

A Novel Approach for Tour Package Recommendation using User Interactions

^{#1}Prof.M.M.Kokate, ^{#2}Vijaya Sumbare, ^{#3}Minal Nirmal, ^{#4}Latika Jadhav, ^{#5}Ashwini Mahale



^{#1}Prof. Department of Information Technology
^{#2345}Students, IT, JSPM's BSIOTR, Pune.

ABSTRACT

In other country the Providing Tour services/facility for tourists is one of the important factor. The world is of Tour, entertainment and Internet technology are linked, different types of business data is accessible for innovative use and regular analysis. Though many recommender systems have been developed for enhancing the quality of Tour service, most of them lack a systematic and open framework to dynamically incorporate multiple types of additional context information existing in the tourism domain, its depend on such as the area, season and price of the Tour packages. First checkout the old Tour packages and develop a tourist-area-season topic (TAST) model. This TAST model represents different Tour packages and different topic distributions of tourist, the topic extraction is stated on both the tourists and the areas where passenger or tourist wants to send their holidays. The TAST model is extended to the tourist-relation-area-interest season topic (TRAIST) model for collecting the relationships among the tourists for all Tour groups. Then analyze TAST model, TRAST model and cocktail recommendation approach on the current Tour package data. To provide more perfect tour package to tourist we are going to add more features like providing tour package according to the interest of tourist and seasons so that the confusion to select the travelling package becomes easier. So this phenomenon can be more accurately defined by another model which is called as the TRAIST or we can simply call it as the Hybrid TRAST model. The TRAST model can effectively grabs the individual characteristics of Tour data and cocktail approach, so it is more efficient than old recommendation techniques for Tour package recommendation by including tourist relationship, TRAIST model is used as an effective evaluation for Tour group formation.

Keywords: Data mining, Text mining

ARTICLE INFO

Article History

Received :15th April 2016

Received in revised form :
17th April 2016

Accepted : 19th April 2016

Published online :

23rd April 2016

I. INTRODUCTION

Tour is most favored activity when people have free time. Many tourism facilities are provided by many organizations. The people or the tourist chooses his own Tour package according to his personal interest. The Tour companies focus on the interest of tourist so that to increase their market value and provide huge packages. So there is needed to make Tour package more effective. Recommender systems are a developing area and attraction towards it is growing day by day[1]. Through recommender systems the number of product recommendation are achieved while

dealing with customer. In e-commerce there commander system are having great victory.

Recommender systems are categories into

- Content based system in this item recommendation in analyzed. It retrieves the information and filters it for research. For example if a tourist goes to hill stations many times then database contains "hill station" as recommendation.
- Collaborative filtering systems- it rely on the similar factors of user and or items. Preferences of different

users for same item are recommended by system.

Personalized Tour package has many challenges while designing and executing the recommended system. First, the Tour data are less and scattered for an example recommendation for movie may cost more to Tour than its price. Second, usually Tour package are location based so they are said to be spatial or temporal for example the package contains locations which are geographically near. Data mining is the most important factor in this project (sometimes called data or knowledge discovery) is the process of classification and clustered data from different categories into useful information. That information can be used to increase business growth, financial growth, costs. Data mining software is one of a number of analytical tools for analysing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

II. LITERATURE SURVEY

Recommender system focuses on advising user for interesting objects in personalized way for huge options. Content base recommendation schema recommends the similar items that the user had used those items earlier. The content based recommender matches the attributes users profile so that to get sorted set of interest with the object of attributes. Then recommend the interesting items to the user as per the sets [1].

Collaborative filtering is a technique which filters the information using different technique of collaboration for different data sets. The large data sets of applications are involved for collaboration filtering. It is a approach that recommender system are interested in. Neighborhood models are the foundation of the Collaborative filtering. The Collaborative filtering is based on rating of items for different sets [2].

Recommendation system is a huge research topic. The lot of work is done on recommendation system in industry as a developing approach. Interest in recommended systems is high as it represents research in problem rich. It has huge amount of applications that help the user to get a personal recommendation as well services. The recommendation system still needs improvements at current situation as to make it effective in areas like financial services to investors, real-time applications and smart shopping cart [3].

Tour recommendation is different from other recommendation as the tourist interest in package is directly affected by its cost. Cost aware recommendation of package is need of the recommend system. The Tour logs are collected from different agents of company then analyzed for time and financial cost connected to every Tour package. The tourist has different level of affordability for aspect of cost. The recommendation system focuses on such factors to make it more effective [4].

Recommender systems propose Items from different choices for user by analyzing earlier interest or behavior. The users behavior has impact from unseen interests of user. To invest on getting information about the interest of user is unfavorable to make good recommendations. The present recommender Systems based on collaborative-filtering focuses on user's interaction with the system. The information about inactive user is discarded. The topic model collaborated so that to find out the personalized ranking. The aim To generate the item oriented collaborative filtering model. It deals with different problems that represent in old collaborative filtering scheme like overspecialization and cold start problem [5].

III. TRAIST MODEL

When designing a Tour package, we assume that the people in Tour companies often consider the following issues. First, it is necessary to determine the set of target tourists, the Tour seasons, and the Tour places. Second, one or multiple Tour topics (e.g., "The Sunshine Trip") will be chosen based on the category of target tourists and the scheduled Tour seasons. Each package and landscape can be viewed as a mixture of a number of Tour topics. Then, the landscapes will be determined according to the Tour topics and the geographic locations. Finally, some additional information (e.g., price, transportation, and accommodations) should be included. According to these processes, we formalize package generation as a What-Who-When-Where (4W) problem. Here, we omit the additional information and each W stands for the Tour topics, the target tourists, the seasons, and the corresponding landscape located areas, respectively. These four factors are strongly correlated.

So here we are going to add some more features to select the exact travelling package like according to Area, Seasons, relations the hybrid system takes some important features into consideration like Users interest, price system, and contents which are searched by the user. These are some very important things which helps to reduce the confusion of user to select the travelling package. Formally, we reprocess the generation of a package in a topic model style, where we treat it mainly as a package selection problem. We are going to take some models like TAST(Tourist-Area-Season-Topic), TRAST(Tourist-Relation-Area-Season -Topic), TRAIST(Tourist-Relation-Area-Interest-Season -Topic) or we can simply call it as Hybrid TRAST Model. We call our model for package representation as the TAST model. Please note that, a topic mentioned in TAST is different from a real topic, where the former one is a latent factor extracted by topic model, while the latter one is an explicit Tour theme identified in the real world, and latent topics are used to simulate real topics. Without loss of generality, we use Tour topic and topic to stand for the real and latent topic, respectivel.

III. PROPOSED SYSTEM

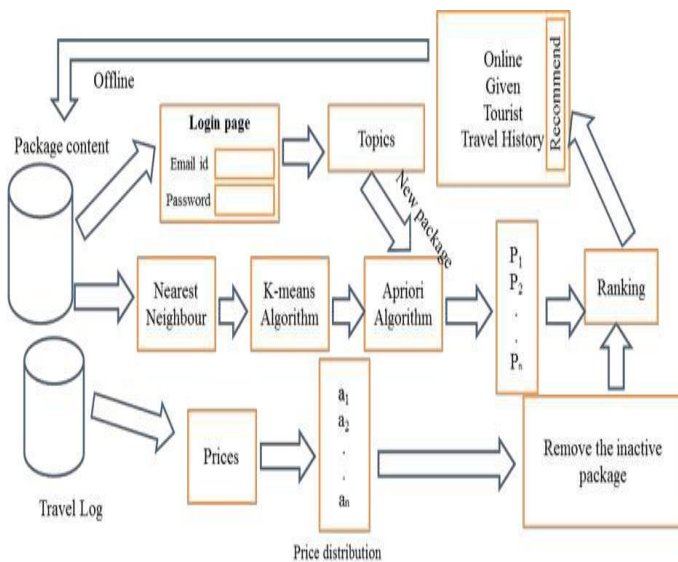


Fig 1. Proposed system architecture

New Package

The problem occurs when a new package is to be recommended to the tourist. Recommended packages are based on the interested in similar package. So hereand its personal or similar package. The new package contains the similar package recommendation as well the probable interest rating from list.

Pricing

Package recommender system has one more factor price.

The price of travel packages differ package to package. In Collaborative Pricing the prices of package are divided into different sets then predict the different possible prices according the range of tourists. The

packages having prices same or nearly same are recommended. Transition probability among different packages is computed for each price set. For example if

a tourist used a package of price A before traveling a package B then edge from A to B will weight +1. The normalized transition probability is generated after summing the all weights of tourists.

Inactive packages

Inactive packages are removed if no any feedback is coming from user then its better to remove from travel package, and final list for recommendation is generated.

Mining Algorithm

Data mining is most important in this system for analyse the process and efficiency in this system. In this system we have to use the Nearest Neighbour method for finding the correct travel package from travel list. K-means algorithm working in this system like classification and clustering process. That all algorithm output is better to user search.

Ranking:

The ranking is depending on the user search option. When user can search and use same tour package then that package automatic shows first ranked to all user. It's all technique can be implemented using the mining algorithm.

V. CONCLUSION

Recommendations for tourist package based on user interaction by using data mining algorithms which are going to be more appropriate than traditional system. So here we can say that, by using the different models we can decrease the user's confusion to select the travelling package recommendation. The TAST model describes the package selection process by using the topics using Area and season only. Next TRAST model takes into consideration the Area, Season as well as the Relations amongst some entities and next model that is the TRAISt model gives more perfect package which also uses the tourists interest which reduces Recommendations for tourist package based on user interaction by using different algorithms which are going to be more appropriate than traditional system.

ACKNOWLEDGEMENTS

I would like to extend my gratitude to many people who helped me to bring this paper fruition. First I would like to thank Prof. M.M.Kokate. I am so deeply grateful for her help, professionalism and valuable guidance throughout this paper. I would also like to thank to my friends and colleague .This accomplishment would not have been possible without them. Thank you.

REFERENCES

- [1]P.Lops, M.Gemmis, and G.Semeraro, "Content-Based Recommender Systems: State of the Art and Trends," Recommende Systems Handbook, chapter 3, pp. 73-105, 2010.Reference 1.
- [2]Y. Koren and R. Bell, "Advances in Collaborative Filtering," Recommender Systems Handbook, chapter 5, pp. 145-186, 2011.
- [3]G.Adomavicius and A.Tuzhilin, "Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extensions," IEEE Trans.Knowledge and Data Eng., vol. 17, no. 6, pp.734-749, June 2005.
- [4]Y.Geetal., "Cost-Aware Travel Tour Recommendation," Proc.17th ACM SIGKDD Int'l Conf. Knowledge Discovery and Data Mining (SIGKDD 11), pp. 983-991, 2011.
- [5]Q.Liu, E.Chen, H.Xiong, C.Ding and J.Chen, "Enhancing Collaborative Filtering by User Interests Expansion via Personalized Ranking," IEEE Trans.Systems, Man and Cybernetics, Part B: Cybernetics, vol.42, no.1, pp.218-233, Feb.2012.
- [6]Lui Chen, Xiong, Li And Wu, "A Cocktail Approach For Travel Package Recommendation" Ieee Transactions On Knowledge And Data Engineering, Vol.26, No.2, February 2014.
- [7] M. Gori and A. Pucci, "ItemRank: A Random-Walk

Based Scoring Algorithm for Recommender Engines,” Proc. 20th Int’l Joint Conf. Artificial Intelligence (IJCAI ’07),pp.2766-2771,2007.

[8] Q. Hao et al., “Equip Tourists with Knowledge Mined from Travelogues,” Proc. 19th Int’l Conf. World Wide Web (WWW ’10), pp.401-410, 2010.

[9] F. Ricci, “Mobile Recommender Systems,” Information Technology and Tourism, vol. 12, no. 3, pp. 205-231, 2011.

[10] N.A.C. Cressie, Statistics for Spatial Data. Wiley and Sons, 1991.

[11] J.Delgado and R. Davidson, “Knowledge Bases and User Profiling in Travel and Hospitality Recommender Systems,” Proc. ENTER 2002 Conf.(ENTER ’02),pp.1-16,2002.

[12] U.M. Fayyad and K.B. Irani, “Multi-Interval Discretization of Continuous-Valued Attributes for Classification Learning,” Proc.Int’l Joint Conf. Artificial Intelligence (IJCAI), pp.1022-1027,1993.