ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijircce.com

Vol. 7, Issue 5, May 2019

Smart Chatbot for Personalized Travel Recommendation

Ankita Sabat, Janavi Chaudhari, Shreyas Mehendale, Siddhant Kosabe, S. G. Dhengre

B. E Students, Department of Computer Engineering, AISSMS College of Engineering, Shivajinagar, Pune, India

Professor, Department of Computer Engineering, AISSMS College of Engineering, Shivajinagar, Pune, India

ABSTRACT: Propose a Chabot to places recommendation that can interact with user in their natural language are being researched fast at present. chatbot is a computer application that interacts with users using natural language in a similar way to imitate a human travel agent. a successful implementation of a chatbot system can analyze user preferences and predict collective intelligence. In most cases, it can provide better user-centric recommendations. hence, the chatbot is becoming an integral part of the future consumer services. This paper is an implementation of an intelligent chatbot system in travel domain which would gather user preferences and model collective user knowledge base and with recommend collaborative filtering for places recommendation. User can view ATM,Hotel on map for entered location. For booking car ola cab link will get. Train booking links are available. User can view route map for source and destination.User book the hotel from available sites.

KEYWORDS: API, Chatbot, Collaborative Filtering, Levenshtein distance Algorithm, NLP

I.INTRODUCTION

I.I. Background:

To design and implement natural and intuitive interaction modalities is a primary research field in the Human-Computer Interaction Domain. Systems that can interact with user in their natural language are being researched vigorously at present. Voice enabled chatbot are becoming more and more popular with the advent of devices and technologies like Google Home, Amazon Echo, NLP, ML, AI etc. Chatbot is an artificial service that can start, continue and handle complex interactions with human partners in their natural language. Voice enabled chatbot, today, are considered as classical yet innovative interfaces for natural language interaction with machines.The need for intelligent agents is growing with the widespread use of personal machines and the desire of theirmakers to provide natural language interfaces. The proposed system will change how to recommend travel itinerary by incorporating personal preferences, remembering its users' intentions and travel history, and generating responses using collaborative filtering.

I.II.MOTIVATION:-

The traditional travel agents present many issues that can be conquered by the Intelligent one. The traditional ones are subject to their availability, the Intelligent Agent is available throughout. Moreover, no agent in this world can "know it all". The data present with an actual travel agent can be limited or outdated, this makes it not so efficient. In addition to that, when a customer calls a travel agent after some months, most of them do not remember the history and the interests of the caller.

II. REVIEW OF LITERATURE

1.Shuhui Jiang, et al concluded " Personalized Travel Sequence Recommendation on Multi- Source Big Social Media "in which By understanding package model from huge multi-source social media and community shared pictures, paper has presented a personalized travel sequence

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Recommendation system. This system automatically mine users interest and routes travel topical preferences such as the topical interest, cost, time and season. It recommends not only POIs but also sequence of travel. This system recommended not only POIs but also travel sequence, considering bot user's travel preferences at the same time[1].

2.Junge Shen, et al concluded " Landmark Reranking for Smart Travel Guide Systems by Combining and Analyzing Diverse Media "in which presented the system which worked on a novel query-dependent landmark ranking system based on heterogeneous travel information fusion to facilitate a smart travel guide. With the help of text matching, this system gets the preliminary ranking list of places. proposed system can effectively combine the heterogeneous information from multimodality media into a landmark Reranking list via a user's query This system increases the fulfillment and reduces the information load. Drawback of this system is, it has lesser efficiency[2].

3.Shuhui Jiang, et al concluded " Author Topic Model-Based Collaborative Filtering for Personalized POI Recommendations "in which For personalized POI recommendations method author has proposed collaborative filtering to assist broad POIs recommendation for users. The disadvantage of this system is, dataset is too small and only text information of geo-tagged is considered. approach, user preference topics, such as cultural, cityscape, or landmark, are extracted from the geo-tag constrained textual description of photos via the author topic model instead of only from the geo-tags approach, user preference topics, such as cultural, cityscape, or landmark, are extracted from the geo-tag constrained textual description of photos via the author topic model instead of only from the geo-tags[3]

4. Huiji Gao, et al concluded " Content-Aware Point of Interest Recommendation on Location- Based Social Networks, "in which According to properties of POIs, user interests, and indications, author has presented system content information on LBSNs. It demonstrate its power to enhance POI recommendation performance on LBSNs. Drawback of it, it contains small dataset. studied. The various types of content information available on LBSNs could be related to different aspects of a user's check-in action, providing a unique opportunity for POI recommendation. In this work, study the content information on LBSNs w.r.t. POI properties, user interests, and sentiment indications[4].

5 .Quan Yuan, et al concluded " Graph-based Point-of-interest Recommendation with Geographical and Temporal Influences in Proceedings "in which To focus on recommendation of a listed POIs for users to visit at a given time, author has presented the system which worked on the difficulty of time-based POI recommendation, which can also use both geographical and temporal influences in time-aware POI recommendation. The disadvantage is it takes more time[5].

6.Jing Li, et al concluded " GPS Estimation for Places of Interest From Social User's Uploaded Photos "in which With approach of unsupervised image GPS location estimation and also with the help of hierarchical global feature clustering and local feature refinement author has presented this system. It includes two parts: offline and online system. The drawback is data security is less in online system[6].
7.Yang Ji, et al concluded "Mining User Daily Behavior Based on Location History "in which Based on a users location history, author has presented the time-clustering based behavior analyses (TCBA) to mine user daily behavior. aim to mine user daily behavior based on a user's location history. As This system know, there are regularities in people's daily activities, especially people's daily travel experience. Such regularity is significant to service providers, by recommending potential friends or other information with high relevance to users[7].

8."Travel Recommendation by Mining Geo-Tagged Photos Using Internal Search Path Algorithm "in which Internal Search Path Discovering Algorithm Result: Based on the information discovered from geo-tagged photos, we provide a better trip plan for the tourist, Advantages: It Automatic travel route plan by mining the geo-tagged photos. Disadvantages: Not consider users POI[9].

9.Shahriar Badsha, Xun Yi concluded "Privacy Preserving Location-Aware Personalized Web Service Recommendations" in which develop a privacy-preserving protocol to predict missing QoS values and thereby providing Web Service recommendations based on past QoS Experiences and locations of users. effective approaches

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to recommend the right Web Services to users can help both the service providers and service users to serve their purpose. Result: Location-Aware Personalized Web Service Recommendations [10].
10.Yaqian Duan, Xinze Wang, Zi Huang concluded "A Dynamic Topic Model and Matrix Factorization based Travel Recommendation Method Exploiting Ubiquitous Data"I n which
A DTM is used to obtain the temporally fine-grained topic distributions (i.e., implicit topic information) of users and locations. In addition, a large amount of explicit information is extracted from the metadata and visual contents of CCGPs, Check-ins, and POI categories datasets. Advantages are similarity recommendation .Disadvantages are Not work on Image similarity[11].

III. PROPOSED WORK

PROPOSED SYSTEM ARCHITECTURE

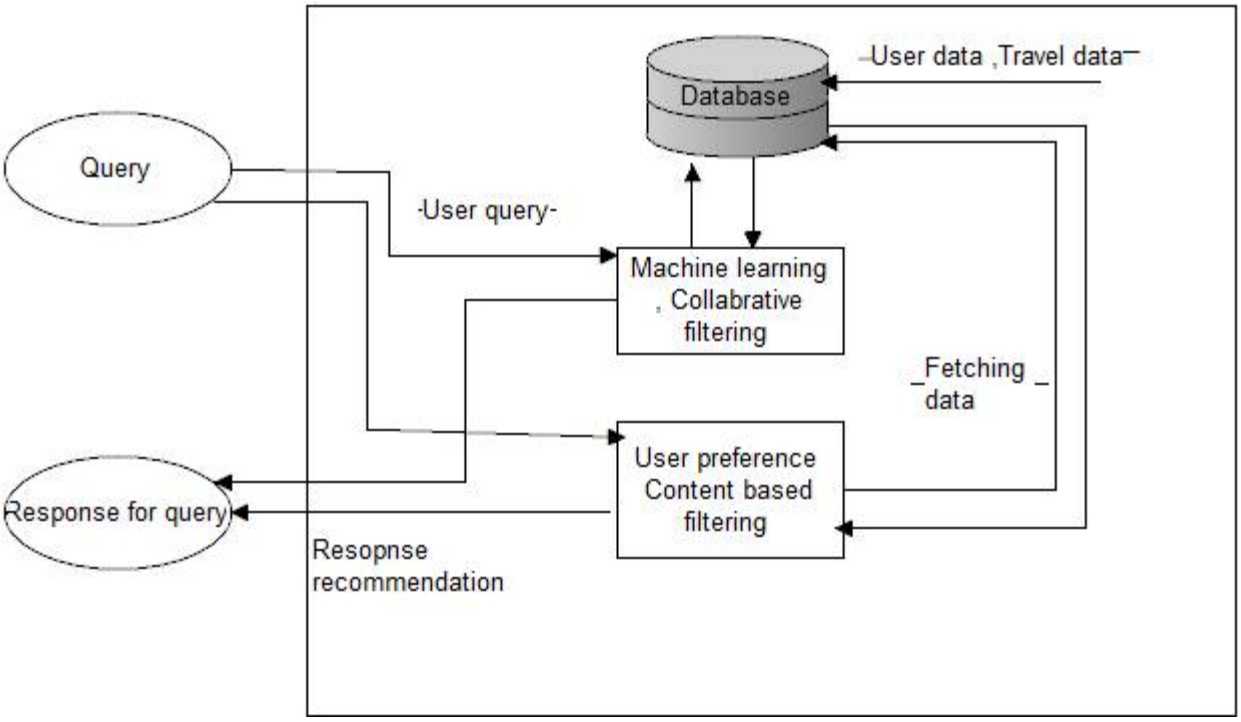

Fig.01: System architecture

SYSTEM OVERVIEW-

The intelligent travel Chabot is designed to first take all the necessary inputs from the user to predict the relevant and accurate answer to the query of the user. The system first identifies the missing information and probe the user further to collect this missing information to make the original query which needs to be answered. The original query is answered by taking into consideration the user preferences, the past travel history . If information is fulfilled the query is sent as request to the request handler to analyze what the user is saying and activate the proper algorithm to find the appropriate response.

- User ask the question .
- System perform processing for query
- User get recommendation for travelling.
- User can view hotel ,atm on map
- User book the car from ola site.

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- View hotel website link on map.
- View source to destination map.
- Get places according to user entered interest of places.
- Book hotel for available sites.

Advantages-
1. User Friendly.
2. Access to authorized personnel only.
3. Memory space utilized efficiently.
4. Multiple algorithms working together to produce best results.

IV. ALGORITHM

1. **Levenshtein distance** algorithm-

This algorithm calculates the least number of edit operations that are necessary to modify one string to obtain another string. The most common way of calculating this is by the dynamic programming approach. In proposed system we using this to match user entered question for city with available cities in database.
Input. : Get user entered question.
Working:
Step1. Select user entered query for city name
Step 2:. Select all data from available database city name.
Step3. Pass the distance to match query question with available data.
System will check question with according to entered query with available data word
by word with available answer.
Step4:One by one query will gets by visiting each data to specified distance.
Output: Get matched similar data of city.

2.NLP(Natural Language Processing)-Using NLP, statistics, or machine learning methods to extract, identify, or otherwise characterize the sentiment content of a text unit.

1. Stop word Removal-This technique remove stop words like is, are, they, but etc.
2. Tokenization-This technique remove Special character and images.
3. Stemming – remove suffix and prefix and Find Original word for e.g.-
   1. Locations – Location

3. Collaborative Filtering:
Collaborative filtering is a method of making automatic predictions (filtering) about the interests of a user by collecting preferences or taste information from many users (collaborating). The underlying assumption of the collaborative filtering approach is that if a person *A* has the same opinion as a person *B* on an issue, A is more likely to have B's opinion on a different issue than that of a randomly chosen person. Proposed chatbot recommend the places according to preference of each user.Here user interest is matched with another similar user interest and recommend the places that are booked by another user.

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Vol. 7, Issue 5, May 2019

V.RESULT

1. Searching city in each season:

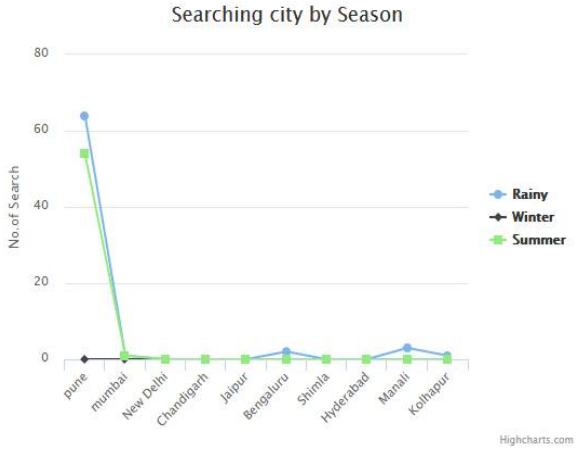

Fig 02] Graph shows no. of searches of each city in particular season.

Explanation: System works on travel recommendation. For each season no. of city searched. Graph shows each season and their searched cities. So new user can get idea to visit which city in which season will prefer to travel.

VI. CONCLUSION

The proposed system developed the chatbot that will guide to user.Proposed system can become a hub of all travel related user queries.With this implementation Proposed system show how a collaborative recommendation system can be applied to service in the travel booking domain to produce more personalized and accurate search predictions for a user while stimulating an intelligentconversation in natural language. Map, cab booking, train ,hotel,booking facilities are available.

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ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

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Vol. 7, Issue 5, May 2019

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