Efficient Keyword-Aware Representative Travel Route Recommendation (Trip Advisor)

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Abstract -- With the popularity of social media (e.g., Facebook and Flicker), users can easily share their check-in records and photos during their trips. In view of the huge number of user historical mobility records in social media, we aim to discover travel experiences to facilitate trip planning. When planning a trip, users always have specific preferences regarding their trips. Instead of restricting users to limited query options such as locations, activities, or time periods, we consider arbitrary text descriptions as keywords about personalized requirements.

Index Terms— Location-based social network, text mining, travel route recommendation.

I. INTRODUCTION

Location-based social network (LBSN) services allow users to perform check-in and share their check-in data with their friends. In particular, when a user is traveling, the check-in data are in fact a travel route with some photos and tag information. As a result, a massive number of routes are generated, which play an essential role in many well-established research areas, such as mobility prediction, urban planning and traffic management. In this paper, we focus on trip planning and intend to discover travel experiences from shared data in location-based social networks. To facilitate trip planning, the prior works in provide an interface in which a user could submit the query region and the total travel time. In contrast, we consider a scenario where users specify their preferences with keywords. For example, when planning a trip in Sydney, one would have "Opera House". As such, we extend the input of trip planning by exploring possible keywords issued by users.

EXISTING SYSTEM:

Location-based social network (LBSN) services allow users to perform check-in and share their check-in data with their friends. In particular, when a user is traveling, the check-in data are in fact a travel route with some photos and tag information. As a result, a massive number of routes are generated, which play an essential role in many well-established research areas, such as mobility prediction, urban planning and traffic management.

II. PROPOSED SYSTEM

In this project, we focus on trip planning and intend to discover travel experiences from shared data in location-based social networks. To facilitate trip planning, the prior works in provide an interface in which a user could submit the query region and the total travel time. In contrast, we consider a scenario where users specify their preferences with keywords. For example, when planning a trip in Sydney, one would have "Opera House". As such, we extend the input of trip planning by exploring possible keywords issued by users. In this system, we develop a Keyword-aware Representative Travel Route (KRTR) framework to retrieve several recommended routes where keyword means the personalized requirements that users have for the trip. The route dataset could be built from the collection of low-sampling check-in records.

Proposed Algorithm:

Keyword-Aware Representative Travel Route Framework (KRTR):

Given a set of check-in points recorded as a series of travel routes, each check-in point represents a POI p and the user's checked-in time t. The check-in records were grouped by individual users and ordered by the creation time. Each user could have a list of travel routes {T}={T0,T1,…}, where T0=(P0,T0),(P1,T1),…..(Pi, Ti), T1=(Pi+1,Ti+1), (Pi+2, Ti+2),….. and Ti+1-Ti is greater than a route-split threshold. We set the route-split threshold to one day in this paper.

Implementation of Modules:

1. Geo specific Keywords.
2. Temporal Keywords.
3. Candidate Route Generation.
4. Travel Route Exploration

1. Geo-Specific Keywords: Some tags are specific to a location, which represents its spatial nature. To quantify the geo-specificity of a tag, an external database identifies geo-terms in the overall tag set and then the tag distribution on the map rates the identified geo-terms and shows some description about the specific POI.

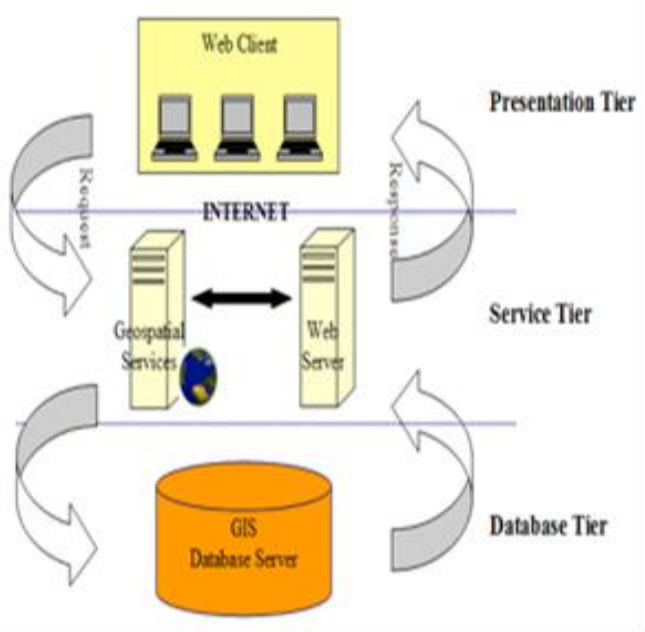
2. Temporal Keywords: Some tags are specific to a time interval, which represents its temporal nature. To quantify the temporal-specificity of a tag, time distribution on a tag rates the identified temporal-terms. Using the time distribution of tags, we can find tags associated with a specific time interval like 'sunset'. Tags independent of time like 'Taipei' are far more widely distributed in time than time-specific tags.

3. Candidate Route Generation: In this system we have introduced the methods for matching raw texts to POI features and mining preference patterns in existing travel routes. However, the route dataset sometimes may not include all the query criteria, and may have bad connections to the query keywords. Thus, we propose the Candidate Route Generation algorithm to combine different routes to increase the amount and diversity. The new candidate routes are constructed by combining the sub sequences of trajectories. Here we introduce the preprocessing method first. We then utilize the pre-processing results to accelerate the proposed route reconstruction algorithm. Last, we design a Depth-first search-based procedure to generate possible routes.

4. Travel Route Exploration: With the featured trajectory dataset, our final goal is to recommend a set of travel routes that connect to all or partial user-specific keywords. We first explain the matching function to process the user query. Next, we introduce the background of why we apply a skyline query, which is suitable for the travel route recommendation applications, and present the algorithm of the distance-based representative skyline search for the online recommendation system. Furthermore, an approximate algorithm is required to speed up the real time skyline query.

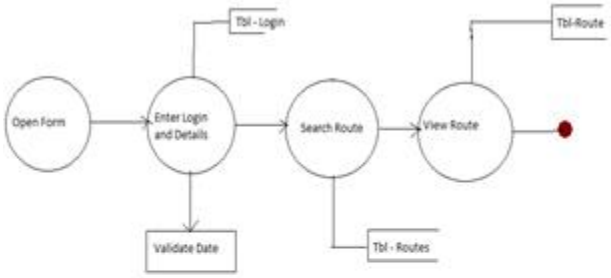
System Architectural Design

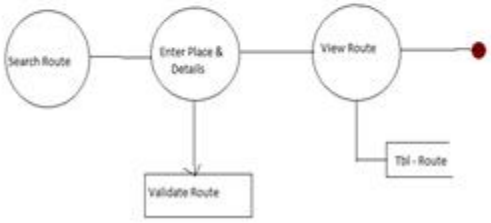
ARCHITECTURE DIAGRAM:



User Interface:

Data Flow Diagram:





III. RELATED WORK

Trip Planning: Trip planning has been intensively studied recently. The problem is to develop a collaborative recommendation model to recommend routes for a given user at a query region.

Tools and Technologies used

In this project I used: Asp.Net & SQL Management Server 2014 technologies.

Literature Survey:

Efficient Keyword-Aware Representative Travel Route Recommendation Spatio-Temporal and Events Based Analysis of Topic Popularity in Twitter:

In this paper we present a large-scale measurement study that attempts to describe and explain the processes that animate micro-blogging services.

- We study a large set of popular and non-popular topics derived from a comprehensive data set of tweets and user information taken from Twitter.
- A key strength of our study is that we observe both popular and not-so-popular topics.
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In our In our view, T-patterns are a basic building block for spatio-temporal data mining, around which more sophisticated analysis tools can be constructed, including:

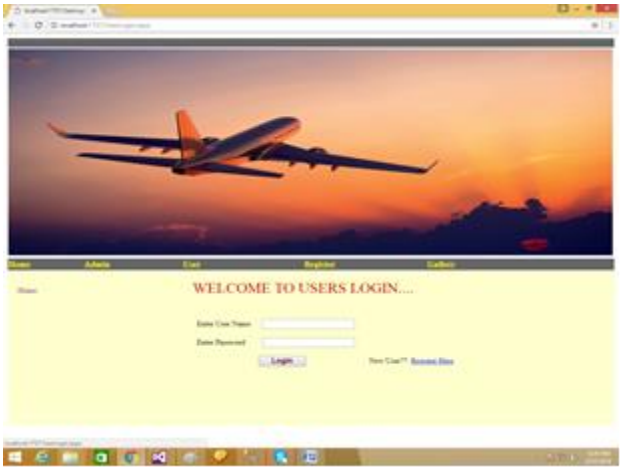
• integration with background geographic knowledge, such as road networks and other geographic information layers, at the level of trajectory pre-processing, POI discovery, T-patterns mining and post-processing.

• adequate visualization metaphors for T-patterns, as well as integrations into visual analytics methods and tools for exploratory trajectory pattern mining;

• adequate mechanisms for spatio-temporal querying and reasoning mechanisms on both input trajectories and extracted T-patterns, including refinements of interesting T-patterns.

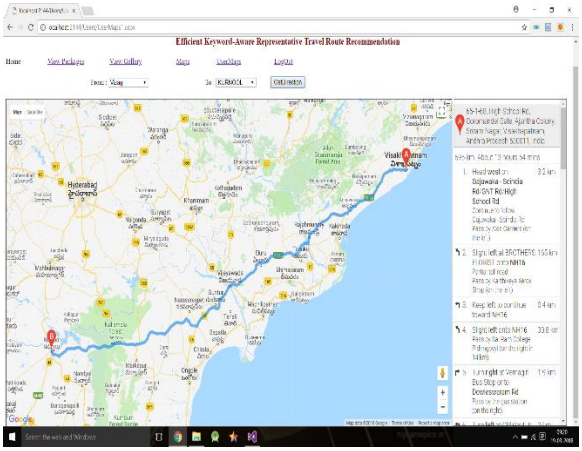
IV. RESULTS

User Login:



Add Trips:

View Routes:



V. FUTURE SCOPE

In this system we used a novel keyword extraction module to identify the semantic meaning and match the measurement of routes, and have designed a route reconstruction algorithm to aggregate route segments into travel routes in accordance with query range and time period. We leverage score functions for the three aforementioned features and adapt the representative Skyline search instead of the traditional top-k recommendation system.

VI. CONCLUSION

In this project we analyzed the travel route recommendation problem. We have developed a KRTR framework to suggest travel routes with a specific range and set of user preference keywords. These travel routes are related to all or partial user preference keywords and recommended based on (i)Attractiveness of the POI's it passes (ii)visiting the POI's at their corresponding proper arrival times, and (iii)the routes generated by influential users.

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