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Automated Trip Planning Using Efficient Keyword-Aware Representative Travel Route Framework

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ABSTRACT: The rapidclimb of online travel information imposes an increasing challenge for tourists who need to choose between an outsized numbers of travel packages to satisfy their personalized requirements. On the opposite side, to urge more business and profit, the travel companies need to understand these preferences from different tourists and serve more attractive packages. Therefore, the demand for intelligent travel services, from both tourists and travel companies, ispredicted to extend dramatically. Since recommender systems are successfully applied to reinforce the standard of service for patrons during a number of fields its natural direction to develop recommender systems for personalized travel package recommendation. Our approach isn't only personalized to user's travel interest but also ready to recommend a travel sequence instead of individual Points of Interest (POIs). Topical package space including representative tags, the distributions of cost, visiting time and visiting season of every topic, is mined to bridge the vocabulary gap between user travel preference and travel routes. We map both user's and routes' textual descriptions to the topical package space to urge user topical package model and route topical package model (i.e., topical interest, cost, time and season).

KEYWORDS: Travel recommendation, geo-tagged photos, social media, multimedia information retrieval, online interest.

I. INTRODUCTION

Tourism has become one of the world's largest industry. Furthermore, according to the forecast by the World Travel & Tourism council, the contribution of tourism to global GDP is expected to rise from 9.1% in 2011 to 9.6% by 2021. Indeed, with the advancement of time and the improvement of living standards, even an ordinary family opt for an extended travel very comfortably on a small budget. As a trend, more travel companies, such as Expedia, provide online services. However, the rapid growth of online travel information imposes an increasing challenge for tourists who have to choose from a large number of travel packages to satisfy their personalized requirements. On the other side, to get more business and profit, the travel companies have to understand these preferences from different tourists and serve more attractive packages. Therefore, the demand for intelligent travel services, from both tourists and travel companies, is expected to increase dramatically. Since recommender systems have been successfully applied to enhance the quality of service for customers in a number of fields it is natural direction to develop recommender systems for personalized travel package recommendation.

II. RELATED WORK

Shuhui Jiang, Xueming Qian , Tao Mei, Yun Fu,[1] proposed a customized travel succession proposal framework by taking in topical bundle model from large multi-source web based life: travelogs and network contributed photographs. The upsides of their work are 1) the framework naturally mined client's and courses' movement topical inclinations including the topical intrigue, cost, time and season, 2) prescribed POIs as well as movement grouping, considering both the ubiquity and client's movement inclinations simultaneously. Mined and positioned acclaimed courses are dependent on the similitude between client bundle and course bundle. And later advance the top positioned well known courses as per social comparable clients' movement records.

S. Jiang, X. Qian, J. Shen, Y. Fu, and T. Mei, [2] proposed an author point model-based community oriented sifting (ATCF) strategy for customized travel suggestions. Client's theme inclination can be mined from the printed depictions joined with his/her photographs by means of creator subject model (ATM). Through ATM, travel themes and a client's

point inclination can be inspired all the while. In ATCF, POIs are positioned by comparative clients, who share comparative travel point inclinations, rather than crude GPS (geo-tag) information just like the instance of most past works. Dissimilar to area based collective sifting, even without GPS records, comparable clients can at present be mined precisely as indicated by the likeness of clients' point inclinations.

Q. Yuan, G. Cong, and A. Sun,[4] proposed time-mindful POI proposal, which thinks about the fleeting impact in client exercises. They proposed the Geographical-Temporal impacts Aware Graph (GTAG)to show the registration practices of clients and a chart-based inclination proliferation calculation for POI suggestion on the GTAG. The proposed arrangements misuse both the geological and transient impacts in a coordinated way.

X. Qian, Y. Zhao, and J. Han , [5] proposed a salient region mining and representation based image location estimation approach. The saliency that explored from a group of visual words is far more discriminative than the individual visual words in image retrieval. Mean-shift based clustering approach is proposed to group visual words with a sizable number. The proposedvisual word group mining based image search is robust to find similar images even with partial occlusion.

Hiroshi Kori, Shun Hattori, Taro Tezuka, and Katsumi Tanaka , [6] proposed a system to extract typical travel routes based on the blog entries of visitors and to present multimedia content relevant to these routes. They have extracted typical travel routes by using a sequential pattern mining method.

Y. Zheng, L. Zhang, X. Xie, and W. Ma,[7] proposed aHITS-based model to induce a client's movement experience and the enthusiasm of an area considering shared support connection between area intrigue and client travel understanding just as area intrigue are locale related. Afterwards, they identified the traditional travel groupings in a predetermined district utilizing area interests and clients' movement encounters.

N. J. Yuan, Y. Zheng, X. Xie, Y. Wang, K. Zheng, and H. Xiong, [8] proposed a framework for discovering functional zones (e.g., educational areas, entertainment areas, and regions of historic interests) in a city using human trajectories, which imply socio-economic activities performed by citizens at different times and in various places. They have evaluated this framework with large-scale datasets including POIs, road networks, taxi trajectories and public transit data. According to extensive experimental results, this method using both location and mobility semantics outperforms the baselines solely using location or mobility semantics in terms of effectively finding functional zones.

X. Qian, H. Feng, G. Zhao, and T. Mei,[9] proposed a customized suggestion approach dependent on probabilistic framework factorization by joining informal community factors: individual intrigue, relational intrigue similitude, and relational impact. Specifically, the individual intrigue means client's uniqueness of rating things, particularly for the accomplished clients, and these components were moulded to improve the exactness of recommender framework. The client relationship of informal community contains two elements: relational impact and relational intrigue comparability. The surmised trust hover of Circle-based Recommendation (CircleCon) model is applied to implement the factor of relational impact. For the relational intrigue likeness,gather intrigue hover to improve the natural connection of client idle component.

Y. Ge, Q. Liu, H. Xiong, A. Tuzhilin, and J. Chen,[10] proposed two costaware latent factor models to recommend travel packages by considering both the travel cost and the tourist's interests. Specifically, they first designed a cPMF model, which models the tourist's cost with a 2-dimensional vector. Also, in this cPMF model, the tourist's interests and the travel cost are learnt by exploring travel tour data. Furthermore, in order to model the uncertainty in the travel cost, they further introduced a Gaussian prior into the cPMF model and developed the GcPMF model, where the Gaussian prior is used to express the uncertainty of the travel cost.

A. Cheng, Y. Chen, Y. Huang, W. Hsu, and H. Liao, [11] proposed a probabilistic customized travel proposal model which receives the naturally mined familiarities from the movement photograph logs and the consequently recognized individuals properties in the photograph substance. By data theoretic measures and examinations in eight significant urban communities, they affirmed that individual qualities are powerful for digging socioeconomics for movement milestones and ways and it is supportive for customized travel proposal and course arranging. In the interim, individuals credits are symmetrical to the movement logs alone and can additionally yield increasingly palatable outcomes particularly in all the more testing suggestions.

Q. Liu, Y. Ge, Z. Li, E. Chen, and H. Xiong,[12] proposed the study of exploiting online travel information for personalized travel package recommendation. They first analysed the unique characteristics of travel packages and developed the Tourist-Area- Season Topic (TAST) model, a Baysian 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, they exploited the TAST model for developing a cocktail approach on personalized travel package recommendation. This cocktail approach follows a hybrid recommendation strategy and has the ability to combine several constraints which are inherent in personalized travel package recommendation.

Y. Lyu, C.-Y. Chow, R. Wang, and V. C. Lee, [13] proposed a new personalized POI recommendation framework based on multi-criteria decision making (MCDM). They designed the preference and estimation models for geographical, category and attribute criteria. Given a user and a set of candidate POIs, the method first arranges the candidate POIs in a preference pre-order for each criterion, and then it iteratively combines the three pre- orders of the three criteria by computing dominated index and dominating index for each candidate, and recommends the top -N POIs for the user.

X. Wang, M. Yu, L. Zhang, R. Cai, and W. Ma, [14] proposed a framework named Argo which gives insightful publicizing made conceivable from clients' photograph assortments. In light of the instinct that client produced photographs infer client premiums which are the key for gainful focused on promotions, the Argo framework endeavours to take in a client's profile from his mutual photographs and recommends pertinent advertisements in like manner. To get familiar with a client's enthusiasm, in a disconnected advance, a various levelled and productive point space is developed dependent on the ODP cosmology, which is utilized later on for spanning the jargon hole among promotions and photographs just as decreasing the impact of boisterous photograph labels. In the online stage, the procedure of Argo contains three stages: 1) understanding the substance and semantics of a client's photographs and auto-labeling every photograph to enhance client submitted labels (such labels may not be accessible); 2) learning the client premium given a lot of photographs dependent on the scholarly progressive subject space; and 3) speaking to advertisements in the point space and coordinating their theme disseminations with the objective client premium; the top positioned promotions are yield as the proposed advertisements.

Q. Hao, R. Cai, X. Wang, J. Yang, Y. Pang, and L. Zhang, [15] proposed a system of producing area outlines as labels and pictures by mining usergenerated travelogs. Given an area, its delegate labels are first mined from pertinent travelogs and afterwards used to recover web pictures. The labels and pictures are at long last displayed through a novel UI.

J. Hays, A. Efros et al., [16] proposed a basic calculation for evaluating a circulation over geographic areas from a solitary picture utilizing simply an information driven scene coordinating methodology. For this assignment, they use a dataset of more than 6 million GPS-labeled pictures from the Internet. It speaks to the assessed picture area as a likelihood circulation over the Earth's surface.

III. PROPOSED APPROACH

Propose system, the system automatically mined user's and routes' travel topical preferences including the topical interest, cost, time and season. Admin add places for each place in city. He can view the user's details as well as each user's interest. User register to the system with its Facebook developer access token that used to get users Facebook data and from that we are mining user's preference by Aho-corasick algorithm .User can add travelogs detail and his community contributed photos. Travelogs details are used to get user preferred season for travelling .From dataset travelogs are mined to get time season cost for each place. When user enters the query to search places use get details according to his preference which is get at the time of registration. According to user entered likes his offline preference is updated and again according to that user gets result. User can give rating, comment to each place. User can get optimized package according to his preference of similar user. User can view places recommendation by Rating, Online interest, Preference, activity, Season .He can view his package that contain best season, cost, and preference package detail. User can view online interests package. User can view places on map. User can view multiple preferences package detail.

Advantages:
1 It recommends places by mining user online point of interest and show package.
2 It also give recommendation using similar user interest and according to that gives recommendation to user.

3 It considers other user preference s for places and according to that user get recommendation.

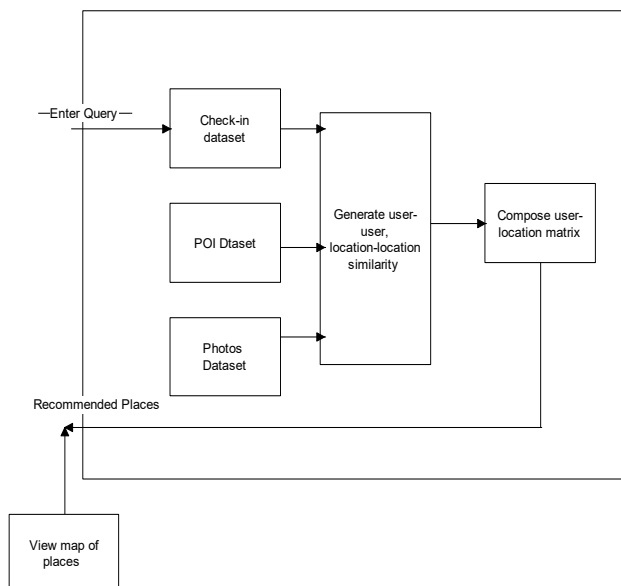4 It shows map of packages places.

System Architecture:

Fig. System Architecture

IV. **ALGORITHMS**

A. Matrix Factorization

Explicit Social Feedback-

- Weather information: This information is helpful for constructing user and location profiles because of the fact that weather conditions can influence where a tourist wishes to visit.

- Stay time information: This information is helpful for revealing tourist personal interest to a location.

- Check-ins information: To obtain the fine-grained check-ins distribution of a travel location, we count the number of check-ins generated by users in POIs nearby the travel location in different time slots.

- Gender and age information: Tourist gender is useful for describing a location. After the explicit information is extracted, we build the explicit feature vectors of users and locations.

Implicit Social Feedback

- The vocabulary V denotes a set of locations L.

- The word w_i represents one of the locations in L.

- The document Nt in At corresponds to the location histories Hit of each user i in time slice t.

- Note that, the location histories of all users are grouped by time slice t (e.g., by year).

- The document set At corresponds to the location histories Dt of all users in time slice t, i.e.,Dt= H1t, H2t, , Hmt. Through this model, we can obtain the topic distributions of users and locations in time slice t.

V. RESULT AND DISCUSSION

	User 1	User2
Religious	20	8
Historical	5	12
Meditation	14	1
Beaches	13	8
Hill-Station	3	5

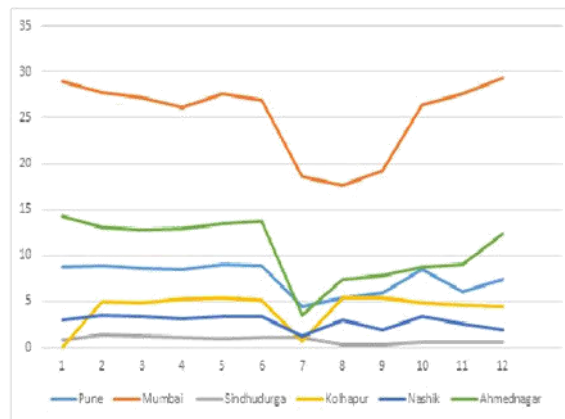It represent user poi mined from social network using Aho-corasick
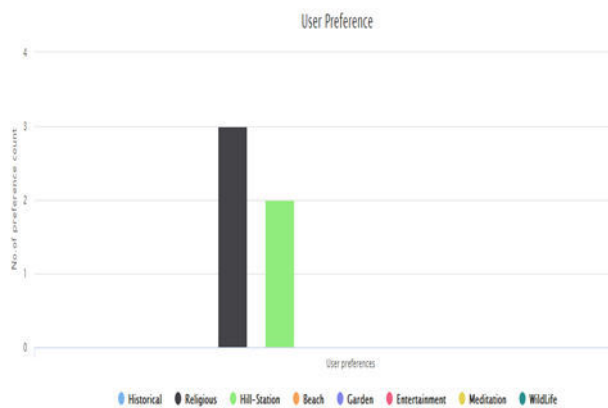

Fig 1. Represents the preference of each user.

Fig. 2. Visiting popularity distribution of 12 months for the six POIs: Pune, Mumbai, sindhudurga, Kolhapur, nashik and ahmednagar.
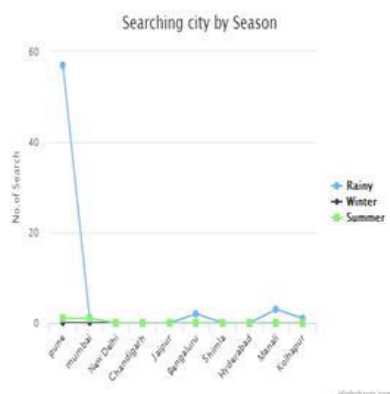
Fig 3.Searching places by season wise

VI. CONCLUSION

In this paper, we have proposed a personalized travel sequence recommendation system by learning regional package model from social media. The advantages of our system are: 1] the system automatically mined user's and routes' travel topical preferences including the regional interest, city, topical interest, cost, time and season.2.] We recommended not only POIs but also travel sequence and considering user's travel preferences, activity ,online interest at the same time. 3] Provides map of travel sequence. We mined places based on the similarity between user package Finally map of travel sequence is provided with additional, In the future, we plan to enlarge the dataset, and thus we could do the recommendation for some non-famous cities

REFERENCES

[1] Shuhui Jiang, XuemingQian , Tao Mei, Yun Fu,Personalized Travel Sequence Recommendation on Multi-Source Big Social Media "IEEE Transactions on Big Data ,2016

[2]S. Jiang, X. Qian, J. Shen, Y. Fu, and T. Mei, "Author topic modelbased collaborative filtering for personalized poi recommendation,"IEEE Transactions on Multimedia, vol. 17, no. 6, pp. 907–918, 2015

[3] J. Sang, T. Mei, and C. Sun, J.T.and Xu, "Probabilistic sequential POI's recommendation via check-in data," in Proceedings of ACMSIGSPATIAL International Conference on Advances in GeographicInformation Systems. ACM, 2012.

[4] Q. Yuan, G. Cong, and A. Sun, "Graph-based point-of-interestrecommendation with geographical and temporal influences," in Proceedings of the 23rd ACM International Conference on Information and Knowledge Management. ACM, 2014, pp. 659–668.

[5] X. Qian, Y. Zhao, and J. Han, "Image location estimation by salientregion matching," IEEE Transactions on Image Processing, vol. 24, no. 11, pp. 4348–4358, 2015.

[6]H. Kori, S. Hattori, T. Tezuka, and K. Tanaka, "Automatic generation of multimedia tour guide from local blogs," Advances in Multimedia Modeling, pp. 690–699, 2006.

[7] Y. Zheng, L. Zhang, X. Xie, and W. Ma, "Mining interesting locations and travel sequences from gps trajectories," in Proceedings of the 18th international conference on World wide web. ACM, 2009, pp. 791–800.

[8] N. J. Yuan, Y. Zheng, X. Xie, Y. Wang, K. Zheng, and H. Xiong, "Discovering urban functional zonesusing latent activity trajectories," IEEE Trans. Knowl. Data Eng.,vol. 27, no. 3, pp. 712–725, 2015. .

[9]X. Qian, H. Feng, G. Zhao, and T. Mei, "Personalized recommendationcombining user interest and social circle," IEEE Transactionson Knowledge and Data Engineering, vol. 26, no. 7, pp. 1763–1777, 2014.

[10] A. Cheng, Y. Chen, Y. Huang, W. Hsu, and H. Liao, "Personalized travel recommendation by mining people attributes fromcommunity-contributed photos," in Proceedings of the 19th ACM international conference on Multimedia. ACM, 2011, pp. 83–92.

[11] Q. Liu, Y. Ge, Z. Li, E. Chen, and H. Xiong, "Personalized travel package recommendation," in IEEE 11th International Conference on Data Mining. IEEE, 2011, pp. 407–416.

[12] Y. Lyu, C.-Y. Chow, R. Wang, and V. C. Lee, "Using multi-criteria decision making for personalized point-of-interest recommendations," in Proceedings of SIGSPATIAL, November 04-07 2014, Dallas/ Fort Worth, TX, USA. ACM, 2014.

[13] H. Huang and G. Gartner, "Using trajectories for collaborativefiltering–based poi recommendation," International Journal of Data Mining, Modelling and Management, vol. 6, no. 4, pp. 333–346, 2014.

[14] X. Wang, M. Yu, L. Zhang, R. Cai, and W. Ma, "Argo: intelligent advertising by mining a user's interest from his photo collections," in Proceedings of the Third International Workshop on Data Mining and Audience Intelligence for Advertising. ACM, 2009, pp. 18–26

[15] Q. Hao, R. Cai, X. Wang, J. Yang, Y. Pang, and L. Zhang, "Generating location overviews with images and tags by mining user generated travelogues," in Proceedings of the 17th ACM international conference on Multimedia. ACM, 2009, pp. 801–804

[16] J. Hays, A. Efros et al., "Im2gps: estimating geographic information from a single image," in IEEE Conference on Computer Vision and Pattern Recognition, 2008. IEEE, 2008, pp. 1–8.

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