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RETINAL BASED PERSONAL IDENTIFICATIO SYSTEM USING SIFT ALGORITHM

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Abstract-- Recently, with the rapid development of mobile devices and ubiquitous Internet access, social network services, such as Face book, Twitter, Yelp, Foursquare, Epinions, become prevalent, which allows users to share their experiences, reviews, ratings, photos, check-ins, etc. These social networks involve geographical information such as location-based social networks (LBSNs). Such information brings opportunities and challenges for recommender systems to solve the cold start, sparsity problem of datasets and rating prediction. In this project, we propose personalized recommendation systems that can help people to find interesting things and they are widely used with the development of electronic commerce. Many recommendation systems employ the collaborative filtering technology, which has been proved to be one of the most successful techniques in recommender systems in recent years.

Keywords: Cold start, sparsity problem, recommendation system.

Introduction

As the development of the internet, intranet and electronic commerce systems, there are amounts of information arrived we can hardly deal with. Thus, personalized recommendation services exist to provide us the useful data employing some information filtering technologies. Information filtering has two main methods. One is the content based filtering and the other is the collaborative filtering. Collaborative filtering (CF) has proved to be one of the most effective for its simplicity in both theory and implementation [1, 2]. Many researchers have proposed various kinds of CF technologies to make a quality recommendation. All of them make a recommendation based on the same data structure as user-item matrix having users and items consisting of their rating scores. There are two methods in CF as user based collaborative filtering and item based collaborative filtering [3, 4]. User based CF assumes that a good way to find a certain user's interesting item is to find other users who have a similar interest. So, at first, it tries to find the user's neighbors based on user similarities and then combine the neighbor users' rating scores, which have previously been expressed, by similarity weighted averaging. And item based CF fundamentally has the same scheme with user based CF. It looks into a set of items; the target user has already rated and computes how similar they are to the target

item under recommendation. After that, it also combines his previous preferences based on these item similarities. The challenge of these two CF as following [5,6]:**Sparsity:** Even as users are very active, there are a few rating of the total number of items available in a user item ratings database. As the main of the collaborative filtering algorithms are based on similarity measures computed over the co-rated set of items, large levels of sparsity can lead to less accuracy.**Scalability:** Collaborative filtering algorithms seem to be efficient in filtering in items that are interesting to users. However, they require computations that are very expensive and grow non-linearly with the number of users and items in a database.**Cold-start:** An item cannot be recommended unless it has been rated by a number of users. This problem applies to new items and is particularly detrimental to users with eclectic interest. Likewise, a new user has to rate a sufficient number of items before the CF algorithm be able to provide accurate recommendations.To solve the problems of scalability and sparsity in the collaborative filtering, in this paper, we proposed a personalized recommendation approach joins the user clustering technology and item clustering technology. Users are clustered based on users' ratings on items, and each users cluster has a cluster center. Based on the similarity between target user and cluster centres, the nearest neighbors of target user can be found and smooth the prediction where necessary. Then, the proposed approach utilizes the item clustering collaborative filtering to produce the recommendations. The recommendation joining user clustering and item clustering collaborative filtering is more scalable and more accurate than the traditional one.

Architecture

In this paper presents a novel collaborative filtering recommendation algorithm based on user location context. Firstly, this algorithm defines user location attenuation function to calculate the relations between user locations, then combines this function with traditional Pearson similarity method to get similarity between users, finally, uses the traditional collaborative filtering recommendation algorithm to realize preference prediction and recommendation. Experiments show that this algorithm which has location information taken into account can improve recommendation quality for traditional collaborative filtering recommendation algorithms.

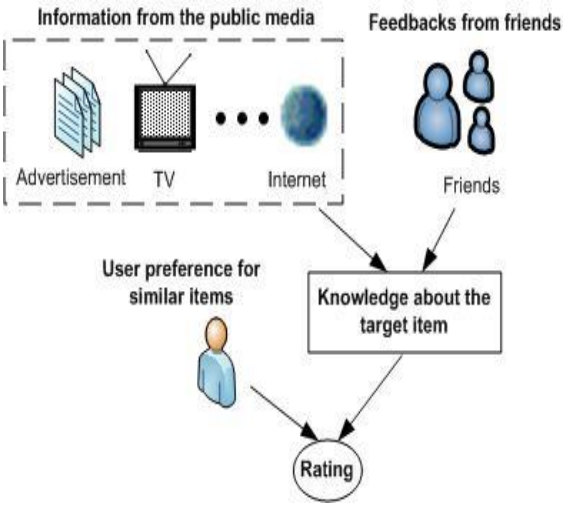

Fig: Architecture diagram

Related Works

Recommender systems are systems that recommend products or services based on users' past behaviour or consumption patterns. Recommender system is broadly classified as Content-based, Knowledge-based, Collaborative Filtering and demographic-based. Some related work in the field of web service mining by recommender system and QoS is discussed here. Mohamad Mehdi et al, "Probabilistic approach Trustworthy web service selection based on QoS" [7] [16], involves a

probabilistic approach for predicting the quality of a Web service based on the evaluation of past experiences (ratings) of each of its consumers. QoS ratings of services are represented using different statistical distributions, namely multinomial Dirichlet (MDD), multinomial generalized Dirichlet (MGDD), and multinomial Beta-Liouville (MBLD). Bayesian inference method is employed to estimate the parameters of the mentioned distributions, which presents a trustworthy web services to service consumer Experimental evaluation involves 3 classifier namely: classifier 1- Bayesian approach with the Beta-Liouville distribution, classifier 2- Bayesian approach with a Dirichlet and classifier 3- compare them to the state of the art naive Bayes (NB) classifier. Lin, S-Y et al, "Web service discovery Trustworthy QoS-based collaborative filtering approach" [8], deals with a trustworthy two phase web service discovery mechanism based on collaborative filtering and QoS. In the first phase, the observer agents will collect records of user behavior, including querying and invoking web services and monitor actual QoS, and then store the profile information in the public cloud database. This phase involves 3 sub-phases namely establishing query and web services matrices, finding query similarity and calculating the relevance between query and web services. This phase mainly establishes item based (memory based) collaborative filtering. The result of phase 1 discovered services may satisfy users' functional requirements and have correct QoS information. In the second phase, the QoS scores of the selected web services are derived from the QoS information stored in database. This phase involves 3 sub-phases namely establishing a matrix of QoS and web services, normalizing the QoS value, and calculating the QoS score. A high QoS score indicates that the web service meets the requirements of a user. Finally, the suitable web services with high QoS scores are recommended to the target users.Sheng et al, "Combining Collaborative Filtering with Content-based Features for recommending Web Services" [9] [15], proposes a novel approach that dynamically recommends Web services satisfying users' interest. The proposed work involves a hybrid approach of both collaborative filtering and content-based recommender systems. Experimental results show that the proposed hybrid system outperforms the latter two recommendation system it terms of recommendation performance.Chen et al, "Similarity-Aware Slope One Collaborative Filtering- QoS Prediction for Web Services" [10], employs similarity-aware slope one algorithm for QoS ratings prediction. The proposed work combines both Pearson similarity and slope one measurement for QoS ratings prediction. Weight adjustment and SPC (Statistical Process Control) based smoothing is also utilized for abnormal data smoothing. The proposed work shows better precision result compared with slope-one and famous WSRec system. The work has the capacity to reduce noise in QoS ratings data. Qi Yu et al, "Collaborative QoS evaluation-QoSaware service selection" [11] [17], proposes a service selection scheme that provides automation for assessment of QoS of an unknown service providers thereby providing a reliable web service that matches service requester's query. Relational Clustering based Model (RCM), which effectively addresses the data scarcity issue. Experimental results of RCM model on both real and synthetic datasets demonstrates that the proposed automation model can more accurately and reliably predict the QoS parameters of an unknown web service, matching service requester's query.Yali LI et al, "Hybrid Collaborative Filtering Web Service Recommendation" [12], proposes a hybrid method that takes

into account user-based and item-based collaborative filtering algorithm, making improvement on similarity calculation by adopting Pearson Correlation Coefficient (PCC) to measure the similarity between two users or two services. G. ByZheng et al, "Collaborative Filtering- QoS-Aware Web Service Recommendation" [13] [14], proposes a Collaborative Filtering recommendation method for QoS prediction of web services, making advantage of past usage experience of service requester. Initially, a user collaborative mechanism for collecting past Web service QoS information from different service requester is done. Finally, based on the QoS data collected, a collaborative filtering recommendation is designed for prediction of Web services with unknown QoS values. A prototype model named, WSRec is implemented and experimental results show that proposed model achieves better prediction accuracy than traditional approaches.

Discussion

User-based collaborative filtering recommendation algorithms

User-based collaborative filtering recommendation algorithms (UserCF) are most widely used in commercial recommendation systems, the basic idea is to recommend items that other people like and match user' internet. Based on this idea, we add location context information to the similarity computation of target user; therefore improve the accuracy of user similarity computation.

Research Direction

To achieve the rating prediction, yelp datasets are going to be used. It is hard to connect with the each and every social medias. So that the previously used yelp datasets are taking a massive role in our project. Preferences are more important to our project so that the specifications of the services also collected previously. Collaborative algorithm used as a key card in this project to predict the service rating prediction independently.

Conclusion

In this paper, based on the research of collaborative filtering recommendation algorithm and giving the fact that traditional similarity calculation method didn't consider the issue of context-sensitive information, we present a new collaborative filtering recommendation algorithm based on location context. Experiments show that this algorithm which has location information taken into account can improve recommendation quality for traditional collaborative filtering recommendation algorithms.

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