Patel Jayneel Omkar *et al*, International Journal of Computer Science and Mobile Applications,
Vol.6 Issue. 4, April- 2018, pg. 189-195 **ISSN: 2321-8363**
UGC Approved Journal
Impact Factor: 5.515

Semantic Approach for Travel Package and Recommendation

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Abstract— In previous years we have seen an amplified interest in recommender systems. In spite of significant progress in this field, there still remain several avenues to explore. Indeed, this paper provides a study of exploiting online travel information for Customized travel package recommendation. A critical challenge along this line is to address the unique characteristics of travel data, which distinguish travel packages from traditional items for recommendation. To that end, in this paper, we first examine the characteristics of the prevailing travel packages and develop a tourist-area-season topic (TAST) model. This TAST model can represent travel packages in detail and tourists by different topic distributions, where the topic withdrawal is conditioned on both the tourists and the basic features (i.e., locations, travel seasons) of the landscapes. Then, based on this topic model representation, we propose a Semantic Web site roach to generate the lists for Customized travel package recommendation. Furthermore, we also extend the TAST model to the tourist-relation-area-season topic (TRAST) model for capturing the latent interaction among the tourists in each travel group. Finally, we evaluate the TAST model, the TRAST model, and the Semantic recommendation Web site roach on the real-world travel package data. Experimental results show that the TAST model can effectually capture the unique characteristics of the travel data and the Semantic Web site roach is, thus, much more effective than traditional recommendation techniques for travel package recommendation. Also, by considering tourist interaction, the TRAST model can be used as an effective assessment for travel group formation.
Keywords: Travel packages, recommender systems, Semantics, topic modelling, collaborative filtering, Online Payment, Customization.

1. INTRODUCTION

In recent years we have seen a many online travel portals which actually shows a different travel packages according to particular places, If a Customer wants to travel anywhere than She/he often use an Online travel web sites at there She/he have to select a package from any of online web site. A customer will select any one package from presented packages, that packages are the fixed packages, if user selects any one, she/he cannot make changes in to the selected package, She/he have to follow a fixed Procedure. Users should be able to use the website to search travel Package information. Specifically, the website must allow users to select dates and itineraries, and get a list of available options with latest prices included. The system must be able to book the ticket for users immediately, should the user so desire. The most important part of the online travel portal is its database. The database is full of Transport timings and availability. Online travel portal is a web based website where a user may search and apply for a travel service or package. The system allows the user to check various travel destinations and choose his destination accordingly. The software system checks for user choice and then queries the database for various available mediums to travel to that destination. The system then loads all that data and puts those choices in front of the user. The user can now choose various ways to reach his destination. When the user chooses the Bus, train or Airplane option, the system also allows the user to book the destination for the desire day and timings. Thus this software system automates the working of a travel agency and allows users to check and book his holidays online through this website.

 ISSN: 2321-8363
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2. SURVEY

Data mining consists of five major elements:

Extract, transform, and load transaction data onto the data warehouse system. Store and manage the data in a multidimensional database system. Provide data access to business analysts and information technology Authorities. Analyse the data by Web site software. Present the data in a useful format, such as a graph or table. There are many technical and domain challenges inherent in designing and implementing an effective recommender system for Customized travel package recommendation. 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. Every travel package consists of many landscapes (places of interest and attractions), and, thus, has intrinsic complex spatio-temporal interaction. 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. Traditional recommender systems usually rely on user explicit ratings. However, for travel data, the user ratings are usually not conveniently available. Recommendation has a long period of stable value. To replace the old ones based on the interests of the tourists. A Values of travel packages can easily depreciate over time and a package usually only lasts for a certain period of time.

3. Backgrounds

3.1 "FLDA: Matrix Factorization through Latent Dirichlet Allocation,"

AUTHORS: D. Agarwal and B. Chen

We propose fLDA, a novel matrix factorization method to predict ratings in recommender system Web sites where a "bag-of-words" representation for item meta-data is natural. Such scenarios are commonplace in web Web sites like content recommendation, ad targeting and web search where items are articles, ads and web pages respectively. Because of data sparseness, regularization is key to good predictive accuracy. Our method works by regularizing both user and item factors simultaneously through user features and the bag of words associated with each item. Specifically, each word in an item is associated with a discrete latent factor often referred to as the topic of the word; item topics are obtained by averaging topics across all words in an item. Then, user rating on an item is modelled as user's affinity to the item's topics where user affinity to topics (user factors) and topic assignments to words in items (item factors) are learned jointly in a supervised fashion. To avoid over fitting, user and item factors are regularized through Gaussian linear regression and Latent Dirichlet Allocation (LDA) priors respectively. We show our model is accurate, interpretable and handles both cold-start and warm-start scenarios seamlessly through a single model. The efficacy of our method is illustrated on benchmark datasets and a new dataset from Yahoo! Buzz where fLDA provides superior predictive accuracy in cold-start scenarios and is comparable to state-of-the-art methods in warm-start scenarios. As a by-product, fLDA also identifies interesting topics that explains user-item interactions. Our method also generalizes a recently proposed technique called supervised LDA (sLDA) to collaborative filtering Web sites. While sLDA estimates item topic vectors in a supervised fashion for a single regression, fLDA incorporates multiple regressions (one for each user) in estimating the item factors.

3.2 "Map-Based Interaction with a Conversational Mobile Recommender System,"

AUTHORS: O. Averjanova, F. Ricci, and Q.N. Nguyen

Recommender systems are information search and decision support tools used when there is an overwhelming set of options to consider or when the user lacks the domain-specific knowledge necessary to take autonomous decisions. They provide users with Customized recommendations adapted to their needs and preferences in a particular usage context. In this paper, we present an Web site roach for integrating recommendation and electronic map technologies to build a map-based conversational mobile recommender system that can effectually and intuitively support users in finding their desired products and services. The results of our real-user study show that integrating map-based visualization and interaction in mobile recommender systems improves the system recommendation effectiveness and increases the user satisfaction.

 ISSN: 2321-8363
UGC Approved Journal
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3.3 "Generating Comparative Descriptions of Places of Interest in the Tourism Domain,"
AUTHORS: B.D. Carolis, N. Novielli, V.L. Plantamura, and E. Gentile
When visiting cities as tourists, most of the times people do not make very detailed plans and, when choosing where to go and what to seem they tend to select the area with the major number of interesting facilities. Therefore, it would be useful to support the user choice with contextual information presentation, information clustering and comparative explanations of places of potential interest in a given area. In this paper we illustrate how My Map, a mobile recommender system in the Tourism domain, generates comparative descriptions to support users in making decisions about what to see, among relevant objects of interest.

3.4 "An Energy-Efficient Mobile Recommender System,"
AUTHORS: Y. Ge et al.
The increasing availability of large-scale location traces creates unprecedented opportunities to change the paradigm for knowledge discovery in transportation systems. A particularly promising area is to extract energy-efficient transportation patterns (green knowledge), which can be used as guidance for reducing inefficiencies in energy consumption of transportation sectors. However, extracting green knowledge from location traces is not a trivial task. Conventional data analysis tools are usually not customized for handling the massive quantity, complex, dynamic, and distributed nature of location traces. To that end, in this paper, we provide a focused study of extracting energy-efficient transportation patterns from location traces. Specifically, we have the initial focus on a sequence of mobile recommendations. As a case study, we develop a mobile recommender system which has the ability in recommending a sequence of pick-up points for taxi drivers or a sequence of potential parking positions. The goal of this mobile recommendation system is to maximize the probability of business success. Along this line, we provide a Potential Travel Distance (PTD) function for evaluating each candidate sequence. This PTD function possesses a monotone property which can be used to effectually prune the search space. Based on this PTD function, we develop two algorithms, LCP and Sky Route, for finding the recommended routes. Finally, experimental results show that the proposed system can provide effective mobile sequential recommendation and the knowledge extracted from location traces can be used for coaching drivers and leading to the efficient use of energy.

4. Problem Definition

There are many technical and domain challenges inherent in designing and executing an effective recommender system for Customized travel package recommendation. 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. Every travel package consists of many landscapes (places of interest and attractions), and, thus, has intrinsic composite patio-temporal interaction. 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. Traditional recommender systems usually rely on user explicit ratings. However, for travel data, the user ratings are usually not conveniently available. Recommendation has a long period of stable value. To replace the old ones based on the interests of the tourists. Values of travel packages can easily depreciate over time and a package usually only lasts for a certain period of time we aim to make Customized travel package recommendations for the tourists. Thus, the users are the tourists and the items are the existing packages, and we exploit a real-world travel data set provided by a travels for building recommender systems. We develop a tourist-area-season topic (TAST) model, which can represent travel packages and tourists by different topic distributions. In the TAST model, the extraction of topics is conditioned on both the tourists and the intrinsic features (i.e., locations, travel seasons) of the landscapes. Based on this TAST model, a Semantic Web site roach is developed for Customized travel package recommendation by considering some additional factors including the seasonal behaviors of tourists, the prices of travel packages, and the cold start problem of new packages. Represent the content of the travel packages and the interests of the tourists. TAST model can effectually capture the unique characteristics of travel data. The Semantic recommendation Web site roach performs much better than traditional techniques.

5. Existing Systems

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

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.

Every travel package consists of many landscapes (places of interest and attractions), and, thus, has intrinsic complex spatio-temporal interaction. For example, a travel package only includes the landscapes which are geographically colocated together. Also, different travel packages are usually developed for different travel seasons. Therefore, the landscapes in a travel package usually have spatial temporal autocorrelations.

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:

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

6. Need for New System

Our aim is to create a Customized travel package for the tourists. Thus, the users are the tourists and the items are the existing packages, and we exploit a real-world travel data set provided by a travels for building recommender systems. we develop a tourist-area-season topic (TAST) model, which can represent travel packages and tourists by different topic distributions. In the TAST model, the extraction of topics is conditioned on both the tourists and the intrinsic features (i.e., locations, travel seasons) of the landscapes. Based on this TAST model, a Semantic Web site roach is developed for Customized travel package recommendation by considering some additional factors including the seasonal behaviors of tourists, the prices of travel packages, and the cold start problem of new packages.

7. Proposed System and Methodology

In this paper, we aim to make Customized travel package recommendations for the tourists. Thus, the users are the tourists and the items are the existing packages, and we exploit a real-world travel data set provided by a travels for building recommender systems. we develop a tourist-area-season topic (TAST) model, which can represent travel packages and tourists by different topic distributions. In the TAST model, the extraction of topics is conditioned on both the tourists and the intrinsic features (i.e., locations, travel seasons) of the landscapes. Based on this TAST model, a Semantic Web site roach is developed for Customized travel package recommendation by considering some additional factors including the seasonal behaviors of tourists, the prices of travel packages, and the cold start problem of new packages.

Advantages of Existing System:

- Represent the content of the travel packages and the interests of the tourists.
- TAST model can effectually capture the unique characteristics of travel data.
- The Semantic recommendation Web site roach performs much better than traditional techniques.

8. Web Site Capability

- A Semantic Web site roach on Customized travel package recommendation based on the TAST model, which follows a hybrid recommendation strategy [6] and has the ability to combine many possible constraints that exist in the real-world scenarios. Specifically, we first use the output topic distributions of TAST to find the seasonal nearest neighbors for each tourist, and collaborative filtering will be used for ranking the candidate packages. Next, new packages are added into the candidate list by computing similarity with the candidate packages generated previously. Finally, we use collaborative pricing to predict the possible price distribution of each tourist and reorder the packages. After removing the packages which are no longer active, we will have the final recommendation list. the framework of the proposed Semantic Web site roach, and each step of this Web site roach is introduced in the following sections. We should note that, the major computation cost for this Web site roach is the inference of the TAST model. As the increase of travel records, the computation cost will increase. However, since the topics of each landscape evolves very slowly, we can update the inference process periodically offline in real-world Web sites. At the end of this section, we will describe many similar Semantic recommendation strategies based on the related topic models of TAST.

9. System Architecture

The Architecture of the proposed system is as shown below in Figure

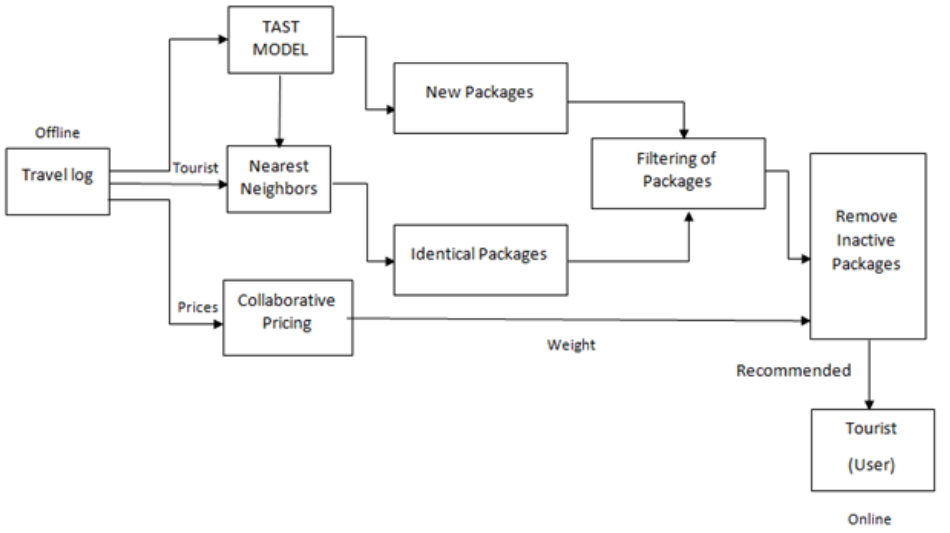

Fig.3.1 System Architecture

10. Objective

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
2. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

11. Expected Result

11.1 Login

Since all the operations that can be done using the website ,It requires the customer registration to be logged in. After that the user authorizes for website to access his account, the server retrieves his info. If he has logged to the website before, an existing account option displayed for him.

11.2 Choosing a Places

The users of this Web site can simply choose where to travel. On a User Account it shows a map to make a selection for a tour and at there it shows a Fixed tour packages which are available for a particular place.

11.3 Create new Package

The User can also create their own Tour package by just simply feeling a form of a customized travel package. User can create a new trip by adding their Interests such as what type of tour, number of person, number of days, Budget etc. And all the required details for the Customization.

11.4 Request for Customized trips

When a Customer wants to make a package for a Multiple Places, he/she can perform the Feeling form task on to the Web site which asks for destination, origin, departure date/time there mention a multiple places in a appropriate Sequence. She/he can also specify the travelling preferences. When he/she finds a suitable trip, she/he can make a Request foa a trip easily in by clicking a button which will open the activity for Requesting a trip. The Customer can fill all the required details and after the positive conformation he/she can pay for the reservation.

11.5 Conformation

Whenever an Admin got a new customized request she/he checks an availability of the Mentioned things and tries to check-in the pickup point in order to notify the customer and to show his punctuality. The Admin will use the web site and mailing service in order to make decision to the customer. When an Admin conforms a Customized trip then the user got a conformation message with a mentioned Budget, and a detailed plan will be forwarded to the Customer using Mail Service. And if user will Satisfy with the plan the She/he can conform a trip and able to make a payment through mentioned Online payment System.

11.6 Pay through the Web site

Payments for trips should be done by online payment System.

12. Conclusion

In this paper, we present study on Customized travel package recommendation. Specifically, we first analyzed the unique characteristics of travel packages and developed the TAST model, a Bayesian network for travel package and tourist representation. The TAST model can discover the interests of the tourists and extract the spatial-temporal correlations among landscapes. Then, we exploited the TAST model for developing a Semantic Web site roach on Customized travel package recommendation. This Semantic Web site roach follows a hybrid recommendation strategy and has the ability to combine several constraints existing in the real-world scenario. Furthermore, we extended the TAST model to the TRAST model, which can capture the interaction among tourists in each travel group. Finally, an empirical study was conducted on real-world travel data. Experimental results demonstrate that the TAST model can capture the unique characteristics of the travel packages, the Semantic Web site roach can lead to better performances of travel package recommendation, and the TRAST model can be used as an effective assessment for travel group automatic formation. We hope these encouraging results could lead to many future works.

ISSN: 2321-8363
UGC Approved Journal
Impact Factor: 5.515

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