Personalized Recommendation Combining User Interest and Social Circle

ABSTRACT:

With the advent and popularity of social network, more and more users like to share their experiences, such as ratings, reviews, and blogs. The new factors of social network like interpersonal influence and interest based on circles of friends bring opportunities and challenges for recommender system (RS) to solve the cold start and sparsity problem of datasets. Some of the social factors have been used in RS, but have not been fully considered. In this project, three social factors, personal interest, interpersonal interest similarity, and interpersonal influence, fuse into a unified personalized recommendation model based on probabilistic matrix factorization. The factor of personal interest can make the RS recommend items to meet users’ individualities, especially for experienced users.

EXISTING SYSTEM:

Recommender system (RS) has been successfully exploited to solve information overload. In ECommerce, like Amazon, it is important to handling mass scale of information, such as recommending user preferred items and products. A survey shows that at least 20 percent of the sales in Amazon come from the work of the RS. It can be viewed as the first
generation of RSes with traditional collaborative filtering algorithms to predict user interest. However, with the rapidly increasing number of registered users and various products, the problem of cold start for users (new users into the RS with little historical behavior) and the sparsity of datasets (the proportion of rated user-item pairs in all the user-item pairs of RS) have been increasingly intractable. Fortunately, the appearance of web2.0 greatly improves user’s initiative on the Internet, and then brings volume of social networks such as Facebook, Twitter, Yelp1, Douban2, Epinions3, etc. The interpersonal relationship, especially the circles of friends, of social networks makes it possible to solve the cold start and sparsity problem. Many social network based models have been proposed to improve the performance of the RS. Recently, Yang et al. propose to use the concept of ‘inferred trust circle’ based on the domain-obvious circles of friends on social networks to recommend user favorite items. Their approach not only refines the interpersonal trust in the complex networks, but also reduces the load of big data.

PROPOSED SYSTEM:

In this project, three social factors, personal interest, interpersonal interest similarity, and interpersonal influence, fuse into a unified personalized recommendation model based on probabilistic matrix factorization. The personality is denoted by user-item relevance of user
interest to the topic of item. To embody the effect of user’s personality, this project mine the topic of item based on the natural item category tags of rating datasets. Thus, each item is denoted by a category distribution or topic distribution vector, which can reflect the characteristic of the rating datasets. Moreover, this project get user interest based on his/her rating behavior. This project then assign to the effect of user’s personality in our personalized recommendation model proportional to their expertise levels. On the other hand, the user-user relationship of social network contains two factors: interpersonal influence and interpersonal interest similarity. This project apply the inferred trust circle of Circle-based Recommendation (CircleCon) model to enforce the factor of interpersonal influence. Similarly, for the interpersonal interest similarity, this project infer interest circle to enhance the intrinsic link of user latent feature.

SOFTWARE REQUIREMENT:

- **Operating System**: Windows 2000 / XP, Linux based systems
- **Languages/Software**: Java Runtime Environment,
  
  Java Software Development Kit 1.6
  
  Apache Tomcat Server
  
  Java NetBeans IDE
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HARDWARE REQUIREMENT:

- Pentium-4 PC with 20 GB
- hard-disk
- 256 MB RAM
- Keyboard
- Mouse