ANALYSIS OF TRAJECTORIES

R.NANDHINI[1], S.SANCHANA DEVI[2], S.SANGAVI[3], R.SANTHIYA[4]

[1,2,3,4] B.Tech, Department of information technology, Valliammai engineering college, Kattankulathur.

---***--

Abstract - *The huge amount of information about tourism and leisure activities that are available on the web has turned the preparation of a trip into a very challenging task, ripened for the recommended application. The proposed system is designed to provide the recommendation to the traveller to choose the best route. Route choice is an essential tool in the travelling sector. Route choice is constructed for Origin Of Interest(OOI) and Destination Of Interest(DOI). In the existing system, new traveller fix up travel based on anonymous user reviews and ratings (Just dial, trip advisor, MakeMyTrip). In the existing system, no recommendation based system is been implemented. Even in Facebook, the user has to share the review with specific users. The proposed system uses the Collaborative Filtering method to recommend the best Place Of Interests(POI). It also provides results for multiple keywords by analyzing the geographic location, time and attribute. It recommends a travel sequence rather than individual Point Of Interest(POIs) alone. The spatial visualization gives an overview of the constructed path.The grid-based filtering and clustering is used to position the geographical spots along the trajectory. This process can be applied in the Tourism applications. The overall benefits of the proposed system are to reduce the time complexity and to improve the efficiency in positioning the geographical spots. This system would be useful in the preparation of the Trip.*

Key words: Point Of Interest(POI), Trajectory, geographical spots, OOI, DOI, anonymous user, recommendation.

1. INTRODUCTION

To facilitate trip planning, it provides an interface in which the user could submit the POI or the Query region. In contrast, a scenario is considered, where users specify their preference with keywords. For example, when planning a trip to Sydney, one would have "opera house". As such, the input of the trip planning is explored by possible keywords issued by users. On multiple demands of tourist, they can plan for a particular place based on the recommendations provided by the previous users who have experience with that place. Therefore, according to the personalized recommendations, the traveller can prepare a better plan. The traveller is recommended based on the attributes that are given during the registration.

Unlike most existing travel recommendation approaches, this system recommends a travel sequence rather than individual Place Of Interest (POIs). The new sequence is constructed by combining the subsequence of trajectories. To visualize these sequence in the map, the path between

the sequence is constructed using A* algorithm. The path is constructed by considering the sum of the distance between the adjacent and the destination of POI. The POIs are marked along the trajectory so that the user need not requires a separate search. The user will also be able to recommend the admin about the existing of new POI along that Trajectory. The reviews can be given by the traveller about the POI so that the new traveller can be benefited. It is also helpful for the recommendation of other POI for the same traveller. The booking for the transportation can also be done using this system.

2. EXISTING SYSTEM

In the existing system, there is no recommendation system. Applications like Justdial, Zomato is anonymous review based system. Deciding a property with a review uploaded by an anonymous user might not be accurate and trustworthy. Also, there is no single platform where a user can recommend to his friends. In facebook user is able to share but mostly it would be missed to view due to the large news feed. Also, the news feed can be shared to all public. However, the query results of existing travel route recommendation services usually rank the routes simply by the popularity or the number of uploads of routes. Usually, the query results will have similar routes. There is no specific marking of places along the routes in the map view.

2.1 DISADVANTAGES

- No specific marking of POI along the direction of the route in the map
- Requires separate search
- No POI sequence recommendation

3. PROPOSED SYSTEM

In the proposed system, an efficient travel recommendation framework is developed by invoking collaborative Filtering (CF), Candidate Route Generation algorithm, A* Algorithm, Grid-based filtering and clustering Method and Depth-first search.

In proposed system, Collaborative Filtering (CF) is used for recommendation. It is one of the most successful recommendation approaches to cope with information overload in the real world. CF methods treat every user and item equally and can distinguish the difference in user's interests across different domains by matching the attributes. The main advantage of CF is to recommend the

best place of interests (POI) in the group. The users may suggest and may give the reviews about the travel trip, geographic locations, attributes, time, POI score for each travel routes. By this reviews best suggestion may be received, so that other new traveller would know the best travel routes.

It provides the results for multiple keywords by analyzing the geographic location, time and attribute. Consider a scenario where users specify their preferences with keywords. For example, when planning a trip to Sydney, one would have "Opera House". As such, the input of trip planning is extended by exploring possible keywords issued by users.

Example:

1. Buffet ECR Lunch
2. Resort Swimming Sunrise.

The Candidate Route Generation algorithm is proposed to combine different routes to increase the amount and diversity. The new candidate routes are constructed by combining the subsequences of trajectories.

T1 p1 (10:00) -> p3 (12:00) -> p5 (15:30) -> p8 (17:30) -> p10 (19:00)

T2 p2 (10:30) -> p3 (12:30) -> p4 (17:00) -> p5 (19:00) -> p6 (19:30)

T6 p1 (10:00) -> p3 (12:00) -> p5 (15:30) -> p8 (19:30) -> p9 (20:00)

By this sequence, the traveller will be able to select a route for a particular POI based on the recommendations provided by the previous customers who had experience with the POI. This makes easy for the new traveller to choose the best route.It integrates open source maps using web services API, in which the traveler can view the distance between the source and destination, and is also able to see the specific POI along that route. The route is constructed using A* algorithm.

3.2 ADVANTAGES

- Better recommendation
- Low computation Time
- POI sequence recommendation
- Reduced number of search
- Saves user time

4. SYSTEM MODEL

In fig-1, the traveller register and login into the system through the web interface, and then view the Place Of Interest(POI). The registration is done by filling the attribute such as name, favourite spot, favourite location, gender. The Place Of Interest can be viewed either by the

search engine or by the recommendation. The POIs are fetched from the database according to the query. The POIs are stored in the database in the sequence containing the travel id, Place id, place name, location, time taken to reach and the distance. The query search may be a single word or multiple words. The result of multiple keyword search is displayed by analyzing the geographic location, and attribute. The POI is also recommended for the user based on the attributes collected during registration and the comments given by the user. On clicking the image of the POI the user can view the details of the POI and later the user can comment on the place. The user can also be able to view the map by invoking the API call. The POIs are collected and stored in the database by the admin. The user can also recommend the existing of new POI. The booking can also be done.
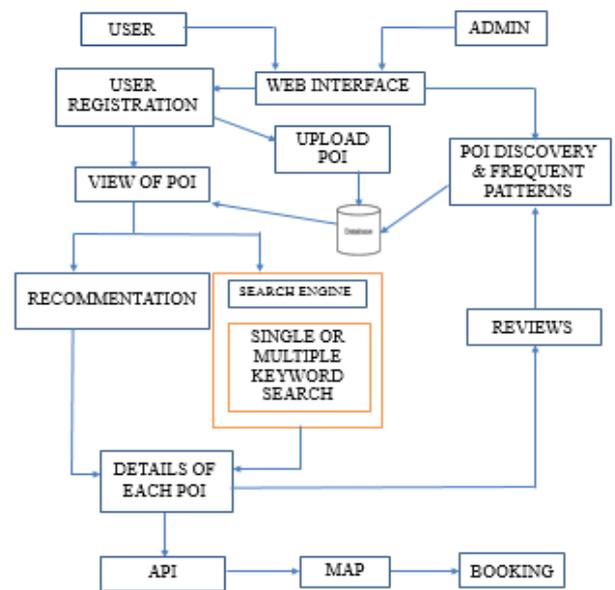

Fig -1: architecture diagram

5. MODULE DESCRIPTION

5.1 TRAVELLER REGISTRATION

The Traveller wants to create an account and then only they are allowed to access the Application. Once the Traveller creates an account, they can login to their account. All the user details will be stored in the database and ID is generated for each Traveller. Identity management (ID management) deals with the identifying individuals in a system and controlling their access to resources within that system by associating user rights and restrictions with the established identity. During identity management of the traveller, credentials like profession, school, college, working organization name, favourite tourist spots are obtained to generate traveller Identification number for each traveller. An application is designed for User Interface, Frame to Communicate with the Database through JDBC Coding using the programming Languages like Java.

5.1.1 ADMIN

Admin login is used to verify the review and tourist places. The POIs are uploaded with the Travel Id, Place Id, Place name, Location, description, category, image, time and kilometre by the admin. The profile of the traveller and the status of the booking can be viewed.

5.2 SUGGESTION OF POI BASED ON SINGLE KEYWORD

The traveller can search with the single word for the POI through the search engine. The POIs are discovered and stored in the database by the admin.The POIs are stored with the Travel Id, Place Id, Place name, Location, description, category, image, time and kilometre. The requested POIs are matched with the category in the database. The matched category POI is retrieved and displayed to the requestor.

5.3 SUGGESTION OF POI BASED ON MULTIPLE KEYWORD

The traveller can search with the Multiple words for the POI through the search engine. The POIs are discovered and stored in the database by the admin. The POIs are stored with the Travel Id, Place Id, Place name, Location, description, category, image, time and kilometre and the count is initialized to 0 for all the POI. The multiple words are separated by the space. The first word is searched for the match in the category. The count is increased for each match in the category. Then each subsequent words are searched for the match separately and the count is increased for each match. The POI with the highest count is displayed first and the second highest and so on.

Example:

1. Buffet ECR Lunch

2. Resort Swimming Sunrise.

3. Breakfast Boat Lunch

5.4 RECOMMENDATION

The recommendation is the suggestion of POI for the traveller based on the attributes that are given during the registration. The collaborative filtering method is used for the recommendation. It treats every traveller and the POI equally, and distinguish the difference in user's interest by matching the attributes. The user may suggest and may give the reviews about the travel trip, geographic locations, attributes and time for each travel routes. The traveller can also recommend admin about the existing of the new place that is not displayed in the application.

5.5 CONSTRUCTION OF PATH IN THE MAP

The spatial visualization of the POI in the map is through the API call. The path is constructed for the OOI and DOI through the sequence that is developed through candidate route generation algorithm. The distance API is used to calculate the distance between the POI. The geocoding API is used to calculate the latitude and longitude values. The POIs are positioned using the marker.

5.6 BOOKING

The traveller can give their views on the POI through comments. The traveller can also book the travels.

6. CONCLUSION

In this system, travel route recommendation problem is studied. The proposed system provides result for both individual POI and also for the sequence of POI. An efficient travel recommendation framework to identify the multiple keywords and match the measurement of routes, and have designed a route reconstruction algorithm to aggregate route segments into travel routes in accordance with time, attribute and geo-specific location. Also, the traveller would be provided with different routes to increase the amount and diversity using our system. The spatial visualization gives the overview of the constructed path for the sequence of POI. The shortest path is analyzed using A* algorithm which reduces the time complexity. The best hotels and the festival based recommendation can be included in future.

7. REFERENCES

[1] Yu-Ting Wen, Jinyoung Yeo, Wen-Chih Peng, Member, IEEE, and Seung-Won Hwang "Efficient Keyword-Aware Representative Travel Route Recommendation",IEEE Transaction on Knowledge and Data Engineering, vol. 29, no.8, 2017.

[2] Min Lu, Chufan Lai, Tangzhi Ye, Jie Liang , Member, IEEE, and Xiaoro Yuan, Senior Member, IEEE "Visual Analysis of Multiple Route Choices Based On General GPS Trajectories", IEEE Transaction on Big Data,vol. 3, no.2,2017.

[3] Oliver Nowers,David J.Duxbury,Jie Zhang,Bruce W.Drinkwater "Novel ray-tracing algorithms to the inspection of an anisotropic weld",NDT&E International 61 (2014) 58-66

[4]Gayratjon Kholmuradov Habibullayevich, Xian Chen, and Hyoseop Shin "Efficient Filtering and Clustering Mechanism for Google Maps", Journal of Advance Management Science, vol. 1, no. 1, 2013

[5] Shuhui Jiang, Xueming Qian, Member, IEEE, Tao Mei, Senior Member, IEEE, Tao Mei, Senior Member, IEEE, and Yun Fu, Senior Member, IEEE "Personalized Travel Sequence Recommendation on Multi-Source Big Social Media", IEEE Transaction on Big Data, vol. 2, no. 1, 2016