Travis personalised travel chatbot

A project Report
submitted in partial fulfilment of the
requirements for the award of the degree of

Bachelor of Technology (B.Tech.)

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CANDIDATE'S DECLARATION

We hereby declare that the work presented in this project report titled, **"Travis Personalized Travel Chatbot"** submitted by us in the partial fulfilment of the requirement of the award of the degree of **Bachelor of Technology (B.Tech.)** submitted in the Department of **Computer Science & Engineering, College of Engineering Roorkee**, is an authentic record of our project work carried out under the guidance of **Mrs. Supriya Shukla.**

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SUPERVISOR'S CERTIFICATE

It is to certify that the Project entitled **"Travis personalised travel chatbot"** which is being submitted by **Aryan Chauhan, Chabil Kansal, Khushal Tyagi, Peeyush Sahu** to the College of Engineering Roorkee in the partial fulfilment of the requirement for the award of the degree of **Bachelor of Technology (B.Tech.)** is a record of bonafide project work carried out by them under our guidance and supervision. The matter presented in this project report has not been submitted either in part or full to any University or Institute for award of any degree.

Mrs. Supriya Shukla
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ABSTRACT

The substantial increase in communication on popular instant messaging platforms such as WhatsApp, Facebook Messenger, Snapchat, and Skype has clear implications for companies. Especially in the tourism sector, companies should seize this opportunity to improve their existing services through chat robots, or chatbots. The recognition of the importance of chatbots has continued to grow. SM Marketing Platform (2017) reports that Facebook Messenger grew from 33,000 bots in September 2016 to 100,000 bots in April 2017, a more than 100% increase in deployment.

SM Marketing Platform further reported an 80% success rate with customers a month after Tec inStore (an online-based mobile phone repair company) launched its chatbot services.

Currently, tourism and travel booking companies like Expedia, Hipmunk, SnapTravel, have adopted chatbots in their operations advantages, disadvantages, challenges occurring in food-classification and grading is discussed in this project, which can give direction to readers.

Chatbots can be immensely useful in certain areas like booking hotels, trains, buses etc. Tickets , Information about a specific place, and finding eating places in unexplored areas.

All of this gave birth to the idea of Travis bot which will help tourists, travellers finding best things to explore in a city, places to eat, information about the city, finding hotels, etc. With the help of web scraping and different API's travis bot will crawl the web for finding any relevant information regarding travel.

CHAPTER - 1 INTRODUCTION

The Chatbot simulates a real-world travel agent that achieves some result by conversing with the machine in a dialogic fashion using natural language. The need for intelligent agents is growing with the widespread use of personal machines and the desire of their makers to provide natural language interfaces. The proposed system will change how to recommend travel itinerary by incorporating personal preferences, and generating responses using web scraping.

Today, the traditional travel agents present many issues that can be conquered by the digital one. The traditional ones are subject to their availability, the digital 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.

TRAVIS is a personalized travel chatbot capable of interacting with users and performing certain activities based on the inputs provided by the user.

- It is an NLP & Crawler backed chatbot with following functionalities:
  - Tell about popular destinations
  - Book Hotels
  - Book Train/Bus/Flight Tickets
  - Places to visit near
  - Information about a place
  - Best eateries nearby
  - Reverse Image search Using third party APIs

The chatbot can consume two different types of queries raised by the user :

- **Image file**
- **Plain query in text**

If the query mentioned by the user is the image file then Travis (chat bot) will search the image over the web and show applicable results.

Otherwise if the query is plain text, which may contain useless words or stop words. The bot will first remove all the stop words, also it will stem the remaining text. After this the type of the query is identified. There are majorly three type of queries that this system expects:

- City details related query
- Hotel booking related query
- Restaurant or Food related query
- Travel Booking related

After the type of query is known the bot tries to crawl the internet to find relevant details. For example, if the query is regarding hotel booking then with the help of web API the bot will through the link for the user to book relevant hotels, if the query is regarding the city details it will crawl the internet and provide the results found to the user.

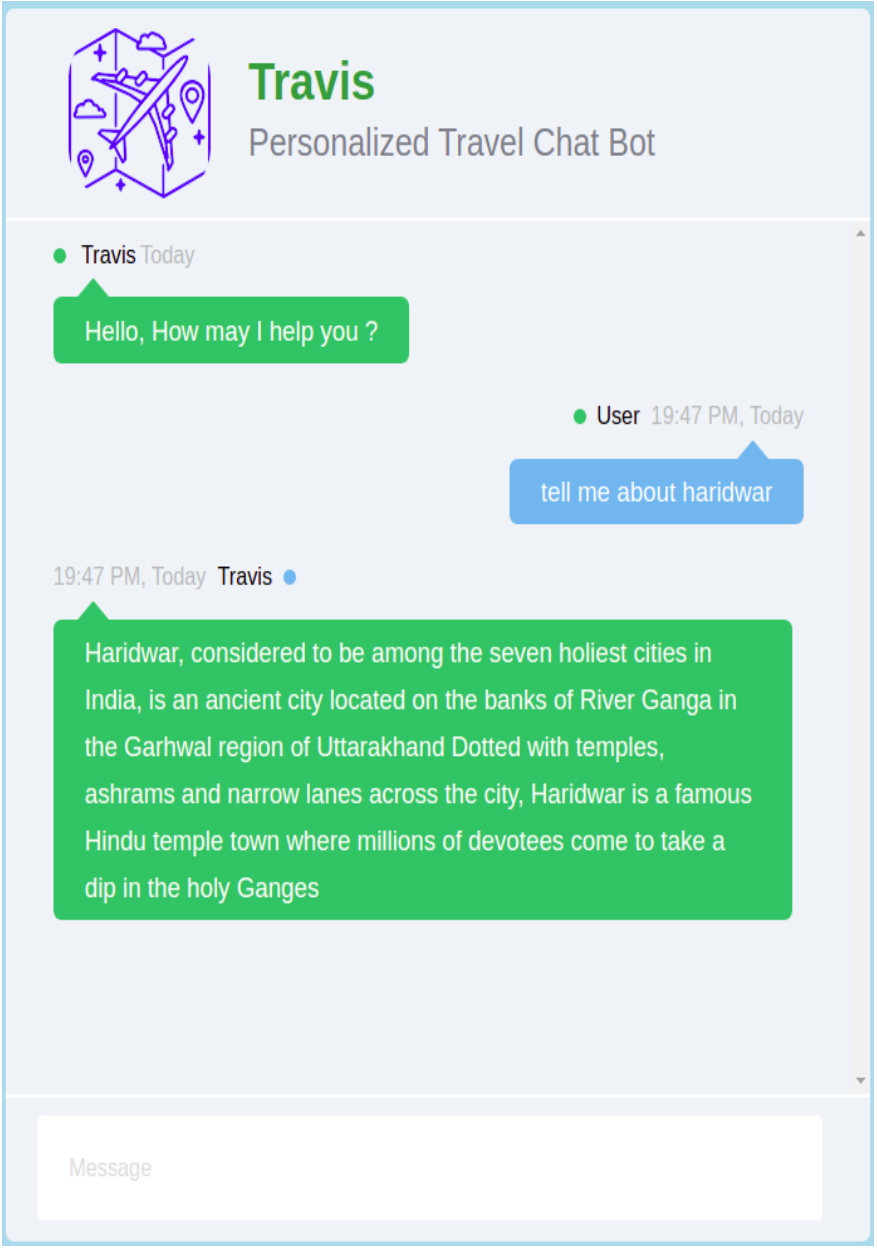
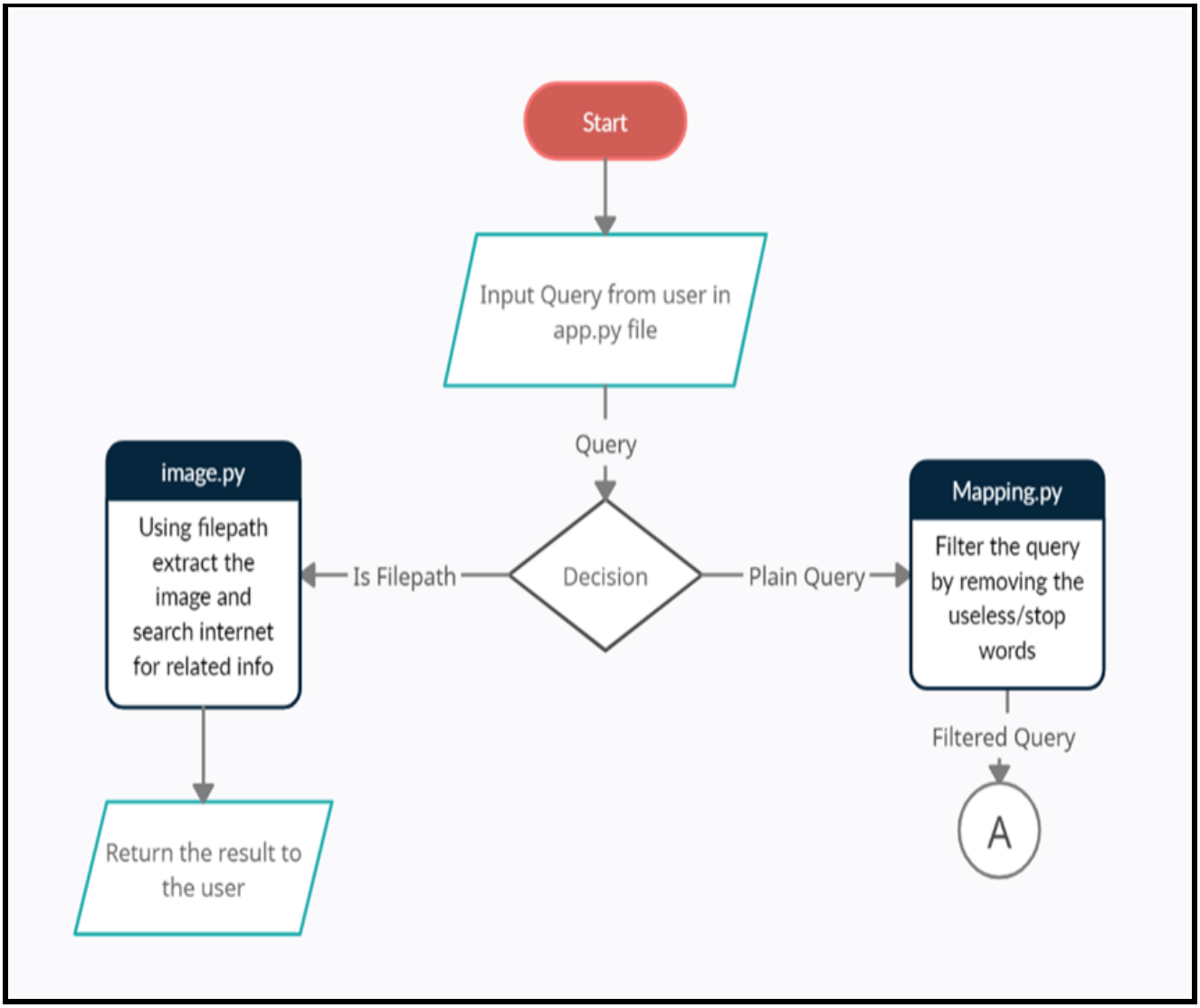
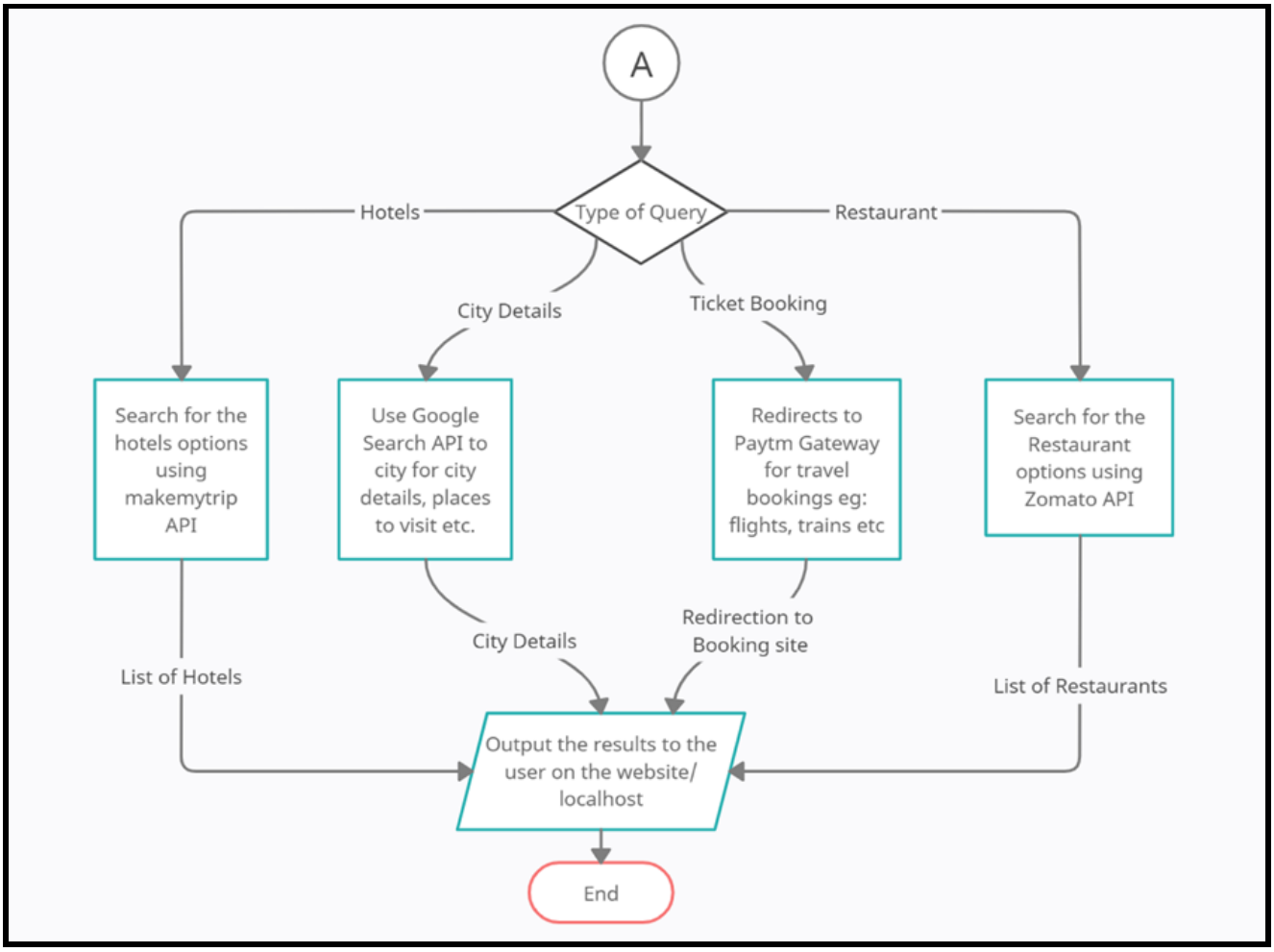


Fig 1.1:

Travis Bot in Action

CHAPTER - 2 FLOW CHART




A
Type of Query
Hotels
Restaurant
City Details
Ticket Booking
Search for the hotels options using makemytrip API
Use Google Search API to city for city details, places to visit etc.
Redirects to Paytm Gateway for travel bookings eg: flights, trains etc
Search for the Restaurant options using Zomato API
List of Hotels
City Details
Redirection to Booking site
List of Restaurants
Output the results to the user on the website/ localhost
End

CHAPTER -3
IMPLEMENTATION OF PROPOSED METHOD/ALGORITHM

About Project Continue….

1) Description of File

App.py : This file serves as the entry point of our chat bot. It included all the libraries required for the project and also responsible for calling other files as per the requirement.

```
from flask import Flask, render_template, request
from googlesearch import search
import requests
import bs4
import os
from bs4 import BeautifulSoup
from chatbot import *
import pickle
from listoperations import *
from mapping import *
from image import location
```

Fig 3.1 : List of All Libraries required for Chat Bot

```
@app.route("/")
def home():
    return render_template("home.html")
```

Fig 3.2 : Entry Point

Once user opens the Chatbot it will be welcomed by a greeting message which is rendered and present in home.html

There are two types of Queries :

- Pictorial Query
- Normal Queries

Pictorial Query : if the text provided by the user is a file path of an image then the image will be uploaded to the server and parsing information is done by function “location” which we can find inside “Image.py” file.

```
def location(filePath):
        searchUrl = 'http://www.google.hr/searchbyimage/upload'
        multipart = {'encoded_image': (filePath, open(filePath, 'rb'))}
        response = requests.post(searchUrl, files=multipart, allow_redirects=False)
        fetchUrl = response.headers['Location']
        chrome_options = Options()
        chrome_options.add_argument("--headless")
        driver = webdriver.Chrome('./chromedriver', chrome_options=chrome_options)
        driver.get(fetchUrl)
        source = driver.page_source
        soup = BeautifulSoup(source,features="html5lib")
        result = soup.find('div', attrs = {'class' : 'kno-rdesc'})
        article=""

        for i in result:
                print(i.text)

        for i in result:

                article = article + i.text
        article = article.replace('Description',"")
        article = article.replace('Wikipedia',"")
        ans = article

        return ans
```

Fig 3.3 : Location Function - Image.py

The Location function takes an argument which is the path of the image, once image is uploaded to the server it will be reverse searched for its details, if details for the image is present then the corresponding details will be printed else error will be thrown to the user “Can't find the Place”.

Normal Queries: Before processing such queries they are checked for any stop words(Words with no importance).After filtering stop words, a new user query is generated which is further processed to get the type of the Query.

```
def mapping(msg):
        global stop_words
        init_msg=msg
        msg=msg.split(" ")
        qry=[]
        for word in msg:
                if(word not in stop_words):
                        qry.append(word)

        print("\n\n\n")
        print(qry)
        print("\n\n\n")
```

Fig 3.4 : Part of code responsible for filtering out of stopwords.(“Mapping.py”)

After filtering the stop words “mapping” function will further process it to get the type of Query. Simple intersection is done between Filtered Query and Predefined Queries List. The one having the larger number of elements that will be picked as the type of Query. In case of collision the List that is listed first in the order it will be considered.

Once the type of Query is cleared the appropriate function is called and executed.

Above stated task is handled by the “chatbot.py” file. It contains various functions according to the type of Queries.

Here is the list of various functions:

-**Tell Me About**: Once the query is marked as a Tell Me About query, It takes the location name as a parameter and crawls the internet to find relevant details of the location.

```
def tell_me_about(location):
    query="holidify "+location
    url=google(query)
    soup = fetch_data(url)
    text=soup.find('div',attrs={'class':'readMoreText'})
    st = text.text

    st = st.replace('\xa0','').replace('\n        ','').split('.')
    speech = ""
    i=0
    while(len(speech) < 200):
        speech = speech + st[i]
        i+=1

    print(speech)

    return speech
```

Fig 3.5 : tell_me_about(location) function which takes location as parameter.

- **Restaurants Near Me :** this function takes location names as an input, with the help of Zomato API it crawls nearby restaurants.

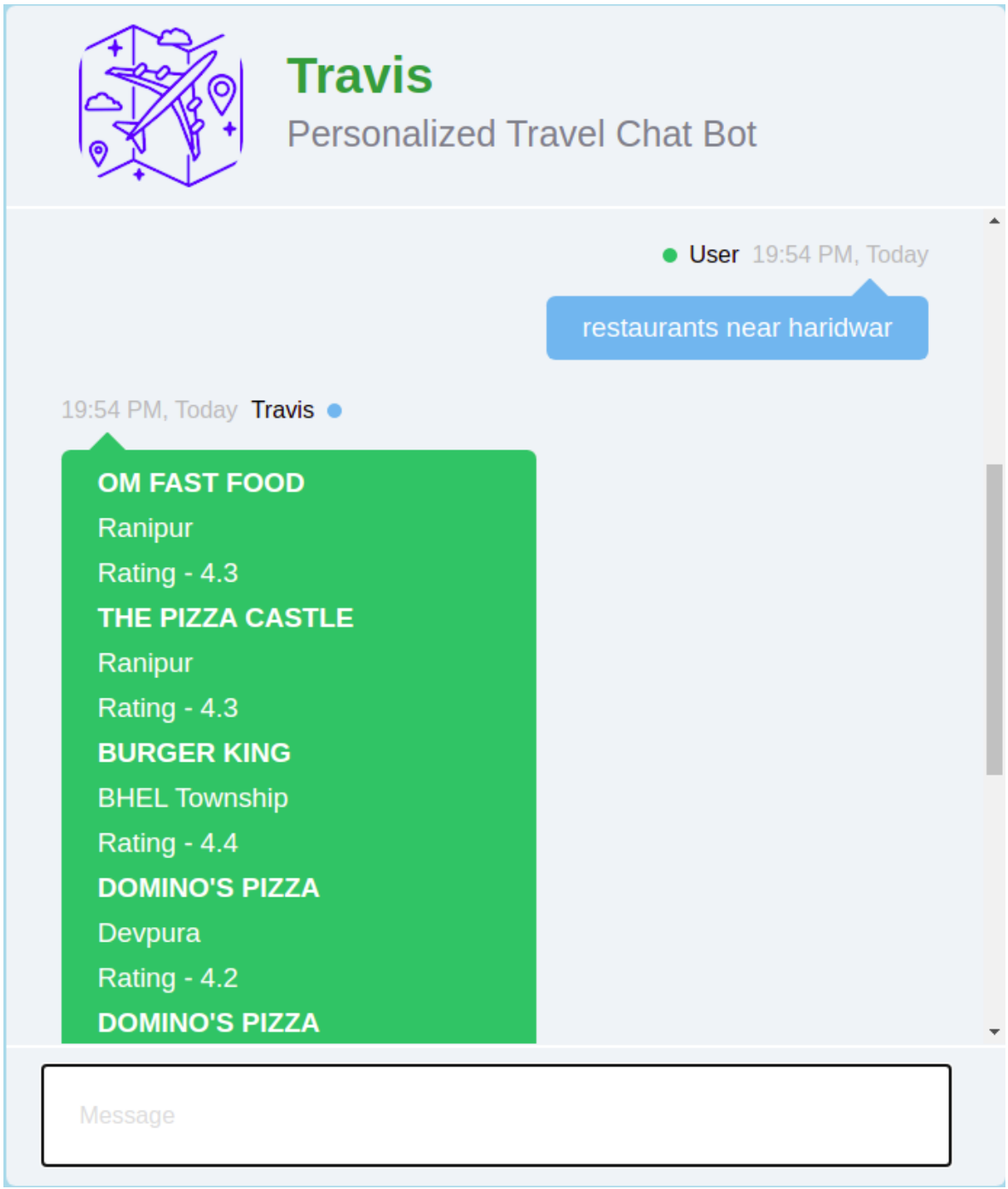
```
def restaurants_near_me(location):
    entity_id, entity_type = get_location_details(location)
    data = get_restaurants(entity_id, entity_type)
    result = ""
    print("Restaurants in " + location.title() + " --\n")
    i=0
    for restaurant in data['restaurants']:
        r = restaurant['restaurant']
        print(r['name'].upper())
        loc = r['location']
        print(loc['locality'])
        rating = r['user_rating']
        print("Rating - " + str(rating['aggregate_rating']))

        result = result + ("<b>"+r['name'].upper()+"</b>" +"<br> "+loc['locality']+"<br>Rating -
" + str(rating['aggregate_rating']) + "<br>")
        if(i>7):
            break
        i+=1
    return result
```

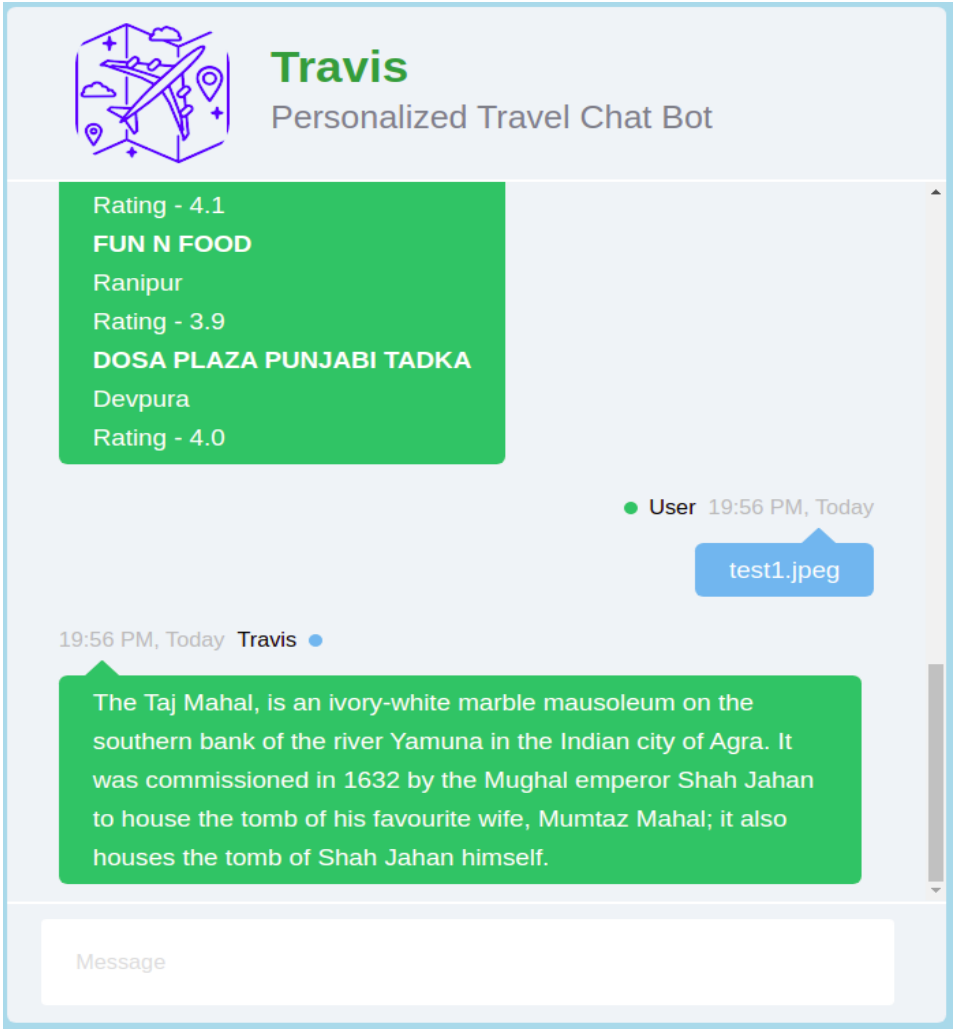
Fig : 3.6 : Restaurants_near_me(location) , function parameter location

CHAPTER – 4 TRAVIS BOT IMAGES

Following are some images showing the working of travis bot :



Test1.jpeg


Travis
Personalized Travel Chat Bot
Rating - 4.1
FUN N FOOD
Ranipur
Rating - 3.9
DOSA PLAZA PUNJABI TADKA
Devpura
Rating - 4.0
User 19:56 PM, Today
test1.jpeg
19:56 PM, Today Travis
The Taj Mahal, is an ivory-white marble mausoleum on the southern bank of the river Yamuna in the Indian city of Agra. It was commissioned in 1632 by the Mughal emperor Shah Jahan to house the tomb of his favourite wife, Mumtaz Mahal; it also houses the tomb of Shah Jahan himself.
Message

CHAPTER – 5 CONCLUSIONS AND FUTURE SCOPE

CONCLUSIONS

In this project we designed an application that can help in solving nearly all travel related problems and make our life contented. After carefully designing and projecting the model, the prototype chatbot (Travis) was successfully built, ending in an automated conversation system able to guide a natural language speaking user through the whole travelling process. More specifically, the built project's function is to receive travel details, such as destinations to search for travel options regarding those preferences, being those options about, flights, hotels and buses, respectively in this order, handling the entire process, in a straight flow of chat room conversation.

This project has a large scope as it has the following features which help in making it easy to use, understand and modify it:

- ➔ The chatbot provides a faster and easier travelling information platform.
- ➔ It provides Intuitive layout, which is appropriate to less capable users. The biggest takeaway, from the conducted project, was that the chatbot provided a much simpler interface, hiding unnecessary information usually displayed in web engines, which makes things much more clear, for people who are are not accustomed to book online trips, having the tests translating the most favorable chatbots results, among older generations.
- ➔ It provides a reverse image search engine which is very helpful in searching places that people see somewhere in any image and don't know about.
- ➔ It eases all the difficulties in gathering the best travel options for each individual and also finds and recommends best nearby eateries.

- ➔ In general, the users' responses graded the chatbot system higher than the online travel booking platform, which gives a big incentive to keep on investing in this area, since the majority of the respondents consistently classified the chatbot as a very well usable system.

In sum, Travis chatbot is a crucial feature for travel brands to have on their websites regardless of if you are an airline provider or use an e-commerce platform for your travel luggage brand. If you want to ensure people use your site (and not increase your bounce rate), use Travis chatbot for each of the above use-cases. It is a simple way to save money and manpower – all while making the trip-planning process a breeze for your customers.

FUTURE WORK

The major concern towards the use of a chatbot to use Travis for travelling is the fact that it gives the users a small range of choices. That being said, for it to be effective, the search algorithm behind those choices must be as effective as possible, in order to assure the customers that the bot will not only provide them a faster and more intuitive experience, but also that they will be presented with the best options in the market. If in fact, a system can be developed that guarantees an easier and more productive experience to the customers, then one could speculate that the chatbot could be a success among travelers and compete with the traditional travel related methods.

One possible way of supporting the development of this chatbot, would be to ask the customers to create personal profiles, where they would provide personal information regarding their trip preferences, such as top lists of preferable flight or hotel companies, trip budgets, preferable flight schedules, etc. This information would play

a crucial part for the agent to provide more accurate options that would not need to be in big quantities to satisfy the customer.

In the same way, an effective step to upgrade the developed chatbot, would be to implement changes in the displayed options according to certain criteria. For example, if the user didn't like the options the chatbot found, it would ask it to search for different ones such as, less expensive hotels, flights at an earlier time or more luxurious restaurants.

A great and unique use of our Travis chatbot would be to make it fully interactable via audio. This measure would, not only please a large quantity of the regular users, but would also have a huge impact among visually impaired people, since it would allow them to interact with the agent, without having to read or write.

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