etc. System is responsible for finding out the similar users and related movie recommendations with the help of database.

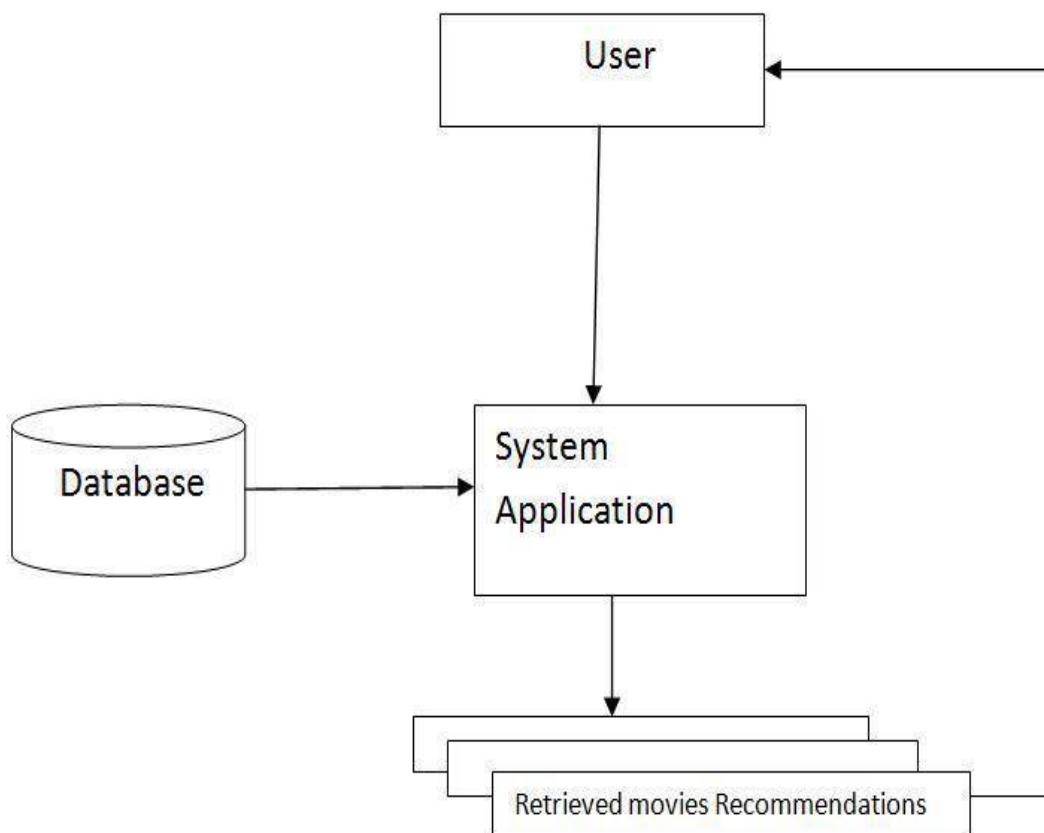


Figure 1.2: System Architecture of system.

Once system calculates similar user, it sends movie recommendations according to user interest. With this system gives platform to user where user can see the list of similar users and is enable to form friendship with them. Once user become friend with similar users, he/she can chat with them through messaging.

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V. CONCLUSION

In this paper, we investigate the recommendation system using clustering based CF approach and present a CF technique for improved recommendation system based on object typicality. The higher typicality degrees of users and items in the corresponding user and item groups, the recommendation scores are higher. To deal with some of the challenges in CF, we propose a CF recommendation approach to cluster all the items into several item groups by using k-means clustering algorithm, which provide better recommendation than traditional methods. And also help users to search items more easily and to improve the accuracy and quality of the recommendation.

With this system is able to form friendship bond between user who having same area of interest in movies by adding features like sending friend request, accepting friend request, sending messages to friends(chatting) etc

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