TravelBot: Utilizing social media dialogue for Travel Recommendation

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Abstract : Now a day's use of social media in public transport is rapidly increasing. Due to increasing Internet usage, many businesses now use online platforms to handle customer inquiries, and many of them turn to chatbots for improving their customer service. Travelbot is nothing but a chatbot; 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 using Social Media. To develop a TravelBot, understanding of types of dialogues we can call it as a tweet between passengers and Travel Company is very important. TravelBot is using twitter data to recommend the travel related information to user. The travelbot use tweepy dataset and perform collaborative filtering on data, after that bot get all travel related data. All data which bot collected again perform filtration and get the exact result which user wants. The TravelBot is communicated using natural language like a travel agent, bot can greet, ask you questions and fulfill your requirement. TravelBot can give you suggestion regarding hotel booking.

IndexTerms **- TravelBot, Chatbot, AI, Twitter, (NLP) Natural language processing, collaborative filtering, Social Media.**

I. INTRODUCTION

A chatbot, also known as a conversational agent, is computer software capable of taking a natural language input and providing a conversational output in real time [1]. The human and chatbot communicate using GUI i.e. Graphical User Interface and which is based on HCI i.e. Human Computer Interaction principles. The idea of an automated computer program engaging in human interactions was first theorized by Alan Turing in 1950. Shortly after, automated computer programs, referred to as "bots", were created to motivate human conversation. Chatbots are typically used in dialog systems for various purposes including customer service, request routing, or for information gathering. While some chatbot applications use extensive word-classification processes, Natural Language processors, and sophisticated AI, others simply scan for general keywords and generate responses using common phrases obtained from an associated library or database. A study by Forrester (June 2017) predicts that 25% of today's jobs will most likely be impacted by AI technologies by 2019. Chatbots now exist in various messaging platforms, such as Facebook Messenger, Skype, and Kik, largely for customer service purposes.

II. NECESSITY

As an emerging trend most travel companies provide online services. The rapid growth of online travel information increases the challenges for tourists also increases. The tourist who has to choose from a large number of available travel packages for satisfying their needs. The travel companies have to understand tourist preferences to increase their profit. So what travel companies do, they use intelligent travel services. This has been driven, in part, by passenger desire to use social media as a channel for improved communication with transport providers; while transport operators have also recognized the value to be gained from insights about the passenger experience [2]. Conversations between passengers and operators are perhaps most frequently seen on Twitter, an online social media platform that allows users to share short messages (originally 140 characters, though raised in November 2017 to 280 characters) and engage in dialogue via responses, re-Tweets, and shared hashtags.

III. OBJECTIVE

A chatbot is a service that people interact with via a chat interface. You can ask questions by typing in the same way you would ask a person. The chatbot will usually respond in a conversational style, and it may carry out actions in response to your conversation (for example, order something for you) [3]. It answers your question, rather than directing you to a website. The TravelBot uses machine learning and artificial intelligence to provide the best response. We'll call these AI-powered TravelBots. It understands language, as well as commands. It has the ability to constantly learn from user interactions to become better at predicting their needs. The data that traditional travel agent has can be limited or outdated, this makes agents not so efficient. Chatbot can chat in a similar way a staff member would with a person. Chatbot can store and categorize the information it receives from each interaction [4]. It can assess information to identify which information is of no value and which isn't. In addition to that, when a customer calls a travel agent or a travel company after some months, most of them forgot the history and the interests of the caller. Chatbot knows where to store that information, so it can access it again in the future.

IV. LITERATURE SURVEY

Qi Liu et at "A Cocktail Approach for Travel Package Recommendation" (Feb 2014) conclude that Cocktail Model is the combination of all Models. As compare to all other model the cocktail model can give best result. The cocktail model can work on the user profiles and travel logs [5]. The TAST Model is used for detecting tourist interest and topics the output of this model can give input to the Cocktail Model. The Collaborative filtering can be performing on those packages and remove unwanted packages.

Shuhui Jiang, et al concluded" Personalized Travel Sequence Recommendation on Multi- Source Big Social Media"(Mar 2016) in which by understanding package model from huge multi-source social media and community shared pictures, a personalized travel sequence Recommendation system [6]. 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.

Paul Gault et al ": Utilizing social media dialogue to provide journey disruption alerts" (Nov 2019) conclude that The potential for utilizing social media to provide personalized information to public transport passengers, drawing from lessons learned from related studies. The Tweeting Travel study developed an understanding of the types of tweets on social media between passengers and a travel advice system and then used this to design of the TravelBot system.

There are many website which give result for travel guidance but user get confused which travel site is good. We observe that many sites are there to give result but we can't say which company is good for user. To select the travel package user searches 100 of sites. To ease to find the good result here we are developing a Chatbot. There are many travel agents available but travel agents are a human being they have time limitation. Travel agents also can't available 24/7 [8]. No Travel agent in this world can "know it all". Chatbot is an AI so it can learn from user and save the information for later use. We are using twitter data to train the Chatbot.

Now a day's number of people is active on social media. They post whatever they do. So by using their tweets we can give result to the user. The tweet and re-tweet contain different type of information, but we are using algorithm and filter the data. The data contain personal information, or some sensitive information. We need only travel related information so we filter this real time data and give to our Chatbot [9]. There are too much data available in twitter so when users ask for something what Chatbot do? Chatbot take all information from twitter and give them (priority) confidence value. Then Chatbot look confidence values for each statement give back result to user, which value is having best match for user's question.

The program selects the closest matching response by searching for the closest matching known statement that matches the input; it then chooses a response from the selection of known responses to that statement. An untrained instance of Chatbot starts off with no knowledge of how to communicate. Each time a user enters a statement, the library saves the text that they entered and the text that the statement was in response[10]. As Chatbot receives more input the number of responses that it can reply and the accuracy of each response in relation to the input statement increase.

Chatbot uses logic adapters. Logic adapters determine the logic for how Chatbot selects a response to a given input statement. The logic adapter that your bot uses can be specified by setting the logic_adapters parameter to the import path of the logic adapter you want to use. It is possible to enter any number of logic adapters for your bot to use. If multiple adapters are used, then the bot will return the response with the highest calculated confidence value. If multiple adapters return the same confidence, then the adapter that is entered into the list first will take priority. A confidence value and the selected response statement should be returned. The confidence value represents a rating of how accurate the logic adapter expects the selected response to be.

Confidence scores are used to select the best response from multiple logic adapters. The confidence value should be a number between 0 and 1 where 0 is the lowest confidence level and 1 is the highest.

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A. Data Flow Analysis

The intelligent travel Chatbot 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 by using twitter API [11]. 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 which they tweet, the past travel history and the user ratings collectively on social media. Suppose there are one or more missing data in the user's query; in such case, the bot is designed to ask the question until the answer fulfills the required missing information [12].

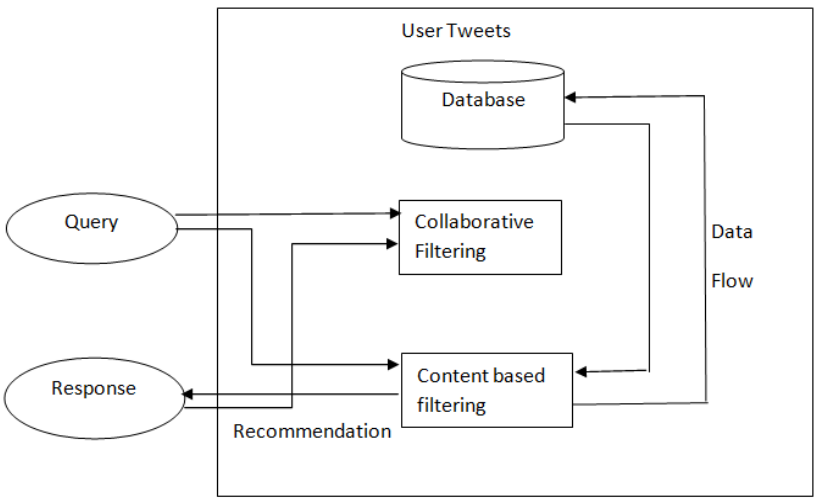

Fig.1 Data Flow

After all the 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 as shown in Fig. 1.

- User asks the question.
- System performs processing for query.
- User gets recommendation for travelling.

V. CONCLUSION

A chatbot is a program designed to simulate human conversation using artificial intelligence. After becoming one of the trendiest words of the past year, chatbots are predicted to disrupt the travel industry and set a new standard in the mobile booking arena. As the mobile-booking share is flourishing – it's expected to become 70 percent of all digital booking by 2019 – users are

drawn to chatbots. Besides, a good chatbot can help users reduce long hours of indecisive search. There's a lot that AI-powered chatbot can do to make life easier for customers and Travel service providers alike. Chatbots can save time and efforts that increase productivity and efficiency.

VI. FUTURE SCOPE

Travel chatbots, or we can call it as a TravelBot provide an experience like a travel agent. Smart chatbots today can maintain context and easily answer & guide a user through their queries. TravelBots are not only available when required, but also bring an added level of personalization when it comes to helping customers.

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