

Recommendation System Based on Tourist Attraction

Prof. P. A. Manjare, Miss. P. V. Ninawe & Miss. M. L. Dabhire
Department Of Computer Science and Engg. HVPM's COET, Amaravti.

Abstract: A user-based tourist attraction recommender system is developed in this paper. The recommender system is constructed as an online application which is capable of generating a personalized list of preference attractions for the tourist. Modern technologies of classical recommender system, such as collaborative filtering are considered to be effectively adopted in the tourism domain. On the basis of collaborative filtering principle, the recommendation process of tourist attractions divided into three steps, representation of user (tourist) information, generation of neighbor users (tourists) and the generation of attraction recommendations. In order to calculate the similarities between each user, the Cosine method is adopted during the process of the generation of neighbors. And then the recommendations of attractions are generated according to the visiting history of the user's neighbors. In order to demonstrate the calculation process of the system, a case is demonstrated in detail.

Keywords: recommender system, Tourism industry, Location-based service, collaborative filtering.

1. Introduction

Tourists can find tourism information on blogs, forums, websites of points of interest etc. However, information overflow can occur on the internet as there is still a lack of focus on the use of recommender technology in the tourism field. During a trip, tourists need to be able to obtain tour information in a timely manner whenever there are any changes in their planned trip. Recommendation of tour information is vital for users, for the recommendation system to succeed; it must be able to provide tourism information based on the user's preferences and current location. There is also increasing demand for more information on local area attractions, such as local food, shopping spots, places of interest and so on during the tour. The goal of this research is to propose a suitable recommendation method for use in a Recommendation System Based on Tourist

Attraction to provide personalized tourism information to its users. The objectives of this study are:

- To propose a framework for a Location-based Traveler Recommender System.
- System will find out recommendation list of city wise tourist places and hotels using data mining techniques
- Logged in users profile analysis and profile wise collaborative filtering
- Specified city wise tourist places re-ranking depending upon their ratings and reviews
- User will select particular place to view its details
- Selected place wise hotels re-ranking depending upon hotels ratings and reviews
- Result delivery with hotels and place details.



Figure 1: Working of recommendation system

2. Data mining techniques

2.1. Users Profile wise collaborative filtering

- At the time of registration, user will specify all the details about their liking.

- Users travel/search history wise collaborative filtering.
- When user searches any tourist spot, system will track his click through data.

Tourist places ratings and reviews based collaborative filtering

- Users will rate tourist places on various objectives
- Users will specify reviews about visited places and hotels, which will be used to find out the ranking of particular place and hotels.

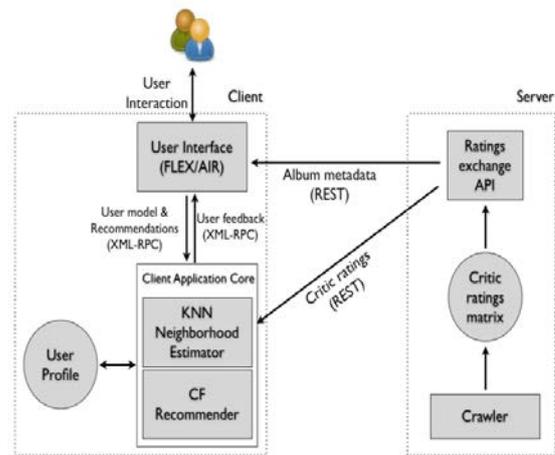


Figure 2: Collaborative Filtering Recommendation Architecture

2.2. Collaborative Filtering Recommendation

A collaborative filtering recommender system displays recommendations based on the preferences of similar users. The results are based on the feedback from users who are similar to the target user instead of on the target user's own past preferences. The accuracy of a collaborative filtering method depends on the number of items which can be associated with certain users. There are many tourism systems using collaborative filtering; one of them is the Multichannel Adaptive Information Systems (MAIS) project.

Techniques used in collaborative filtering include memory-based collaborative filtering and model-based collaborative filtering. Memory-based collaborative filtering, also called user-based collaborative filtering, uses statistical techniques to find users surrounding or near the target user, and forecast results according to those users who have similar preferences. This algorithm is based on users' voting (or rating) patterns and the correlations between them. There are scalability problems with this method. The model-based collaborative filtering technique is widely used as it is scalable with huge databases. Its algorithm uses clustering techniques to cluster users into highly similar groups and makes recommendations based on the group into which the target user is clustered. This method solves the scalability problem as the recommendation process seeks the user rating only from the clustered group instead of from the whole database. In addition, new items or information added to the database are neglected by the recommender system as there is no initial rating for the item. These scalability, accuracy and "cold start" problems of a collaborative filtering recommender system are issues to be concerned about, especially in a mobile application. Figure 1 shows the architecture of a collaborative filtering recommender system used in tourism.

It uses the neighborhood estimator compared with a target user profile to produce recommendations. The recommender system gathers rating data from a ratings database and user profile data from a user database. These data are used to estimate the neighborhood which shares the most similar characteristic with the target user.

2.3. Data mining algorithm

- Pattern Matching
- Clustering
- Association

3. Literature Review and Related Work

In previous system Tourism web sites we can observe that only some of the existing systems provide services that go beyond a pure booking system's functionality. The most popular approach of recommender systems which have seen wide used is collaborative filtering method. Collaborative filtering models are based on collecting and calculations a large amount of information on users' historical behaviors, activities or preferences and predicting what users will prefer based on their similarity to other users. A critical advantage of the collaborative filtering approach is that it really doesn't rely on machine analyzable content and therefore it is capable of accurately recommending complex items such as movies without requiring an "understanding" of the item itself. As to the topic of travel information recommendation, the first attractive issue is the attraction recommendation.

4. Analysis of Problem

In previous system there are many works which is manually done by tourist and they are not got the proper information. Tourist visited the various links but they are not got their destination Also about the environment or weather, transportation tools, civilization. In Previous did not recommend the tourist, which attractions are better to attend, and identify, which information about attraction is better to be shown to the tourist. And also recommendation system not use which help to chooses an Internet source that provides description of the interested attraction based on other tourist's ratings. The presented recommendation system for tourist Such as position, to offer greater services to the user.

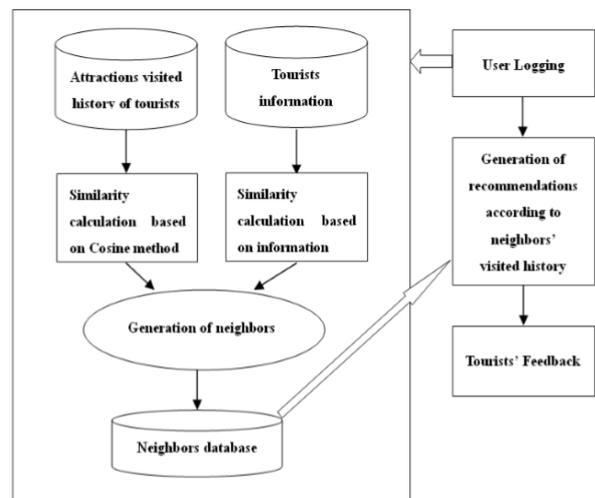


Figure 3: Process of Attraction Recommendations

5. Proposed work and Objectives

5.1. Proposed work

The starting point of collaborative filtering is: Suppose that users with similar interests should favorite to the same items as each other. So, as long as the maintenance of a database on the user's preference, the neighbor users with similar interests can be calculated by analyzing the stored preference, and then it can be recommended to the user based on the neighbor users' interest. On the basis of collaborative filtering principle, the recommendation process of tourist attractions can be divided into three steps.

- i. The representation of user (tourist) information. The visiting history of attractions by tourist need to be analyzed and modeled.
- ii. The generation of neighbor users (tourists). The similarity of tourists can be computed according to the visiting history data and the collaborative filtering algorithm presented by us. A neighbor tourist list can be calculated on the basis of known similarities.
- iii. The generation of attraction recommendations. Top- N attractions will recommend to the tourist according to the visiting history of his neighbors.

5.2. Objective

Recommender systems have grown as an area of both research and practice. A personal tourist attractions recommender system is considered as the effective way for tourist to tourist attractions search. The recommender system compares the collected data to similar and dissimilar data collected from others and calculates a list of recommended attractions for the tourist. Collaborative filtering is considered to be memory-based and model based collaborative filtering. By using this recommendation system tourist can easily searches their favourite destination and tourist requirements are fulfilled.

6. Conclusion

This Recommendation System Based on Tourist Attraction website provides recommendation to the tourists to find suitable tourist places the system provides the information about location nearest hotels, and find distance between my locations to destination. By using three data mining algorithms like pattern matching, clustering and association by using collaborative filtering data mining techniques. By using this user finds there recommended places with the help of users preferences, neighbor users , user profile etc. and rank tourist places it helps to another tourists to find there tourist places.

7. References

- [1] Zhiyang Jia, Wei Gao, Yuting Yang "User-based Collaborative Filtering for Tourist Attraction Recommendations" IEEE International Conference on Computational Intelligence & Communication Technology, 2015.
- [2] Hsiu-Sen Chiang, and Tien-Chi Huang, "User-adapted travel planning system for personalized schedule recommendation," Information Fusion, vol. 21, pp. 3-17, January 2015.
- [3] Rong Jin, Luo Si, and Chengxiang Zhai, "A study of mixture models for collaborative filtering," Information Retrieval, vol. 9, pp. 357-382, June 2006.
- [4] Lu, EH-C., Chih-Yuan Lin, and Vincent S. Tseng, "Trip-mine: An efficient trip planning approach with travel time constraints," Proc. 12th IEEE International Conference on Mobile Data Management (MDM 2011), IEEE Press, June 2011, pp. 152-161, doi:2011