

Travel Sequence Generation and Route Optimization with Customized Point of Interest

Nitin Pangrekar¹, Prof. P. R. Ugale²

M.E Student, Department of Computer Engineering, SPCOE, Otur, Pune, Maharashtra, India¹

Professor, Department of Computer Engineering, SPCOE, Otur, Pune, Maharashtra, India²

ABSTRACT: These days, travel recommendation is imperative for client who is the arrangement for traveling. There are many existing procedures which are utilized for travel recommendation. This system clarify a personalized travel sequence recommendation framework utilizing travelogs by contrasting existing diverse strategy. It suggests personalized clients travel interest and prescribe a sequence of travel interest rather than an individual purpose of interest. The current framework can't finish the necessity i.e. personalized and consecutive recommendation together. To take care of the issue of giving personalized and consecutive travel package recommendation, a topical recommendation is made utilizing social media information in which naturally mine client travel interest with another trait like time , cost , and period of traveling . The proposed framework utilizes the travelogs of social media which outline client and routes depiction to the package zone to prompt client topical package model and route topical package show. To propose personalized POI sequence, first acclaimed routes are stratified according to the similitude between client package and route package. At that point high stratified routes are more streamlined by utilizing social comparable clients travel records for more exactness.

KEYWORDS: Travelog, Big Data, Topical Package Model, Point of Interest.

I. INTRODUCTION

In everyday life ,individuals are interested in travelling and hunting down the diverse traveller location for travel arranging in which they are interested. Social media has turned out nonstop requirements for programmed travel recommendation. This turns into an imperative issue in research and industry. Social media offers extraordinary chances to address many testing issues, as GPS estimation and travel recommendation. Travelog sites offer rich portrayals about milestones and traveling background composed by users. These information are definitely not useful for solid POIs i.e. purposes of interest, travel routes yet give a chance to prescribe personalized travel POIs and routes in light of user's interest. Existing reviews on travel recommendation utilize the distinctive sorts of social media information, GPS direction, checkin information, geo tag and sites which are utilized for mining popular travel POIS and routes [2][4]. The current system for general travel route arranging can't well meet user's close to home prerequisites. Personalized recommendation of travel system prescribes the POIs furthermore, routes by mining user's travel history. Location - based cooperative sifting is the most acclaimed technique for the recommendation. In this cooperative sifting technique, social comparative users are mapped in view of the location cooccurrence of beforehand went by POIs. And after that POIs are positioned agreeing comparable users travel history. There are two issues in programmed travel recommendation when we think about existing travel recommendation approach. In the first place, the prescribed POIs ought to be personalized to user interest since distinctive users may incline toward various sorts of POIs. Second, it is essential to suggest a successive travel route that is a sequence of POIs instead of individual POI. Existing system on travel recommendation has not all around illuminated the two issues. The principal issue , a large portion of the travel recommendation works just centered around user topical interest mining without considering different properties like utilization capacity of the user. Furthermore, for the second issue, existing reviews concentrated more on acclaimed route mining however not considering user travel interest [1]. To unravel the

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 5, May 2017

difficulties consecutive and personalized recommendation of travel location for the user, the new system proposes. For the principal issue, it considers user's topical interest with the quality like utilization capacity and inclination of going by time of user furthermore, season. It is hard to quantify the similitude straightforwardly amongst user and route, proposed system constructs a topical package model and afterward delineates user's and route's printed portrayals to the topical package model to get user topical package model (user package) what's more, route package model (route package) utilizing topical package space [1]. Contrasting and existing recommendation system for traveling with this recommendation system is more suited for travel making arrangements for users.

II. RELATED WORK

H. Liu, T. Mei, J. Luo, 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.918. This system shows a versatile visual limitation framework that accomplishes a complete arrangement of geo-context data. Used Algorithms: Affinity propagation algorithm, KD tree Algorithm Pros: It is a mobile application which will help to find the location on the go. With the help of GPS application can easily show the shortest path. Cons: Internet is must so application is dependable. 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. 20582071, 2013 Arrangement of various leveled structure to evaluate the GPS area for a picture Used Algorithms: hierarchical algorithm, refined centroid algorithm Pros: Photos will help you to find the exact location view. Cons: From photos we cannot map the exact latitude and longitude of location. Accuracy issue will be there. 3. 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. 907918, 2015. This system proposed an author topic model-based collaborative filtering (ATCF) technique for customized travel suggestions. Clients' topic inclination can be mined from the literary portrayals appended with his/her photographs through author topic model (ATM). Pros: From the user search system will find the point of interest which will help to find location based on the interest. Cons: Collaborative filtering considers the updated point of interest only. 4. 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. We covered an area history-based recommender framework which utilizes a specific individual's visits on a geospatial area as their understood evaluations on the area and tries to foresee a specific client's enthusiasm for an unvisited area as far as their area history and those of different clients. Pros: This system is helpful for friend suggestion based on location history. Cons: This will not give the travel suggestion or route mining. 5. 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 AAI. AAI, 2015. systematically study the content information on LBSNs for POI recommendation. We investigate various types of content information on LBSNs in terms of sentiment indications, user interests, and POI properties. Pros: Point of interest is calculated by Content aware system which will find accurate poi. Cons: Content aware system will be more time consuming.

III. PROPOSED SYSTEM

First, requirement is gathering and the structure of travelogues. Then introduce how to mine representative tags, distribution of cost and time of each topic. In this system, system directly uses the category definition of tripadvisor.com. This category could cover most of the travel activities. The structure of data system crawled from tripadvisor.com is first layer is "City Layer". Under each city, there are 26 topics constructed "Topic Layer". System denote $C = \{c_1, c_2, \dots, c_k, \dots, c_N\}$ as the category of topics. N is the number of topics which is 26 in this work. Under each topic c_k is "POI Layer". For example, under the topic "Museum" in NYC, there would be POIs like "Modern Art" and "Natural History". To each POI, there are a lot of user generated travelogues. A POI may appear in more than one topics. So the topical interest of each POI is described by the distribution of N dimensions. Admin can add POI through admin dashboard so that user can add the POI while searching for the location. Point of interest shows what exactly the user wants. Based on the POI user will get the location details. Also admin can remove the POI. The travelling salesman problem (TSP) asks the following question: "Given a list of cities and the distances between each pair of cities, what is the shortest possible route that visits each city exactly once and returns to the origin city?" It is an NP-hard problem in

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 5, May 2017

combinatorial optimization, important in operations research and theoretical computer science. It is focused on optimization. The Travelling Salesman Problem describes a salesman who must travel between N cities. The order in which he does so is something he does not care about, as long as he visits each one during his trip, and finishes where he was at first. Each city is connected to other close by cities, or nodes, by airplanes, or by road or railway. Each of those links between the cities has one or more weights (or the cost) attached. The cost describes how "difficult" it is to traverse this edge on the graph, and may be given, for example, by the cost of an airplane ticket or train ticket, or perhaps by the length of the edge, or time required to complete the traversal. The salesman wants to keep both the travel costs, as well as the distance he travels as low as possible. The Traveling Salesman Problem is typical of a large class of "hard" optimization problems that have intrigued mathematicians and computer scientists for years. Most important, it has applications in science and engineering.

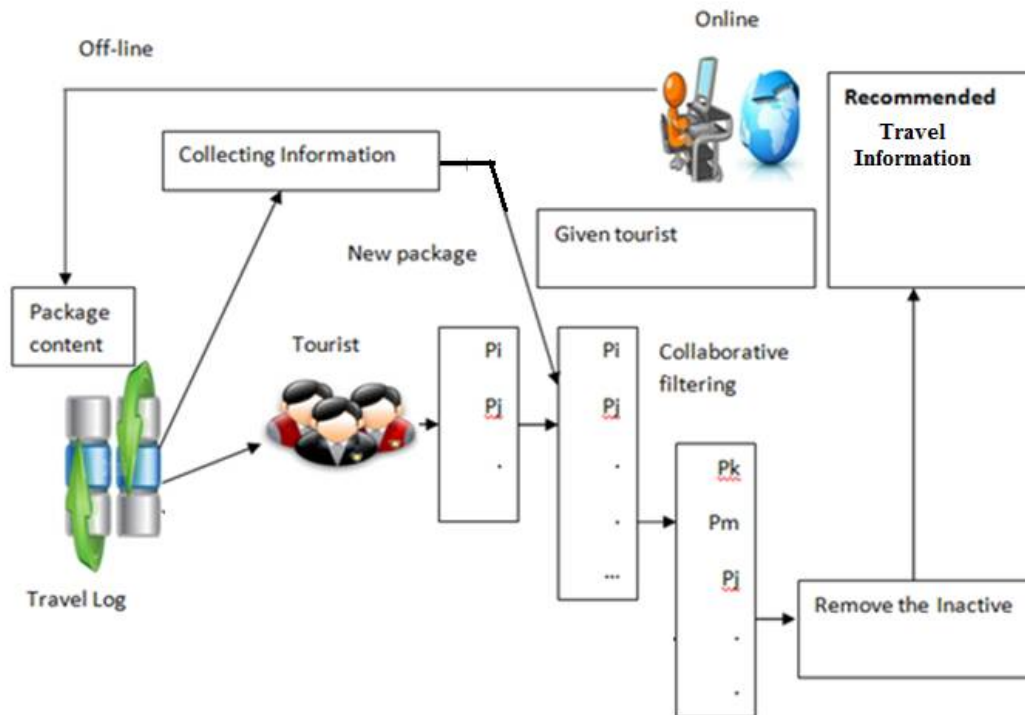


Fig: System Architecture

IV. CONTRIBUTION

Location based sentiment analysis will be implemented as a contribution. This analysis will help user to find out users positive, negative feedback for particular location. Based on this analysis user can choose the location for travel. So even though system recommends particular location, user can analyse the location rating and plan the travel accordingly.

V. ALGORITHM

A. Travelling Salesman Algorithm

Input: No of Vertices

Output: Shortest Path From vertices.

1) Consider city 1 as the starting and ending point.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 5, May 2017

- 2) Generate all (n-1)! Permutations of cities.
- 3) Calculate cost of every permutation and keep track of minimum cost permutation.
- 4) Return the permutation with minimum cost

VI. RESULT AND DISCUSSION

Precision and recall are calculated to measure the accuracy. The count of total search by users register to the system is calculated (Tc). When user search for any location or point of interest system may or may not give the result. Take count of result generated by system (Sc) and count of null result (Sn).

$$\text{Precision} = \frac{Sc}{Tc}$$

$$\text{Recall} = \frac{Sn}{Tc}$$

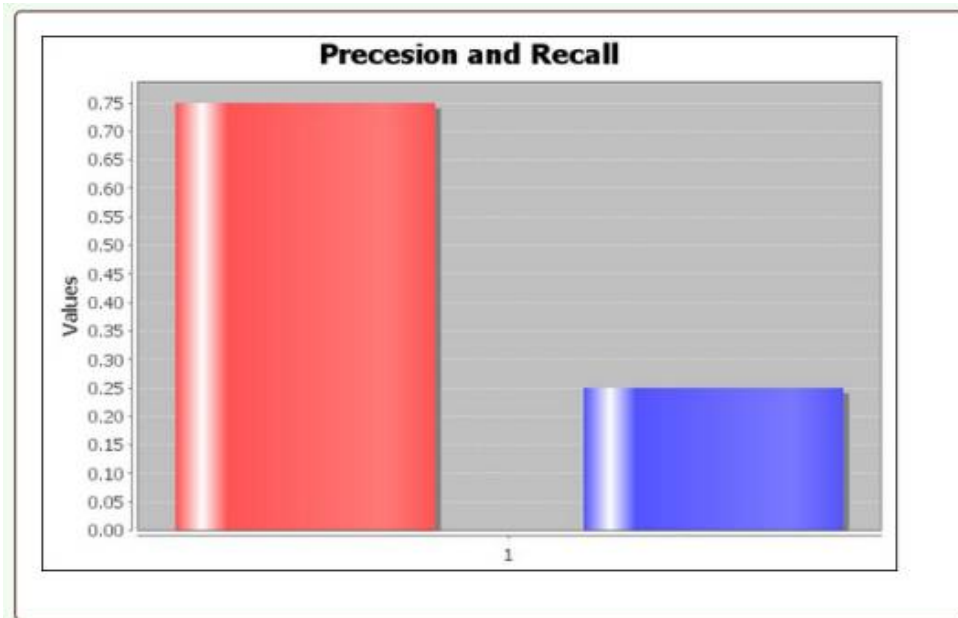


Fig1:Graphical Result

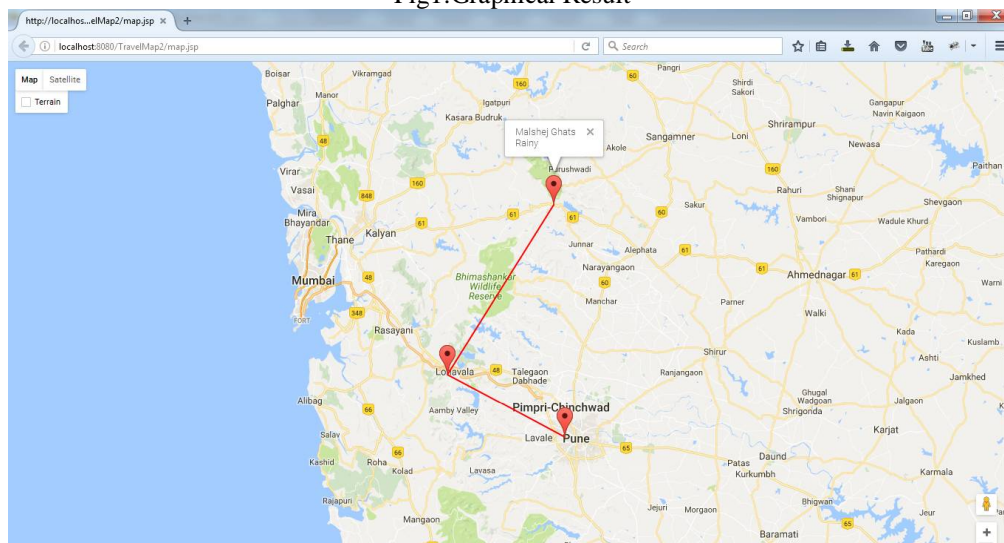


Fig2:Travel Route Recommendation

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 5, May 2017

Fig2 shows route optimization using Travelling Salseman Problem(TSP).TSP finds the shortest pathas per the user POI. TSP finds distance between two vertices and calculated the shortest path between two destination and drag that route on map.

VII. CONCLUSION

In this system, we proposed a personalized travel sequence recommendation system by learning topical package model from enormous multi source social media: travelogs. The benefits of our work are 1) the system naturally mined user 's and routes' travel topical inclinations counting the topical interest, cost, time and season, 2) we prescribed POIs as well as travel sequence, considering both the prominence and user 's travel inclinations in the meantime. We mined what's more, positioned celebrated routes based on the likeness between user package what's more, route package. And after that improved the top positioned celebrated routes as indicated by social comparable users' travel records. In any case, there are still a few impediments of the present system. Right off the bat, the going to time of POI fundamentally introduced the open time through travelogs, what's more, it was difficult to get more exact circulations of going to time just through travelogues. Also, the present system just engaged on POI sequence recommendation what's more, did exclude transportation and inn data, which may additionally give comfort to travel arranging . In the future, we plan to broaden the dataset, and along these lines we could do the recommendation for some non acclaimed urban areas. We plan to use more sorts of social media (e.g., check - in information, transportation information, climate estimate and so on.) to give more exact disseminations of going to time of POIs and the unique circumstance mindful recommendation.

VIII. ACKNOWLEDGEMENT

I dedicate all my works to my esteemed guide Prof. P. R. Ugale , whose interest and guidance helped me to complete the work successfully. This experience will always steer me to do my work perfectly and professionally. I express my immense pleasure and thankfulness to all the teachers and staff of the Department of Computer Engineering, for their co-operation and support. Last but not the least, I thank all others, and especially my friends who in one way or another helped me in the successful completion of this system

REFERENCES

- [1] H. Liu, T. Mei, J. Luo, 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.
- [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.
- [3] 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.
- [4] J. Sang, T. Mei, and C. Sun, J.T.andXu, "Probabilistic sequential pois recommendation via check-in data," in Proceedings of ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems.ACM, 2012.
- [5] 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.
- [6] 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.
- [7] Q. Yuan, G. Cong, and A. Sun, "Graph-based point-of-interest recommendation with geographical and temporal influences," in Proceedings of the 23rd ACM International Conference on Information and Knowledge Management. ACM, 2014, pp. 659–668.
- [8] H. Yin, C. Wang, N. Yu, and L. Zhang, "Trip mining and recommendation from geo-tagged photos," in IEEE International Conference on Multimedia and Expo Workshops. IEEE, 2012, pp. 540–545.
- [9] Y. Gao, J. Tang, R. Hong, Q. Dai, T. Chua, and R. Jain, "W2go: a travel guidance system by automatic landmark ranking," in Proceedings of the international conference on Multimedia. ACM, 2010, pp. 123–132.