Implementation of Modified Smart travel Advisory System of User Interest By Using Preprocessing

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Abstract: *Recently there is big encroachment in location based techniques are done. It has fundamentally modified social media networking services Which are Related to users to share their location and other information about their location and visiting places such as geo-tagged photos and notes. At every moment different data gets uploaded on location based Social Media (i.e. facebook and flickr) like check-ins, GPS locations, tagging friends, travel routes, shopping, dining and photos all these are unstructured data. The comfort of user convenience has resulted in tremendously increased user count of the Internet. Taking into consideration these all things, our proposed work in this paper is to build an improved travel route advisory and recommendation system. Such a system gives complete freedom to users for choosing their suitable trip options by giving their preference keyword. To recommend personalized Point of interest (POI) sequence, first the popular routes are ranked according to the similarity between user package and route package. Then top ranked routes are further optimized by social similar users travel records.*

Keywords: *Location based technique, check-ins, GPS , POI ,Tags.*

I. Introduction

Travelling has become one of the most recent challenger of modern era. Now a day's most of the people like to travel to different locations across the globe. Peoples are attracted to look for their Favorite tourist places, so this domain has becoming a hot topic for researches to take up Research in Travel Recommendation System. Social medias has user-uploaded online contents that allow users to relate and be in touch with their friends, colleagues, and families. As Web 2.0/3.0 and persistent computing grown-up, social medias has become a main communication tool combined with social tagging to immediately switch over and share their data, photos and thoughts. At every location and every moment peoples click their photos and that photos are daily uploaded on internet and social media sites like face book and flickr.

As location based social media network raise, it becomes gradually more vital to unravel them to be aware of user-oriented patterns, structures, regularities, and arrangements. so social medias are main gear and techniques for many businesses to read customers' minds. photo uploading on photo sharing sites is one of the example of social networking. figure 1. shows the activities performed by user on social media like share photos, applying tags ,chat etc. There have been many photo-sharing websites, but Flicker (www.flickr.com) is one of the well-known photo sharing websites. Photos in Flicker are geo-tagged, and they can be displayed with online maps.

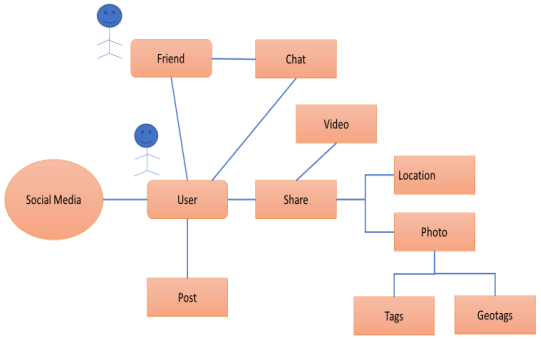


Figure 1 :Users Various Activities On Social Media

II. Related Work

In this section, we conduct literature survey of work done till now in travel route recommendation. Our literature survey is an independent summary of published research literature relevant the topic of our consideration.

Yuki Arase and Xing Xie have proposed the well-defined idea of a photo trip organization and suggested frequent photo trip pattern mining algorithms with this algorithms user get various different trip ideas from social media photo collections on the Web. First of all, geo-tagged photos of photo trips are collected and then categorized into their trip melodies. Further frequent

photo trip patterns as arrangements of frequently visited cities and their classic visit durations are detected accordingly. Additionally, tags including their topographical coverage to add descriptions of photo trip patterns are mined so that people understand them according to their preferred pattern [1,2].

Hongzhi Yin et al. have introduced the concept of newly evolving social network services. It provides a new support to understand users' partialities based on their activity history. In this the introduced user-item matrix is very sparse, which creates a large task to the traditional collaborative filtering-based recommender systems. The problem becomes even more challenging when people travel to a new city where they have no activity information. So authors proposed LCARS, a location-content-awarerecommender system that offers a specific user a set of venues (e.g. restaurants and shopping malls) or events (e.g. concerts and exhibitions) by giving consideration to both personal interest and local preference [3,4].

To accelerate the online process, a climbable query processing technique is developed which extends both the Threshold Algorithm (TA) and TA-approximation algorithms. The performance of the system was evaluated by using two datasets like Douban Event and Foursquare' and one 'large-scale synthetic dataset'. The consequences show the dominance of LCARS in recommending spatial items for users travelling to new cities, in terms of both effectiveness and efficiency [5,6].

M. Clements et al. predicted comparable and selective locations based on the user's geo-tags in geographically isolated location for users that visited larger cities and provides an instance of efficient recommendation based on a mock user profile. Also a resemblance between the geo tag circulations of two users based on a Gaussian kernel involvedness is defined. The social media photo information is combined and used the user for relocation of famous places or city for this user [7,8].

B. Zheng et al. have proposed the location standing technique and popular location allocation services through which semantic supplemented data have been unprecedentedly available. While finding POI, it can study user locations and query keyword in past years. In this work the authors studied the problem of keyword search in massive semantic trajectories. The approximate semantic trajectory returns the k trajectories that contain relevant keyword query. The main difference between AKQST and conventional spatial keyword is that there is no query location AKQST that results in the search which cannot be localized [9,10].

Y.T. Wen et al. have studied the exploring social influence on location-based social networks. Now a days with the universalization of mobile network, the location-based service(LBS) has made great progresses, proving as an efficient marketing instrument for enterprises. Every business man want to select good quality product for store and try to use marketing techniques to improve business. But customer cannot choose appropriate store without proper information as there is huge number of choices available. So here is the option to use location based service(LBS) and make available recommendation method to user by analyzing user track and what he wants to purchase i.e. point of interest of user [8,9].

In another implementation, existing sequential pattern mining algorithms are adopted to explore frequent path segments or sequences of points of interest. In mining periodic movements through region is investigated. These pattern can indicate a popular movement between certain locations. Hence if the start and end locations of the query are right on the pattern, it can be suggested to the user as a recommended route. However, one cannot apply these approaches since the query in our work has arbitrary locations and may not match with any existing pattern [12].

Sundaram et al. have given various examples of some social networking sites. Social network data characteristics exclude simple signs of the social context. First, social media data typically involves multiple social relations. In Flickr for example, there are several relations including friendship or commenting relation, tagging or "like" relation, photo-to-location relationship, photo-to-time relationship. Second, the activity forms in social media often reproduce not just a single user's tedious performance and interests, but the open assembly. In Facebook and Twitter, for example, people occur due to users' topical interests and association on projects. In Flickr, media and ideas are shared within societies of friends. Appreciative social media pleased requires awareness about people which convey related environment [13,14].

Zheng et al. utilize GPS trajectory data to extract the interesting location, classical travel sequences and provide personalized friend and location recommender using the similarity of user profiles created from their location histories. The main drawback of this method is that it is impossible to collect data from a large number of people, as every person has a GPS Enabled device it becomes impossible to collect and analyses data from each device**.**

III. Proposed Methodology

In this section, we describe the possible modifications in present methods. first of all some

drawbacks or limitations are taken into considerations followed by understanding the advantages of new system.

Recommendation systems and adaptive systems have been introduced in travel applications to support the travelers in their decision-making processes. The interests are according to what people like doing more, some people can analyze in a better way than others while others might just learn what they are supposed to learn as it is. This approach is able to recommend a travel sequence rather than personalized Points of Interest (POIs).

A. Drawbacks of existing system:

- The existing studies related to travel sequence recommendation did not well consider the popularity and personalization of travel routes at the same time.
- It is far more difficult and time consuming for users to plan travel sequence than individual POIs.
- However, general travel route planning cannot well meet users' personal requirements. Existing studies focused more on famous route mining but without automatically mining user travel interest.

B. Modified System

Automatic travel recommendation is an important problem in both research and industry. Big media, especially the flourish of social media offers great opportunities to address many challenging problems, for instance, GPS estimation and travel recommendation. Travelogue websites (e.g., www.igougo.com) offer rich descriptions about landmarks and traveling experience written by users. Furthermore, community-contributed photos with metadata like tags, date taken, latitude etc. on social media record users daily life and travel experience. These data are not only useful for reliable POIs (points of interest) mining, travel routes mining, but give an opportunity to recommend personalized travel POIs and routes based on user's interest.

Online mode focuses on mining user package and recommending personalized POI sequence based on user package. First, tags of user's photo set are mapped to topical package space to get user's topical interest distribution. For example, if a user usually takes part in luxurious activities like Golf and Spas, he is more likely to be rich. Combine user topical interest and the cost, time, season distribution of each topic to mine user's consumption capability, preferred visiting time and season. After user package mining, rank famous routes through measuring user package and routes package. At last, optimize the top ranked routes through social similar users' travel records in this city. Social similar users are measured by the similarity of user packages.

In offline mode, the topical package space is mined from social media combining travelogues and community contributed photos. Four travel distributions (i.e., topical interest, time, season and cost) of each topic are described in topical package space.. For example, the "date taken" of Flickr may be error with the influence of time difference. Sometimes observe in community-contributed photo the "date taken" of night scene is daytime. In offline module, mine POIs and famous routes from community contributed photos, and obtain routes' packages through mapping travelogues, which are related to these routes, to the topical package space.

C. Objectives of the System

The main objective of this project is to provide both personalized and sequential travel route for the users based on their POI's.
The main contributions are:

- To give a personalized travel recommendation rather than a general recommendation.
- Automatically mine user's travel interest from user contributed photo collections including consumption capability, preferred time and season which is important to route planning and difficult to get directly.
- Ranking is performed based on the similarity between user package and route package, and top ranked famous routes are further optimized according to social similar users' travel records.
- Takes advantage of the complementary of one big social media to construct topical package space.

D. System Architecture

The existing systems did not consider the attributes like consumption capability. It focused more on famous route mining but without automatically mining user travel interest. The route recommendation is done with the help of Topic Modeling Algorithm to automatically mine user travel interest from two social media, community-contributed photos and travelogues. Automatically mine user's travel interest from user contributed photo collections including consumption capability, preferred time and season which is important to route planning and difficult to get directly.

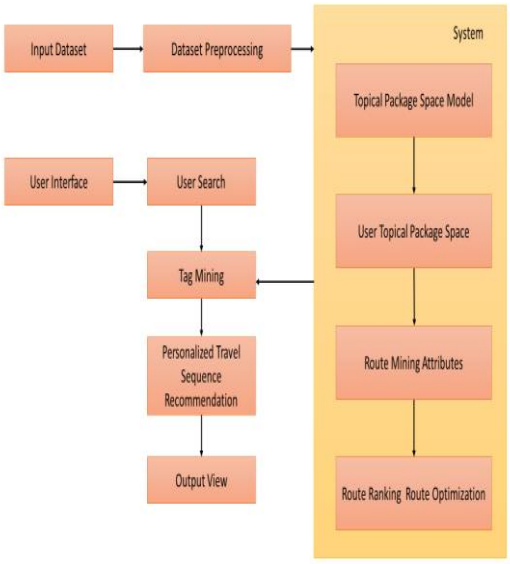


Figure 2: System Architecture

a) Pre-processing the dataset

Data preprocessing describes any type of processing performed on raw data to prepare it for another processing procedure. Commonly used as a preliminary data mining practice, data preprocessing transforms the data into a format that will be more easily and effectively processed for the purpose of the user. The dataset consists of travelogues and community contributed photos.

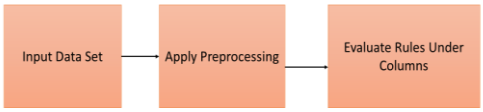


Figure 3: Dataset Preprocessing

b) User Package Model

User Topical Interest Mining Method

This module illustrates user topical interest mining method. Map the textual description (tags) of user's community photos to the topical package space to present the user's travel preference of different topics, which is defined as user topical interest distribution.

Cost, Time and Season Distribution Mining

The easiest way to obtain the time preference seems to analyze the "date taken" of the photo.

c) Route Package Model

Route Mining

To save the online computing time, travel routes and the attribute of the routes are mined offline. After mining POIs, to construct travel routes, the spatio temporal structure of the POIs among travelers' records is analyzed .

Route Package Mining

It describes routes topical package model mining. Mine POI's package including POI topical interest distribution, POI cost distribution, time distribution and season distribution. Then to each route, compute average for all the POIs on the route to get route topical package model.

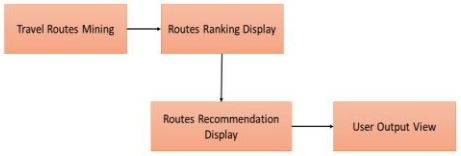


Figure 4 :Route Package Space Construction

d) Route Optimizing

After POI and route ranking module, a set of ranked routes ^R are determined. Further describe the optimization of top ranked routes according to social similar users' travel records. Firstly, introduce how to mine social similar users and their travel records. Then, the roads are optimized by social users' travel records.

IV. Results And Discussion

For the performance evaluation of personalized travel sequence recommendation the system is executed on configuration having Windows 7 or later version with 4GB RAM. This method is implemented in .NET.

For this system visual studio works on a front end and .net on the back end. . Net is used to store all code which we generate in implementation phase. In this section we show our results and tables.

The analysis of work is supported with the following graph as shown in figure 5. From above discussion it is clear that the existing system is although effective but time for data retrieval is so much existing system is so time wasting system .when photo is uploaded on photo sharing site it has so much meta data with it i.e

big data file is uploaded on photo sharing site. so it requires more time for information retrieval.

Table 1:Before preprocessing

Time	*Data retrieval*
0.2	20%
0.3	40%
0.4	60%
0.5	80%
0.6	100%

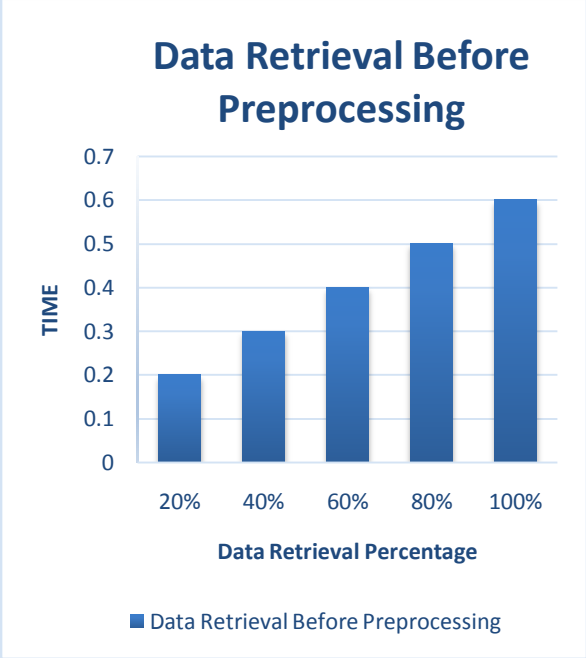
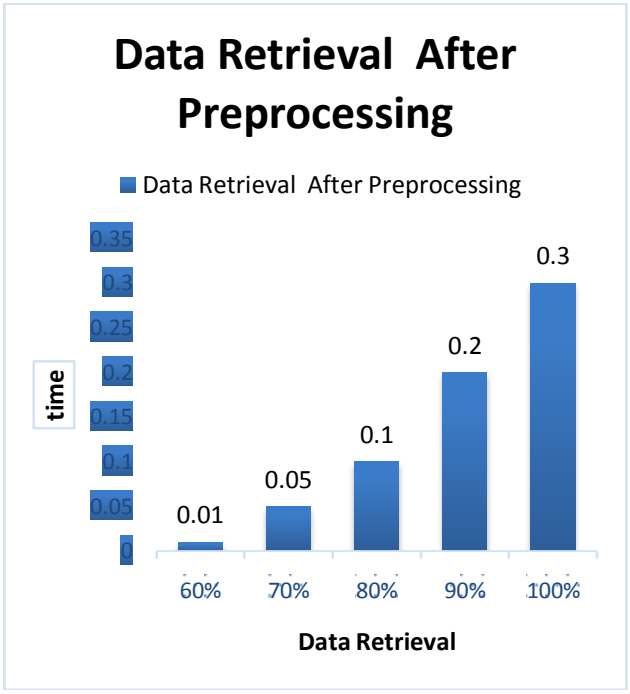


Figure 5. Data retrieval Before preprocessing

Dataset will be input which will be Big data and will be in large amount. So we will be using Preprocessing Technique to filter data. This process will help to reduce time complexity and accuracy of the system.

Table 2. After Preprocessing

time	***Data retrieval***
0.01	**60%**
0.05	**70%**
0.1	**80%**
0.2	**90%**
0.3	**100%**



V. Conclusion

In this paper we focused on preprocessing of the input data to travel route recommendation system . we applied data preprocessing on raw data and prepared it for further processing. As a result this system automatically mines user's and route's travel topical preferences including the topical interest, cost , time and season. This system Recommends not only POIs but also travel sequence, considering both the popularity and user's travel preferences at the same time. The famous routes are mined and ranked based on the similarity between user package and route package.

REFERENCES

[1] Y. Arase, X. Xie, T. Hara, and S. Nishio. "Mining people' strip from large scale geo-tagged photos". In Proceedings of the 18th ACM international conference on Multimedia, pages 133–142. ACM, 2010.

[2] X. Cao, L. Chen, G. Cong, and X. Xiao. Keyword-aware optimal route search. Proceedings of the VLDB Endowment, 5(11):1136–1147, 2012.

[3] H. Yin, B. Cui, Y. Sun, Z. Hu, and L. Chen. LCARS: A spatial item recommender system. ACM Transactions on Information Systems (TOIS), 32(3):11, 2014.

[4] D. Chen, C. S. Ong, and L. Xie. Learning points and routes to recommend trajectories. In Proceedings of the 25th ACM International on Conference on Information and Knowledge Management, pages 2227–2232, 2016.

[5] M. Clements, P. Serdyukov, A. De Vries, and M. Reinders ,Using Flicker Geo Tag To Predict User Travel Behavior, In proceeding of the 33rd International ACMSIGIR Conference Research Development Information Retrieval, 2010

[6] D. Chen, C. S. Ong, and L. Xie," Learning Points And Routes To Recommend Trajectories." In Proceedings of the 25th ACM International Conference On Information And Knowledge Management, 2016

[7] B. Zheng, N. J. Yuan, K. Zheng, X. Xie, S. Sadiq , and X. Zhou, "Approximate Keyword Search In Semantic Trajectory Database" In Data Engineering (ICDE), IEEE 31st International Conference,2015.

[8] W. T. Hsu, Y. T. Wen, L. Y. Wei, and W. C. Peng, -Skyline travel routes: Exploring skyline for trip planning,‖ in Proceed. IEEE 15th Int. Conf. Mobile Data Manage., 2014, pp. 31–36.

[9] H. Liu, T. Mei, J. Lou, H. Li, and S. Li, "Finding perfect rendezvous on the go: accurate mobile visual localization and its applications to routing," in Proceedings of the 20th ACM international conference on Multimedia. ACM, 2012, pp. 9–18.

[10] [2] J. Li, X. Qian, Y. Y. Tang, L. Yang, and T. Mei, "GPS estimation for places of interest from social users' uploaded photos," IEEE Transactions on Multimedia, vol. 15, no. 8, pp. 2058–2071, 2013.

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

[12] J. Sang, T. Mei, and C. Sun, J.T. and Xu, "Probabilistic sequential pois recommendation via check-in data," in Proceedings of ACMSIGSPATIAL International Conference on Advances in Geographic Information Systems. ACM, 2012.

[13] Y. Zheng, L. Zhang, Z. Ma, X. Xie, and W. Ma, "Recommending friends and locations based on individual location history," ACM Transactions on the Web, vol. 5, no. 1, p. 5, 2011.

[14] H. Gao, J. Tang, X. Hu, and H. Liu, "Content-aware point of interest recommendation on location-based social networks," in Proceedings of 29th International Conference on AAAI. AAAI, 2015.