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A Personalized Collaborative Filtering Recommendation for Travel Package

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ABSTRACT: Now a days, increased use of various types of recommender system. The reliability of these system help to increase the economic performance of any country. In early years, recommendation system is more popular among online application. This paper tries to overview how these systems recommend the travel package to the tourist as per their key characteristics such as age, income, religion, profession, etc. In this paper, we first check previous travel package characteristics and develop a tourist-area-season-topic (TAST) model. TAST model provide travel package according to intrinsic features like area, travel season, etc. In this topic model representation, we purpose a cocktail approach to generate the list of personalized travel package recommendation. Then we extend the TAST model to the tourist-relation-area-season-topic (TRAST) model that captures the relationship between the tourists into same the travel groups. Finally, we differentiate the TAST model, and TRAST model, and cocktail recommendation approach on the real world package data. The final result indicate that the TAST model can effectively capture the key characteristics of the travel data and the cocktail approach is much more effective than previous recommendation techniques for travel package recommendation. Also, by considering relationships among tourists, the TRAST model can be used as an effective assessment for travel group formation.

KEYWORDS: Travel Package, Recommendation System, Cocktail Approach, Topic Modeling, Collaborative Filtering, TAST (Tourist-Area-Season-Topic) Model, TARST (Tourist-Area-Relation-Season-Topic) Model.

I. INTRODUCTION

Tourism is most important activity when people have free time. Many tourism facilities are provided by many companies and agencies. The people or the tourist chooses his own travel package according to his personal key characteristics, interest and attractions. The travelling organizations focus on the interest of tourist so that to increase their market value and provide suitable packages. So there is needed to develop a travel package more effective and attractive. Recommender systems are a developing field and attraction towards it is growing day by day. Through recommender systems the number of product suggestions achieved while dealing with customer. In e- commerce there recommender system are having great success. Recommender systems are classified into-Content based system- in this item recommendation in analyzed. It accesses the information and filters it for research. For ex if a tourist goes to hill stations many times then database contains “hill station” as suggestion. Collaborative filtering systems- it rely on the similar factors of user and or items. Preferences of various users for same item are recommended by system. Personalized travel package has many challenges while designing, developing an implementing the recommended system. First, the travel data are less and sparsed for an example recommendation for movie may cost more to travel than its price. Second, usually travel package are area based so they are said to be spatial or temporal for example the package contains locations which are geographically correlated to each other. And these packages changes season vise. Third, the previous recommendation system depends on ranking and the travel data may not contain such rating. To overcome this challenge the cocktail approach recommendation of travel package is introduced. It analyzes different features and characteristics of existing package. Then develop the tourist area season topic (TAST) model which represents packages. Hybrid recommendation approach has some extra factors like season and pricing for

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recommending personal travel package. Recommender systems have been successfully applied to improve the quality of service in a number of fields [1], [2], [3], it is general aspect to provide travel package recommendations. Actually, recommendations for tourists have been studied before [1], [4], [5], and to the best of our knowledge, the first operative tourism recommender system was introduced by Delgado and Davidson [6].

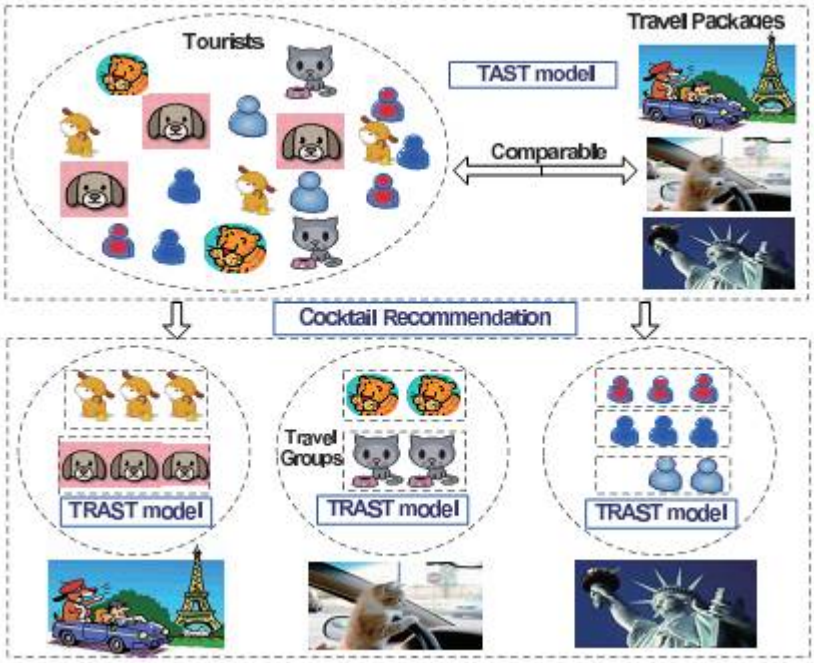

Fig.1.Illusriation of Paper Contribution.

In this paper, we additional study some related topic models of the TAST model, and explain the corresponding travel package recommendation techniques based on them. Also, we propose the tourist -relation -area -season topic (TRAST) model, which helps analyze the reasons why tourists form a travel group. This goes beyond personalized package recommendations and is helpful for catching the unique relationships among the tourists in each travel group. In addition, we conduct systematic assignments on the real-world data. These assignments not only demonstrate that the TRAST model can be used as an assessment for travel group automatic generation but also provide more insights into the TAST model and the cocktail recommendation strategy. In summary, the assistance of the TAST model, the cocktail approaches, and the TRAST model for travel package recommendations are described in Fig.1, where each dashed rectangular box in the dashed circle indicates a travel group and the tourists in the similar travel group are represented by the same icons.

II. LITERATURE SURVEY

Personalized travel package has many difficulties while designing and development an effective and attractive recommender system for cocktail travel package recommendation. First, the travel data are less and scattered than previous items, for an example recommendation for movie may have more cost than ttravelling price. Second, usually travel package are location based so they are said to be spatio temporal relationship for example the package contains locations which are geographically related to each other. And these packages chnges season vise. For example, a travel package only contains the landscapes which are geographically co-located to each other. Also, different travel packages are usually developed for different travel seasons. Therefore, the areas in a travel package usually have spatial temporal autocorrelations. Third, the previous recommendation system depends on user explicit rating and the travel data may not contain such rating. Finally, the previous items for recommendation

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usually have a long period of stable value, while the values of travel packages can easily decreases over time and a package usually only lasts for a certain period of time. The travel companies need to actively design new travel packages to replace the previous ones based on the interests and attraction of the tourists.

III. EXISTING SYSTEM

There are many technical and domain challenges inherent in designing and implementing an effective recommender system for personalized travel package recommendation.

1. Travel data are much fewer and sparser than traditional items, such as movies for recommendation, because the costs for a travel are much more expensive than for watching a movie.
2. Every travel package consists of many landscapes (places of interest and attractions), and, thus, has intrinsic complex spatio-temporal relationships. For example, a travel package only includes the landscapes which are geographically collocated together. Also, different travel packages are usually developed for different travel seasons. Therefore, the landscapes in a travel package usually have spatial temporal autocorrelations.
3. Traditional recommender systems usually rely on user explicit ratings. However, for travel data, the user ratings are usually not conveniently available.

Disadvantages of Existing System:

1. Recommendation has a long period of stable value.
2. To replace the old ones based on the interests of the tourists.
3. A value of travel packages can easily depreciate over time and a package usually only lasts for a certain period of time.

IV. PROPOSED SYSTEM

In this project, our aim to make personalized travel package recommendations for the tourists for travelling. Thus, the users are the tourists and the items are the previous packages, and we exploit a real-world travel data set provided by a travels for developing recommender systems. We develop a tourist-area-season topic (TAST) model, which can indicates travel packages and tourists by different area distribution. In the TAST model, the extraction of topics is conditioned on both the tourists and the unique features (i.e., locations, travel seasons) of the landscapes. Based on this TAST model, a cocktail approach is created for personalized travel package recommendation by considering some extra factors including the seasonal behaviours of tourists, the costs of travel packages, and the cold start problem of new packages.

Advantages of Proposed System:

1. Represent the content of the travel packages and the interests of the tourists.
2. TAST model can effectively capture the unique characteristics of travel data.
3. The cocktail recommendation approach performs much better than traditional techniques.

V. SYSTEM ARCHITECTURE

In this section, we describe the method for generating the personalized travel package set for each tourist by using the collaborative filtering method. After we have obtained the topic distribution of each tourist and package by the TAST model, we can compute the relationship between each tourist by their topic distribution similarities. Intuitively, based on the idea of collaborative filtering, for a given user, we suggests the items that are preferred by the users who have similar tastes with her. However, as

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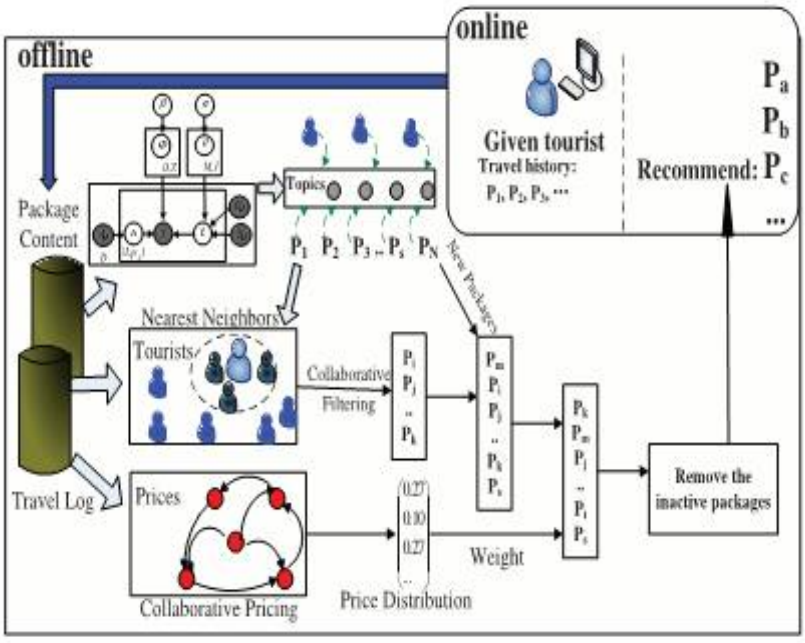

Fig.2. The Architecture of Cocktail Recommendation Approach.

We explained previous section, the package recommendation is more complicated than the traditional ones. For example, if we make recommendations for traveller in winter, it is in appropriate to recommend "Maple Leaf Adventures." In other words, for a given tourist, we should suggest the packages that are enjoyed by other tourists at the certain season. Indeed, we have analyzed the seasonal topic distribution for each tourist from the TAST model. Multiple methods can be used to compute these similarities, such as matrix distribution [15], [16] and graphical distances [17].

VII. CONCLUSION

In this project, we present study on personalized travel package recommendation for travelling. Specifically, we first analyzed the intrinsic characteristics of travel packages and developed the TAST model, a Bayesian network for travel package and tourist representation. The TAST model can analyze the interests of the tourists and extract the spatial-temporal correlations among different areas. Then, we exploited the TAST model for developing a hybrid approach on personalized travel package recommendation. This cocktail approach imitates a hybrid recommendation strategy and has the ability to combine several constraints previous in the real-world scenario. Furthermore, we extended the TAST model to the TRAST model, which can catch the relationships among tourists in each travel group. Finally, TAST model can capture the key characteristics of the travel packages, the hybrid approach can lead to better performances of travel package recommendation, and the TRAST model can be used as an powerful assessment for travel group automatic formation.

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