

## Travel Route Recommendation Using K-NN Algorithm

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### Abstract

While searching a visit place, users invariably have specific preferences concerning their visits rather than limiting users to restricted question choices like locations, activities, or time periods; proposed system have a tendency regarding contemplate take into account discretionary text descriptions as keywords about personalized needs.

A various and representative set of counseled travel routes is required. Previous works have careful on mining and ranking existing routes from arrival information to satisfy the necessity for automatic trip organization; proposed system have a tendency to claim that a lot of options of places of interest (POIs) ought to be extracted.

In this paper, proposed framework tend to propose partner conservative keyword-mindful representative travel route system utilizing K-NN Algorithm that utilizes data extraction from clients' verifiable quality records and social collaborations.

Explicitly, proposed framework venture work have planned a watchword extraction module to group the POI-related labels, for successful coordinating with inquiry keywords. The proposed framework venture calculation have any structured course remaking recipe to develop course hopefuls that satisfy the necessities. To evaluate the effectiveness and potency of the planned algorithms, proposed system project work had conducted in depth experiments on real location-based social network datasets, and also the experiment results show that proposed system strategies do so demonstrate sensible performance compared to progressive works.

**Keywords:** Location-based social network, text mining, travel route recommendation using K-NN algorithm

### INTRODUCTION

Location-based social network (LBSN) services enable users to perform arrival and share their arrival knowledge with their friends. From all above, once a user is traveling, the arrival knowledge area unit in reality a travel route with some photos and tag data will be display. As a result, an enormous range of routes area unit generated, that play an important role in several wellestablished analysis areas. One like quality prediction, urban designing and traffic management. During this paper, proposed system project work tends to concentrate on trip designing and will discover travel experiences to facilitate trip designing. The previous works in [1], [2], [3], [4],[5] offer

aninterface during which a user may submit the question region and also the total period of time. In distinction, proposed system works tend to think about a situation wherever users specify their preferences with keywords. For instance, once a designing visit in state capital,one would have "Opera House", such as, proposed system project work tends to extend the input of trip designing by exploring potential keywords issued by users.

### LITERATURE REVIEW

#### Smart Soul Guide

A model for guiding soul with image matching algorithmic program

J. Sindhu Sri; N. V. Sri Sravani; P. Suresh Kumar

In today's life, move has become a passion. However move isn't very easy unless proposed system all know the place and its details. Once proposed system visit a replacement place so as to understand the main points of that place, proposed system has a tendency to typically take facilitate of native individuals occasionally there would possibly arise a state of affairs wherever proposed system have a tendency not to communicate with them. In different ways in which proposed system have a tendency to browse regarding the place this approach may additionally result in confusion and doesn't solve the matter. Once a soul takes a snap offers and provides and offers its input to the applying then it compares the input with the present pictures in information and it selects the foremost correct image and thereby gives the knowledge associated with the image. Thus, the soul feels comfy in knowing regarding the place.

### **KAMO**

Mobile guide for town soul

J. Liikka; J. Lahti; P. Alahuhta; M. Rosenberg

Author gift a mobile public transportation guide application known as KAMO that offers journey designing and stop-specific timetable info for public transportation passengers. Passengers may get their fare exploitation the application; travel news regarding current issues or changes to the general public transport also are on the market via the KAMO application. Author describe the KAMO service design, compare it with connected work, and illustrate a typical application state of affairs from the user's purpose of read. Our work takes development in combining journey designing and therefore the period of time positioning-based observance of the buses within the same application and advancing the application's usability of the

by utilizing the close to Field Communication (NFC) technology. Author Summaries initial user trial results that demonstrate that NFC will be used with public transportation services. Supported the user trial results and proposed system workson own expertise, Author gift the longer term development directions for KAMO.

### **Route Alternative Decision-Marking Analysis Supported Congestion Charging**

Zhenggang Li; Jian Wang; Qiu Yan; Ling Chou dynasty

The congestion charging would become the necessary issue of travelers' route alternative once cities do the congestion charging. This text issues the matter of route optimization alternative supported congestion charging of the route. Consistent with that, use variable weigh analytic hierarchy method (VWAHP) to investigate the route alternative decision-marking. Results show that the approach of research couldn't solely profit exploitation cheap charging live, however conjointly guide travelers' travel.

### **A Model of Risk-Sensitive Route-Choice Behavior and therefore the Potential advantage of Route steerage**

J. Illenberger; G. Flotterod; K. Nagel

In this paper, author gifts a simulation-based investigation of the potential advantage of route-guidance info within the context of risk-sensitive travelers. Author discovered an easy two-route state of affairs wherever travelers area unit repeatedly baby-faced with risky route-choice selections. The chance averseness of the travelers is implicitly controlled through a generic utility operate. Author vary each the travelers' sensitivity toward risk and therefore the instrumentation fraction with route-guidance devices and show that the advantages of radio-controlled travelers increase with their sensitivity toward risk.

**Urbis**

A touristic virtual guide. Ivaldir First State Farias; admiral Leitão; Marcelo M. Teixeira, currently proposed system have a tendency to understand that generally tourists pay tons of your time designing their visits as a result of they have to form the foremost of each moment. During this sense, technology has been an excellent ally, particularly to form this designing yet on adapt within the event of some unforeseen throughout the journey. Within the last decade, associate increasing trend was ascertained, the soul or holidaymaker is often connected to mobile devices. The emergence of various kinds of mobile devices was conferred as a chance to considerably improve the holidaymaker life in relevance the design of the trip. During this context, this analysis aims to spot the most computing must support the advance of holidaymaker purpose of promotion for the soul, by the means that of a mobile application proposal. To accomplish this, proposed system got adopted a literature review because the analysis methodology. The most results of this paper are that the proposal of the Urbis paradigm, associate application that aims to assist tourists to understand higher the cities they are visiting, even within the absence of native info or a specialized guide.

**EXISTING SYSTEM**

When coming up with a visit place, users continuously have specific preferences relating to their journeys. Rather than proscribing users to restricted question choices like locations, activities, or time periods, proposed system have a tendency to think {about contemplate take into account} discretionary text descriptions as keywords about customized necessities. Moreover, a various and representative set of suggested travel routes is required. Previous works have elaborate on mining and ranking existing routes from arrival information.

**Disadvantages**

- Plan in step with travel agencies, that isn't match to holidaymaker.
- Sometime packages is just too abundant pricey that isn't cheap by holidaymaker.
- Sometime travel agencies promising sensible quality service to holiday maker, however that not happen really.

**Advantages**

- Custom search.
- User outlined schedule designing.
- Get smart steering.
- Recommend user in step with user place of interest.

**PROPOSED SYSTEM**

Proposed system have propose associate degree economical Keyword-aware representative travel route framework using K-NN algorithm that uses information extraction from users' historical quality records and social interactions.

Explicitly, proposed system project work had designed a keyword extraction module to classify the POI-related tags, for effective matching with question keywords.

To provide appropriate question results, proposed system project work tends to explore representative skyline ideas that is the skyline routes that best describe the trade-offs among totally different options.

The experiment results show that proposed system algorithm ways to do so demonstrate smart performance compared to progressive works.

**TRAVEL ROUTES 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 realtime skyline query. The Travel Route Exploration procedure is presented as Algorithm 2.

**Algorithm 2.** Travel Routes Exploration

**Input:** User  $u$ , query range  $Q$ , a set of keywords  $K$ ;

**Output:** Keyword-aware travel routes with diversity in goodness domains  $KRT$ .

```

1: Initialize priority queue  $CR$ ,  $KRT$ ;
2: Scan the database once to find all candidate routes covered by region  $Q$ ;
/* Fetch POI scores and check keyword matching
3: foreach route  $r$  found do
4:  $r.kmatch = 0$ ;
5: foreach POI  $p \in r$  do
6:  $r.kmatch = r.kmatch + KM(p, k)$ ;
7:
if  $r.kmatch$  ————— then
en
8: Push  $r$  into  $CR$ ; /* Initialize an arbitrary skyline route
9:  $CR.r0$  route  $r$  with the largest value of an arbitrary dimension;
/* Greedy algorithm for representative skyline,
10:  $KRT = \text{I-greedy}(CR)$ ;
11: return  $KRT$ .
```

**Query Keyword Matching**

To process the user queries, we first describe how to match query keywords with the characteristic scores assigned to

**Subset of Candidate Routes**

**Tid POI sequence**

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)  
T3 p7 (18:30)! p8 (19:30)! p9 (20:00)

T4 p1 (10:00)! p3 (12:30)! p4 (17:00)! p5 (19:00)! p6 (19:30)

T5 p1 (10:00)! p3 (12:00)! p5 (19:00)! p6 (19:30)

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

tags. The user-specific keywords in the query reflect the individual's preferences regarding the trip, i.e., the user tends to choose a travel route that contains POIs closely related to the semantic meanings. In the offline model, we have built a tag corpus for POIs with characteristic scores and metadata. Also, relevant tags for each POI are weighted in the TFIDF manner.

**KNN Algorithm for Finding Nearest Neighbor**

In our proposed system, KNN algorithm is used for finding nearest neighbor using distance metrics. Like it is used in the finding the nearest places to the recommended places so that user can easily chose the nearest places to visit and also using this algorithm no. of nearest places are recommended to the users then they can choose the place which are near to visiting places as well as that places are in users budgets. So, our system asks users the distance or area under the places for visiting. Like if user wants to visit places in range of 76 Km in the any particular area then system provides visiting places list in that area as well as nearest places in budget. KNN algorithm is used in finding the nearest neighbour using distance relationship formula. In this, it requires no. of calculation in finding the places in particular range. Let's see the KNN algorithm working. Consider that we have the nearest number as  $K$  and we want to find the minimum distance between two points so, our problem is solve using KNN algorithm. This algorithm uses Euclidean distance to find the nearest neighbour using the following formula.

Euclidean Distance( $x, xi$ ) =  $\sqrt{\sum (x_j - x_{ij})^2}$



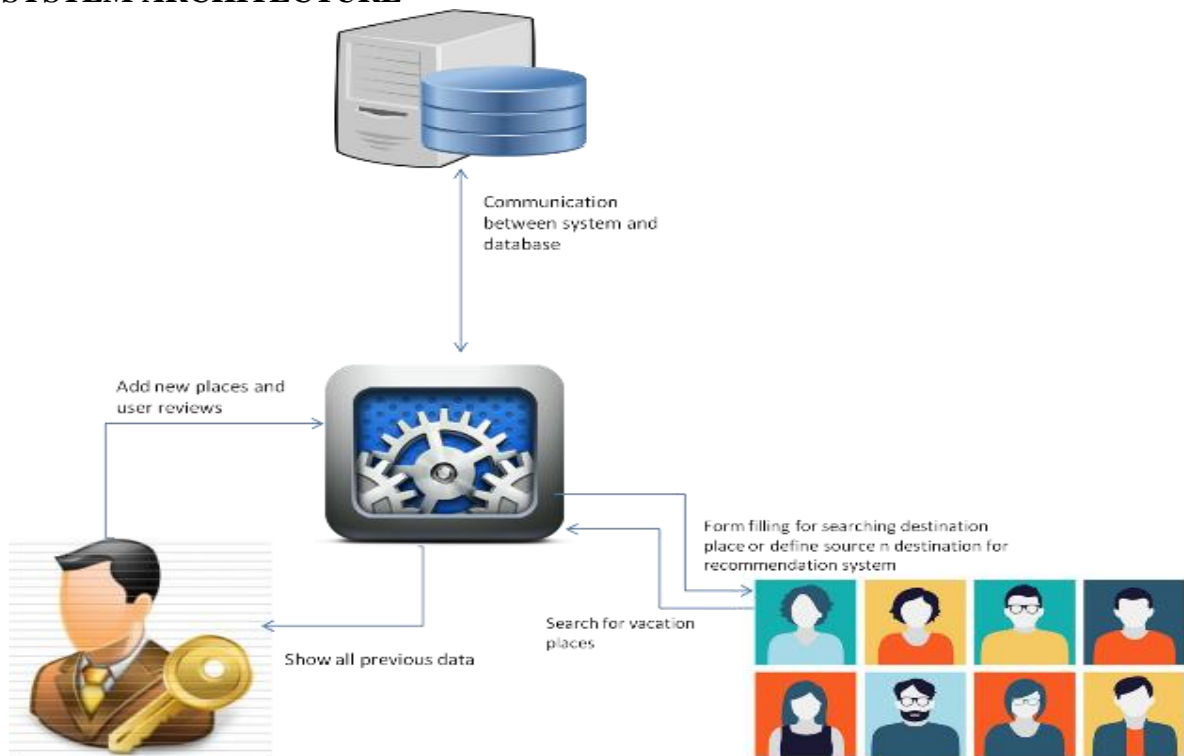
### Algorithmic steps for the KNN algorithm

Step 1: find parameter  $K$  = no. of nearest neighbours.  
Step 2: calculate the distance between the given query and datasets sample.  
Step 3: sort the distance according to minimum to maximum.  
Step 4: determine the nearest neighbours according to the  $k$ 's minimum distance.

Step 5: gather the category of that nearest neighbors.

Step 6: use similar category of nearest neighbours for as prediction value of query. so using above algorithm we can easily find the nearest hotels and recommend the users according to his requirements given and he/she easily get the all the recommendation of hotels which are near to the places recommended by the k-means algorithm.

### SYSTEM ARCHITECTURE



**Figure 1:** System Architecture.

### CONCLUSION AND FUTURE WORK

These travel routes square measure associated with all or partial user preference keywords, and square measure counseled primarily based on

1. The attractiveness of the POIs it passes,
2. Visiting the POIs at their corresponding correct arrival times,
3. The routes generated by authoritative users.

The propose framework a totally exceptional watchword extraction module to recognize the etymology which means

and match the proportion of courses, and have planned a course reproduction algorithmic program to blend course sections into movement courses as per question shift and key measure.

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