

## FIND MY VENUE: Content & Review Based Location Recommendation System

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**Abstract**—Recommender system is a software application agent that presents the culls, interest and predilections of individual persons/users and makes recommendation accordingly. During the online search they provide more facile method for users to make decisions predicated on their recommendations. Collaborative filtering (CF) technique is utilized, which is predicated on past group community opinions for utilizer and item and correlates them to provide results to the utilizer queries. Here the LARS is a location cognizant recommender system to engender location recommendation by utilizing location predicated ratings within a single framework. The system suggests k items personalized for a querying utilizer u. For traditional system which could not fortify spatial properties of users, community opinion can be expressed through triple explicit ratings that are (utilizer, rating, item) which represents a utilizer providing numeric ratings for an item. LARS engenders recommendation through taxonomy of three types of location predicated ratings. Namely spatial ratings for non-spatial items, non-spatial ratings for spatial items, spatial ratings for spatial items. Through this LARS can apply with the Content & Review Predicated Location Recommendation System. Which gives a culled utilizer a group of venues or ads by giving thought to each personal interest and native predilection. This system deals with offline modeling and on-line recommendation. To get the instant results, a ascendable question process technique is developed by elongating each the edge rule with Threshold Algorithm.

**Index Terms**— Aspect identification, Aspect Ranking, Consumer review, Product aspects, Sentiment classification.

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### 1 INTRODUCTION

Recommender systems a personalized information filtering technology used to either predict whether a particular user will like a particular item (prediction problem) or to identify a set of N items that will be of interest to a certain user. Recommender systems form or work from a specific type of information filtering system technique that attempts to recommend information tems(movies, program/show/episode, video on demand, music, books, news, images, web pages, scientific literature etc.) or social elements (e.g. people, events or groups) that are likely to be of interest to the user.

Typically, a recommender system compares a user profile to some reference characteristics, and seeks to predict the 'rating' or 'preference' that a user would give to an item they had not yet considered. These characteristics may be from the information item (the content-based approach) or the user's social environment (the collaborative filtering). Many of the recommender system using the technique is collaborative filtering(CF), which analyzes past community opinions to find correlations of similar users and items to suggest k personalized items to a querying user u.

There are many kind of Location-based services are available for recommendation. Current location-based services employ two main methods to provide interesting destinations to users. (1) KNN techniques and variants (e.g., aggregate KNN simply retrieve the k objects nearest to a user and are completely removed from any notion of user personalization. (2) Preference methods such as skylines (and spatial variants and location-based top-k methods require users to express explicit preference constraints.

### 2 BACKGROUND

The main aspects of recommender systems are the retrieval and the rating prediction perspectives. Systems will reduce the search costs by accurately predicting how much a user would like an item and providing \correct" recommendation proposals by recommending the items with the highest ratings. There are three approach of designing the recommendation system namely collaborative filtering, content-based filtering, Hybrid Recommender Systems.

The technique used by many of the recommendation systems is collaborative filtering (CF), CF methods produce user specific recommendations of items based on patterns of ratings or usage (e.g. purchases) without need for exogenous information about either items or users.

This approach analyzes relationships between users and interdependencies among products to identify new user-item associations. In order to establish recommendations, CF systems need to relate two fundamentally different entities: items and users. Here the community opinions are expressed through explicit ratings represented by the triple (*user, rating, item*) that represents a *user* providing a *rating* for an *item*. For example, location-based social networks (e.g., Foursquare and Face book Places) allow users to "check-in" at spatial destinations (e.g., restaurants) and rate their visit, So that which are capable of associating both user and item locations with ratings.

### **3 LITERATURE SURVEY**

Early work in location recommendation system was primarily focused on finding location without considering spatial properties of users. Moon-Hee Park [2] proposes a Location-Based Recommendation System Using Bayesian User's Preference Model in Mobile Devices. A map-based personalized recommendation system to be generated and the preference will be molded by Bayesian Networks (BN). Here the system collects context information, location, time, weather user request from the mobile device infer the most preferred item to provide an appropriate service by displaying onto the minimap.

BN-Based system consists of 3 parts that is Context log collection, Recommendation Module, System mapping Module.

The user profiles and context information's are obtained by mobile devices. Here EM (Expectation Maximization) algorithm is used. Which can be used to calculate the preference of the item, and then the high value of item are displayed on the map of the mobile application.

Empirical Analysis of Predictive Algorithms for Collaborative Filtering is designed by John S. Breese David Heckerman Carl Kadie [3]. They used to predict a new item from a database about user preference with the technique of correlation coefficient, vector similarity based calculations statistical Bayesian methods. Two basic classes of evaluation metrics are used here, the first characterize the accuracy and the second characterize the utility of a ranked list of suggested items. To predict the utility of particular item to a particular user considering two kind of collaborative filtering algorithms. Namely Memory-based Algorithm and Model based Algorithm. Collaborative filtering using two kind of voting's, Explicit and implicit voting's considering here. Explicit voting means a expressing his or her preference for an item, and implicit votes can be refer to interpreting user behavior. The method should be depends on the nature of the dataset, nature of the application and the availability of votes.

Greg Linden [4] provide the Amazon.com Recommendations Item-to-Item Collaborative Filtering. It is a marketing tool in many web based process. Here Amazon using item-to-item collaborative filtering to generate online recommendation and help to the immediate changes of user's data. By using this item-to-item based collaborative filtering method Amazon can scales massive data set and able to produce high quality recommendations in real-time. Here the filtering method matches each of the user's purchased items and rated items to similar items, then combines those similar once and form a recommendation list. And generate a similar-items table to determine most similar one. Here the recommendation problem can be solved by traditional collaborative filtering, Cluster models, Search-based methods. Through this three methods this system can able to respond immediately to changes in a users data with their requirements and less time is needed for the processing to generate an online recommendations for all user's.

A Location Recommendation in Location-based Social Networks using User Check-in Data proposed by Hao Wang, [5] in location-based social networks user check in data is considering here. The system can be indicated as LBSNs. To solve the social based recommendation problem which take past user behavior and

information. A friendship based algorithm is used which considering four factors that are past user behavior, the location of new venue, the relationship among users. For this algorithm people listen to their friends and follow their friend's recommendation for getting suitable results.

An Outdoor Recommendation System based on User Location History [6] proposes a real-world recommendation system with user location history. Mainly focus to recommends shops to users based on their individual preference and needs. By using GPS user past location history to be analyzing. For this a custom estimation algorithm is used here. Which figure out each user's frequently visited shops. And the recommendation can be done by the item-based collaborative filtering. Content-based algorithm and collaborative filtering is used here. a raw location data from GPS is reconstructed into a list of each users frequently visited shops. Three sub-phases monitoring user location, detecting visits to shops. Finding frequently visited shops. Bayesian estimation also used for the probability. The result shows that the system provide a shop recommendation system for real-world shopping based on user location history more efficiently.

Collaborative Location and Activity Recommendations with GPS History Data [7] which states that the system proposed to exploit other information, including the location features and the activity-activity correlations from various information sources, to enhance the performance. We provided a collaborative filtering approach based on collective matrix factorization to take these information sources as inputs and train a location and activity recommender. Apply a collective matrix factorization method to mine interesting locations and activities, and use them to recommend to the users where they can visit if they want to perform some specific activities and what they can do if they visit some specific places. And empirically evaluated our system using a large GPS dataset.

A location recommender system for tourism that provides recommendation to users. For recommendation process a user profile and their current location is considering.[8] A Location aware recommendation system and Distance based re-ranking. Approaches are used here. In Location recommendation system a contextual pre-filter is used. This is used to reduce the number of items from recommendation to the user's location. At last it generates a top-N list of item potentially interesting for the users. In the case of Distance based re-ranking the contextual post filter re-ranks is used which gives the previous top N-list according to the physical distance from the user to each item. Here system fixes a circular area of radius centered on the user's current location. As a result users to allow on the move tourists to download on-demand recommendation on their mobile devices according to their current location and personal taste.

Mohamed F. Mokbel [9] proposes a personalization, socialization, and recommendations system. Personalization deals with the nearest-neighbor queries are widely used in location-based services to locate the closest items. In socialization location information are used in existing social networks. Recommendation indicates that they ignore the location properties of both their users and recommended items. For the querying K Nearest Neighbor Queries and K Best Neighbor Queries used here. Which always focus on the nearest neighboring query of the users

**4 OBSERVATION AND ANALYSIS**

TABLE I show several techniques for location recommendation system

Filtering	Memory-based & model-based filtering	User-based & Friend based filtering	Item-based & Content based filtering	Collaborative filtering
Methods	Bayesian network method	Social networks & GPS	Location acquisition & Location discovery	Collective matrix factorization & Sparse location activity matrix
Algorithm	EM algorithm	Friendship based bookmark colouring & location friendship bookmark	Custom estimation	Classic k-means & Density based OPTICS
Prediction	Context information collected by each devices	User-check in data based	User movement basis	Location-activity matrix based

The above table show how the location recommendation systems are recommended in various papers. For recommendation, first it identifies the spatial properties of the user with their ratings to the particular items and based on this which recommends the location.

**5 PROBLEM STATEMENTS**

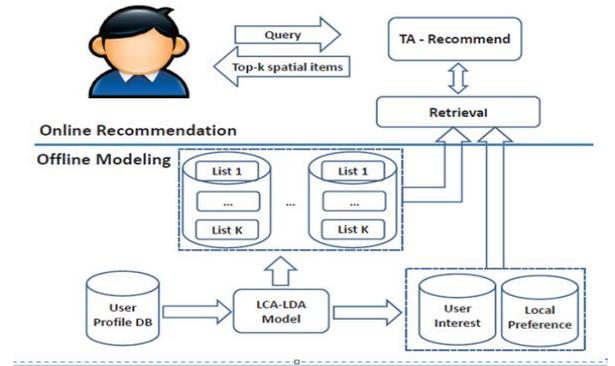
For the existing location recommendation system which are recommended only on the basis of location based ratings they do not consider any kind of travel locality so that the system take more time to recommend a particular items that make user to alive on particular site in a long period as a result this causes hanging of sites for various consumers.

For a new user visiting an unknown city while using this location recommendation system they may difficult to find their locations. They need to choose their location based on the ratings only. Here I propose a content based system. That to be useful for the new user with new city problem. Which generate content information to them. So they can choose their appropriate location with the help of this content information about the locations.

**6 PROPOSED WORK**

This paper is organized as follows: In Section A, the architecture is illustrated. In Section B, the module description.

**A. System Architecture**



**B. Module Description**

This project consists of mainly four modules. They are the Offline modeling, LCA-LDA model, online recommendation, and recommended result. In the offline modeling is intended to be told the interest of every individual user and also the native preference of every individual town by capturing item co-occurrence patterns and exploiting item contents. This consists of two sub modules Admin and user module. The role of admin is to collect the data set from JUSTDIAL, OLX with user rating and contents and feed it in to the database. Every individual user will be allocated with a profile, were each and every user is allowed to search with entire data bases for their interest.

In LCA – LDA model two real settings to evaluate the recommendation effectiveness that is Querying cities are new cities to querying users and querying cities are home cities to querying users. This module also deals with User Interest Local Preference process.

User interest means Shopaholics would pay additional attention to searching malls whereas family people or bachelors who relocated from native to other would search for new houses for rent or sale. The local preference deals with when users visit a city, especially a city that is new to them, they are more likely to see local attractions and attend events that are popular in the city.

For online recommendation it takes a querying user at the side of a querying town as input, and mechanically combines the learnt interest of the querying user and also the native preference of the querying town to supply the top-k recommendations.

The recommendation results show the prevalence of Content & Review Based Location Recommendation System in recommending spatial things for users, particularly once traveling to new cities, in terms of each effectiveness and potency.

## 7 RESULT

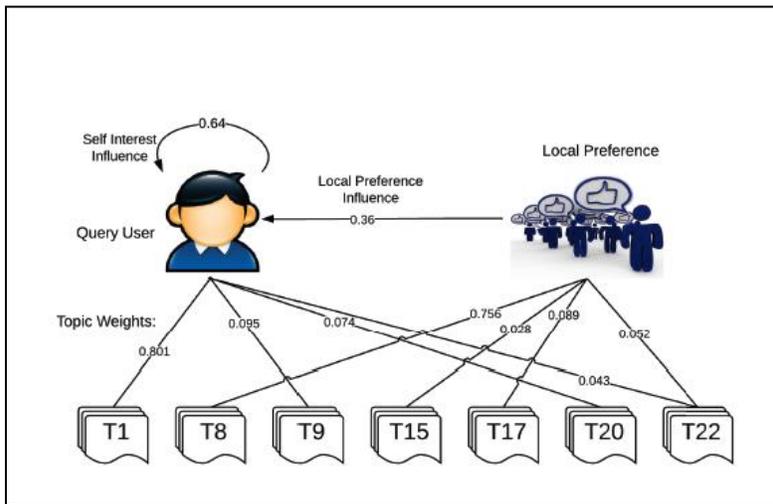


FIGURE 2 OUTPUT

## CONCLUSION AND FUTURE WORK

This paper presented an overview of the location recommendation system. The recommendation system makes to support spatial properties of users to find their locations in an easy manner. Then developed a threshold based algorithm to speed up the online recommendation to the users. The locations aspects are finally listed according to their ratings.

Future work for this project is using a content based recommendation. In this, the content can be represented in a separated manner where each new user can query their location..

## ACKNOWLEDGEMENT

An endeavor over a long period may be successful only with advice and guidance of many well wishers. We take this opportunity to express our gratitude to all who encouraged us to complete this work. We would like to express our deep sense of gratitude to our respected Principal for his inspiration and for creating an atmosphere in the college to do the work. We would also like to thank Head of the department, Computer Science and Engineering.

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