TRAVELMATE Travel Package Recommendation System

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Abstract - *The rapid increase in travel information online brings a growing challenge for tourists who have to choose from a large number of travel packages available to meet their personal needs. It has come to the conclusion that today's aggressive tourism situation in order to increase its market and maintain control of these companies would be forced not to use data mining techniques and tools to develop, manage products and services in the tourism market. The aim of this paper is to provide and demonstrate data mining and their application in tourism. In this document we first analyze the characteristics of existing travel packages and develop a thematic model of the tourist Area Season Topic (TAST). Based on this model, we suggest cocktail approach to create lists for customized travel package recommendations. In addition, we extended the TAST model to TRAST to capture the latent relationships between tourists in each tour group.Finally, we have evaluated the TAST model, the TRAST model and the recommended cocktail access in the real world travel package data.*

Key Words: **Travel package, recommender systems, cocktail, topic modelling, collaborative filtering**

1. INTRODUCTION

The travel and tourism industry is one of the main users of information technology. Advanced information technology influences the services and facilities offered and how they are provided and promoted. It is also Effects on the organizational structure and the interactions between customers and service providers. Travelers are increasingly using Internet technologies and communications to find places that meet their needs and expectations. Travel companies focus on tourists' interest in increasing their market value and offering large packages. Then you have to make the travel package more effective. Referral systems are a development area and the attraction is growing day by day. Recommendation systems help to achieve the number of product recommendations in dealing with the customer. The goal is to classify the correlations between the original potential and the patterns in the data. The personalized travel package presents many challenges in developing and running the recommended system. First, the travel dates are smaller and more scattered for an example recommendation for the movie that may cost more than the price. Second, travel packages are generally based on the location, so they are referred to as being spatial or temporary, for example, the package contains geographically proximate locations. And these packages vary according to the season. Third, the old recommendation system depends on the qualification and the travel data may not include such a rating. To master this challenge, the cocktail approach is introduced.

2. LITERATURE REVIEW

We know that every person is interested in traveling, but they do not receive the package according to their personal needs. To offer such Packages for the user, we develop this cocktail approach. The TAST model can specify tourism and travel using the nearest neighbor method. Collaborative filtering can classify the packages. New packages are added when existing packages are compared and unused packages are removed. Collaboration prices are used to predict the possible price distribution of all tourists and to rearrange the list of packages.

Collaborative filtering is a technique that filters information for different sets of data using different collaboration techniques. Collaboration filtering involves large application records. This is an approach to which the referral system refers. Neighborhood models are the basis of collaborative filtering. The collaborative filter is based on the evaluation of articles for different quantities.

Recommendation systems suggest to the user various elements that analyze past interests or behaviors. User behavior affects the user's hidden interests. It is unfavorable to invest in information about the user's interest in giving good recommendations. Current recommendation systems based on collaborative filtering focus on user interaction with the system. Inactive user information is ignored. The thematic model worked together to identify the custom ranking. The goal is to generate the object-oriented collaborative filter model. These are several problems that occur in older collaborative filtering programs such as sub specialization and cold start issues.

The recommendation system focuses on guiding the user for interesting objects in a personalized way for great options. The recommendation scheme of the content database recommends similar elements to those previously used by the user. The content-based recommender adjusts the attributes of the user profile to get an ordered set of interest with the attribute object. Then recommend to the user the interesting elements as for the sets.

3. CONTENT-BASED FILTERING

Content based Filtering based on content analysis of the target elements. For example, the technique of frequency analysis of terms for text documents and its relation to user preferences is a well-known method of analyzing content. In content-based filtering systems, recommendations are provided to a user based solely on the characteristic provide by user .the content of the elements that the user has evaluated in the past and/or the information and personal preferences of the user . The user's profile can be constructed by analyzing the responses to a questionnaire, article classifications or the user's browsing information to infer the user's preferences and/or interests. However, a purely content-based filtering system has some shortcomings, and critical issues still need to be resolved, including the fact that only very superficial analysis of certain types of content (text documents, etc.) and users is available .they can only receive similar recommendations about their experiences and previous experiences .the problem of shortage of the information of qualification of the article

4. COLLABORATIVE FILTERING

Collaborative filtering [5] helps extract the tourist's interest from the registry. This is a tourist site, and we can use data in real time to develop this model. The tourist profiles contain all the data for each tourist; we can calculate the similarity between each tourist by their distribution of similarity of subjects. Recommendation systems provide users with personalized suggestions for products or services. These systems are often based on Collaborating Filtering (CF), which analyses past transactions to create connections between users and products. The two most successful approaches to CF are the latent factor models that directly describe users and products, and the neighborhood models that analyze the similarities between products or users. In this document we present some innovations for both approaches. Factor and neighborhood models can now be combined seamlessly, creating a more precise combined model. Additional accuracy improvements are achieved by extending the models to use both explicit and implicit comments from users.

5. NEAREST NEIGHBOUR

This method is used to find the same packages for same type of users. After finding the similarities between packages, we will look at the relation between them using the TRAST model. Combination validation is a great literary challenge for group literature. Although some validation measures have been made to evaluate the performance of clustering algorithms, measurements often do not provide information-based performance information. Above all, we present the importance of measuring normalization as quickly as possible to collect data with unbalanced distribution of classes. We also offer standardization solutions for various measures.

6. TRAST MODEL

The TAST model does not focus on the tour group information. Number of groups formed together for different packages. If two tourists have taken the same package but are in a different group, it is assumed that they have a similar interest. Tourists in the same travel package can share similar things as holiday reasons. A new relationship with the parameters is added to get connections between tourists. This topic is called TRAST. It focuses on the relationship that the tourist has with other tourists. The report shows the grouping by age or whatever the tourist interests.

7. COCKTAIL RECOMMENDATION

Figure 1 can show the exact flow of this paper. The TAST Model can extract the tourist interest and using output of TAST model the cocktail model can decide the price and create the candidate Packages. The packages which are of no use can be removed. If user is not satisfied with our packages then user can create their own package.

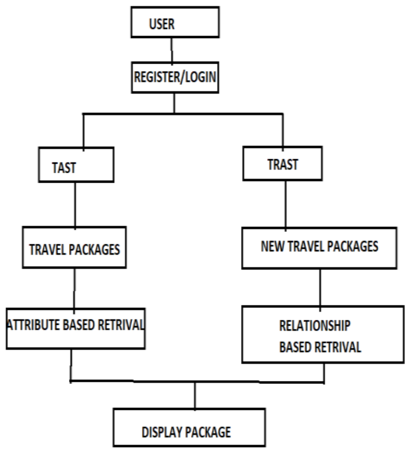

Figure 1:flow anlysis

Here the packages recommended to each tourist is ranked using Graph based Algorithm. In [2] the packages are ranked by using Item Rank algorithm. In this paper we study and compare different algorithms

7.1 Seasonal Collaborative Filtering

Collaborative filtering (CF) methods generate similar recommendations for tourists without the need for unwanted information. The output of the TAST model, i. The theme and the package are considered for the similarities between tourism and tourism. CF recommends the tourist similarities of similar interest packages. In particular, the topics are summarized. The package is for small groups of people that groups are trained so that they enjoy each other's company. Tourists who love the seasons with other tourists are held in the same group

7.2 New Package

The problem occurs when a new package has to be recommended to the tourist. The recommended packages are based on the interest in a similar package. Here, the prices of tourists vary between 1 and 10 and based on the evaluation and the personal or similar package, a new recommendation is generated. The new package contains the recommendation of the similar package and the probable assessment of interests from the list.

7.3 Collaborative Pricing

The package recommendation system has another factor price. The price of travel packages differs from package to package. In the collaboration prices, the flat prices are divided into different sets so that the different prices can be predicted according to the number of tourists. Packages with the same or near prices are recommended. The transition probability between different packets is calculated for each set of prices. For example, if a tourist uses a price package A before traveling with a package B, the limit from A to B will have a weight of +1. Normalized transition probability is generated after adding all tourism weights. Inactive packages are deleted and the final recommendation list is generated.

8. CONCLUSION

It is necessary to understand the different interests of the user in order to provide an appropriate package. While the travel package is recommended, various topics and related information are analyzed. Then develop the TAST model that issues the theme and the recommendation of the season. Find the tourist interest to recommend the package. It also discovers tourist interest and provides spatiotemporal correlations for landscapes. The TAST model is used to create a cocktail approach to the recommendation of the personalized travel package. The cocktail approach is based on the hybrid recommendation strategy. The TAST model will be extended to TRAST model that acquires the relationships between tourists in each group. The TRAST model is used for an effective automatic analysis of the training

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