VIRTUAL ASSISTANT USING ARTIFICIAL INTELLENGENCE.

A Project Report

Submitted partial in fulfillment of the

Requirement for the award of the Degree of

Bachelor of science (Computer Science)

By

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Seat Number:

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RIZVI COLLEGE OF ARTS SCIENCE & COMMERCE

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MUMBAI, MAHARASHTRA 400050

YEAR-2019-2020

DEPARTMENT OF COMPUTER SCIENCE

CERTIFICATE

This is to certify that the project entitled, **"Virtual assistant using artificial intelligence"**, is bonafied work of **Mohammed Askari Sayed** bearing Seat. No: submitted in partial fulfillment of the requirements for the award of degree of BACHELOR OF SCIENCE in COMPUTER SCIENCE from University of Mumbai.

Internal Guide **HOD**

External Examiner

Date: **College Seal**

DECLARATION

I here by declare that the project entitled, “Virtual assistant using artificial intelligence” done at Home, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (COMPUTER SCIENCE)** to be submitted as final semester project as part of our curriculum.

Mohammed Askari Sayed

Abstract

A virtual assistant also called a digital assistant is an application program that can understand natural language (text or voice) and complete electronic tasks for the end user.

Today's virtual assistants are programmed with artificial intelligence, machine learning and voice recognition technology. As the end user interacts with his digital assistant, the AI programming uses sophisticated algorithms to learn from data input and become better at predicting the end user's needs.

Although our virtual assistant will only be performing some basic tasks like "What's the weather", "Remind me to take pills in the morning", etc. And history we will be looking at adapting voice recognition technology to make it more robust and personal.

Popular virtual assistants currently include Apple's Siri, Google Now and Cortana, the digital assistant built into windows 8.1.

This project is focusing on the Python Program over the voice control (recognition, generate and analyze corresponding commands, intelligent responses automatically), Google products and relevant APIs (Google map, Google weather, Google search and etc.).

Through the efforts of crowdsourcing, Thingpedia contains a set of 50 devices and 187 functions.

Modules like speech-recognition, wolframalpha, audio, web browser, pyytsx3, date time, os are used to develops virtual assistant.

2]Hardware and Software requirement-:

Processor-: Pentium 4 and higher.

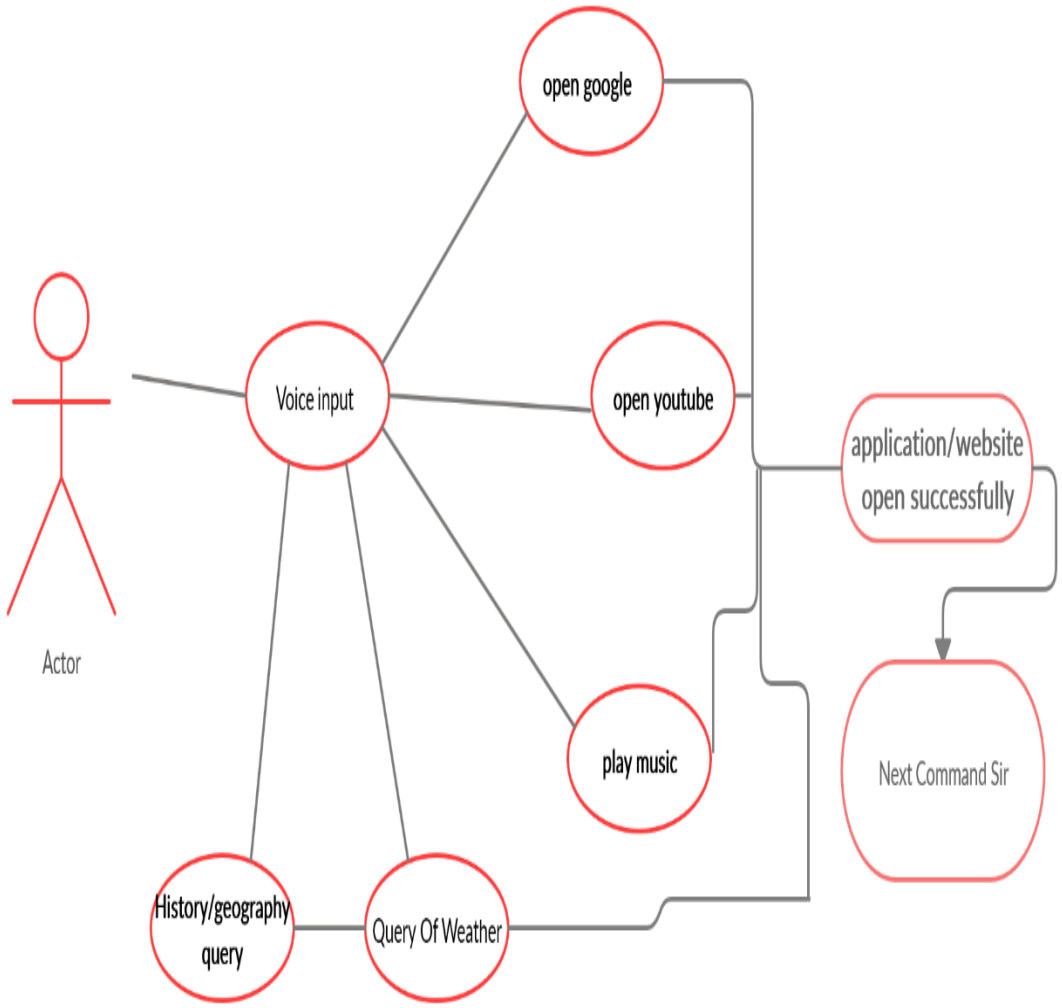
Ram-:4 GB and above.

OS requirements-: Windows 7 above

Disk space-: 10 gb

Software used-Python and developed in PyCharm and Python Shell

3] System Design-:



4]Advantages and Limitation-:

Advantages-

1. Saves Time

Hiring the right person to help in your business is not a fast, easy task. First, you need to get the word out that you're hiring, so advertising is usually involved. Then you must wait for applications and resumes, sift through them, and set up interviews.

2. Reduces Costs

There are a lot of cost benefits of a virtual assistant. You can make them by the hour for certain business tasks rather than paying a part-time or full-time employee.

In addition, you won't have to pay for training, or at least very little. The virtual assistant you hire should already have most of the skills needed to do the job.

3. Utilizes Other Stuff

It doesn't make sense to spend your time answering emails, scheduling social media, and performing other routine tasks. If you are highly specialized your time may be worth much more. To better utilize your time and that of other employees, hire a virtual assistant to do such routine work.

2]Limitations-:

- Required an Internet Connection.
- Proper modules or libraries should be installed on system.
- Required and working microphone(input) and Speaker(output).

ACKNOWLEDGEMENT

It's a great pleasure for me to develop a Virtual assistant using Artificial Intelligence's have gathered knowledge and experience during this project. Apart from the efforts of myself, the success of any project depends largely on the encouragement and guidelines of many others.

In this endeavor I would like to show my greatest appreciation to our internal project guide **Prof. Javed Pathan** of Department of IT/Computer Science, Rizvi N College of Arts, Science & Commerce, who was abundantly helpful and offered invaluable assistance, support and guidance. His frank suggestions for improvement and innovative ideas have inspired us.

I would like to express my heartiest gratitude to **Prof.Javed Pathan**for his never-ending support, His been one of the most helpful people on this project, he was helping me in every step of this project. I would also like to thank **my parents** helping me in the entire project.

Finally, I must acknowledge with due respect the constant support and patience of my Family and my friends who supported me in the project.

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CHAPTER 1. INTRODUCTION

Using a Virtual Assistant can be a flexible and cost-effective option for small businesses and for household uses. What are the benefits, how much will it cost and how do you find a good VA to relieve you of routine business tasks.

VAs provide services remotely They offer services that would normally be done by a personal assistant in offices, for example admin support, call minding, message taking, diary management, filtering emails, bookkeeping, marketing, project support , typing, internet research, cold calling etc. Reputable VAs is experienced and focused self-employed professionals who work independently to your deadlines - they are not temps!

VAs use their own office and equipment. You do not have to pay their tax, national insurance and other expenses that accrue with permanent and temporary staff. Generally, VAs is very flexible and charge anything from £20 an hour upwards. You can get cheaper rates for more mundane work. Some VAs specializes, so you may want to find one for your specific business needs. Using a VA means you can concentrate on the business rather than the paperwork that goes with it. You get more time to do what you do best, without having to supervise, train or worry about staff.

VAs is flexible and available outside of normal hours. They have no minimum hour commitment and are only paid for the hours they work. You can use the same highly skilled professional every time you outsource work. The work you give a VA should be completed to deadlines, with no excuses for imperfect work. This means you can keep control.

You will not have to pay recruitment or agency fees, just pay for the time you use the VA. There are no additional tax, national insurance or employee benefits to worry about. If you do not employ anyone else other than the VA you may not need employer's liability insurance, or pay someone to supervise your staff.

You do not need to find workspace or equipment for a VA, they have their own. so, you might save money on office space, or even be able to work from home with the appearance of a full back-up team. No-one knows you use a VA. You can appear to be in control at all times – even if you are not! As always professional recommendations are best. But whoever you choose make sure they belong to one of the Virtual Assistant bodies, which provide listing of VAs and remove names if there are complaints.

Before you employ a VA think about how you work and what changes you would like to make in your business. Is it routine paperwork that is out of control? Do you want specialist book-keeping help or someone to set up systems for you? Maybe you simply want a call minding service?

Keep a note of tasks you regularly do which could be outsourced. How much time do these tasks take away from the real work of growing the business? Make notes on specific procedures and practices. Once you know what you need you can narrow down your VA search. Use the websites listed above to find a VA you can work with. Talk to several until you feel comfortable.

Objectives-:

Once you have found the right VA, make sure you both agree the nature of the work to be carried out, timescales and fees. Be very specific. Ensure you both understand the arrangement for billing and any other costs. What will happen if you want more work done? How will work be recorded and reported and how will confidentiality and security be handled
A reputable VA will not only do all the tasks you specify, on time and professionally but will also have the right systems in place for your needs. These should include risk management procedures to help protect their business and yours, business security processes, procedures and systems and contracts for any work undertaken. They should have very high standards and demonstrate complete professionalism – make sure they have membership of the relevant professional bodies. They should be up to date with skills and training.

A good VA will have personal indemnity insurance and processes and systems to ensure client confidentiality as well as registration with the Data Protection Act. This should protect your business and give you some confidence in their professionalism.

Check the VA has a professional looking website, business stationery etc. Read references and testimonials for previous work and check they are current. They should also produce timesheets for work undertaken.

VAs should be able to advice on technology and tell you exactly what they are able to achieve for your business. Agree in writing precisely what work is to be carried out, the timescales involved and the

cost. Of course, these may change. The VA should just be able to get on with it as long as they are clear what you want them to do.

Purpose-:

To Develop this Virtual assistant we have use the PyAudio for audio binding(I/O).Pygame for mixer,speech.Recognition is use to Recognize the user Voice input.pyytsx3 are use to convert speech to text,dattetime is used to know the current time and date of a System,Selnium is used to support different web applications. os is used to manage System application files. play sound is use play the mp3 from the default media player. Wolframalpha to manage all the scientific mathematic calculations and world history, geography. smptlib is used to send an email to a recipient. urllib. request is a Python module for fetching URLs (Uniform Resource Locators). It offers a very simple interface, in the form of the URL open function. Beautiful Soup is a Python library for pulling data out of HTML and XML files. It works with your favorite parser to provide idiomatic ways of navigating, searching, and modifying the parse tree. It commonly saves programmers hours or days of work. gTTs is used to convert text to speech from user input voice.

Scope-:

It can be also used by dumb/deaf people. A people who could speak or listen simply can type their command and their output will be displayed to their display.it can reduce the work of the people who are waiting others to help them. Virtual assistant is widely used in home in 21st Century. Mostly it is used Central America, South Asia, Asia and pacific region (According to google data).VA can simply reduce your time and give maximum result in minimum amount of time

Chapter 2. System Analysis

2.1 Existing System

2.1.1) Hardware:

Processor	2.0 GHZ
Hard disk	30 GB free disk space
RAM	4gb

2.1.2) Software:

Operating system	Windows 10,
Other Platforms	Python, PyCharm (community version), Vs Code.
Other Tools	Microsoft Build tools (2019).

2.2 Proposed System-:

We are going to develop a virtual assistant which we are going to use in daily life. We are going to use python to develop a virtual assistant. Certain modules need to be installed before we start the project. The project is based on artificial intelligence.

2.3 Requirement Analysis-:

- A Working Microphone for voice input.
- A Working Internet for web-based modules.
- Python (with proper modules installed).

2.4 Hardware and Software Requirements-:

Hardware Requirements

Hardware:

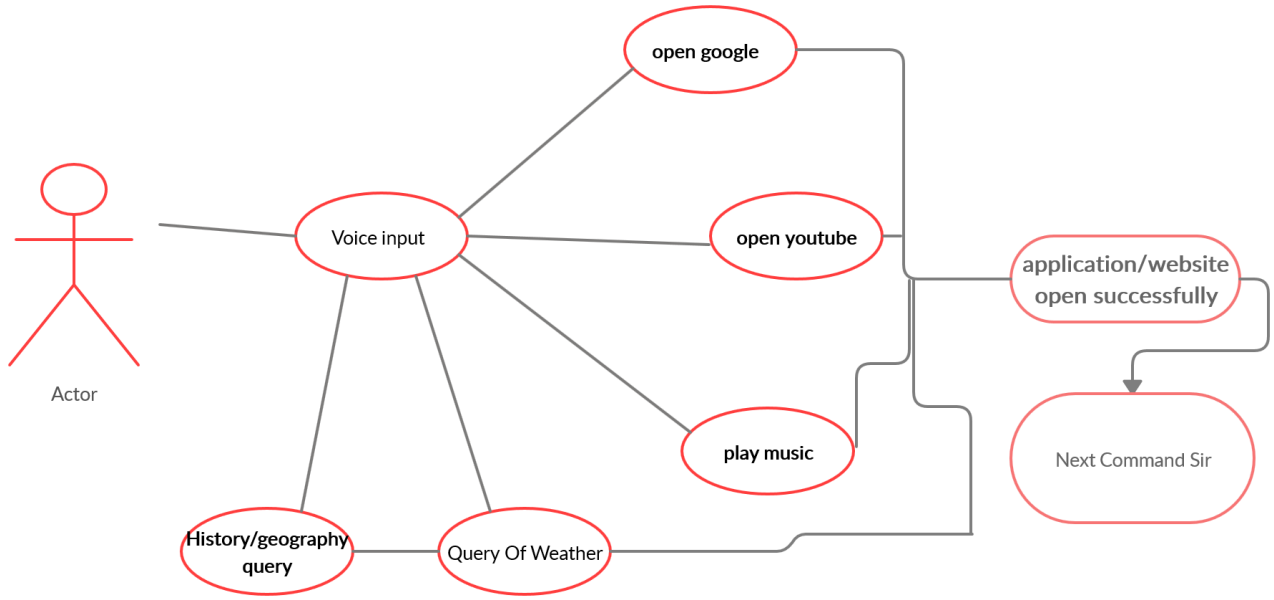
Processor	2.0 GHZ and above
Hard disk	10 GB free disk space
RAM	4gb and above

Software Requirements-:

Operating system	Windows 10, or Windows 8.1 Update, or Windows 8, or Windows 7, Linux, Ubuntu.
Other Platforms	Python, PyCharm (community version), Visual Studio Code.
Other Tools	Microsoft Build tools, Visual Studio 2019

chapter 3. System Design

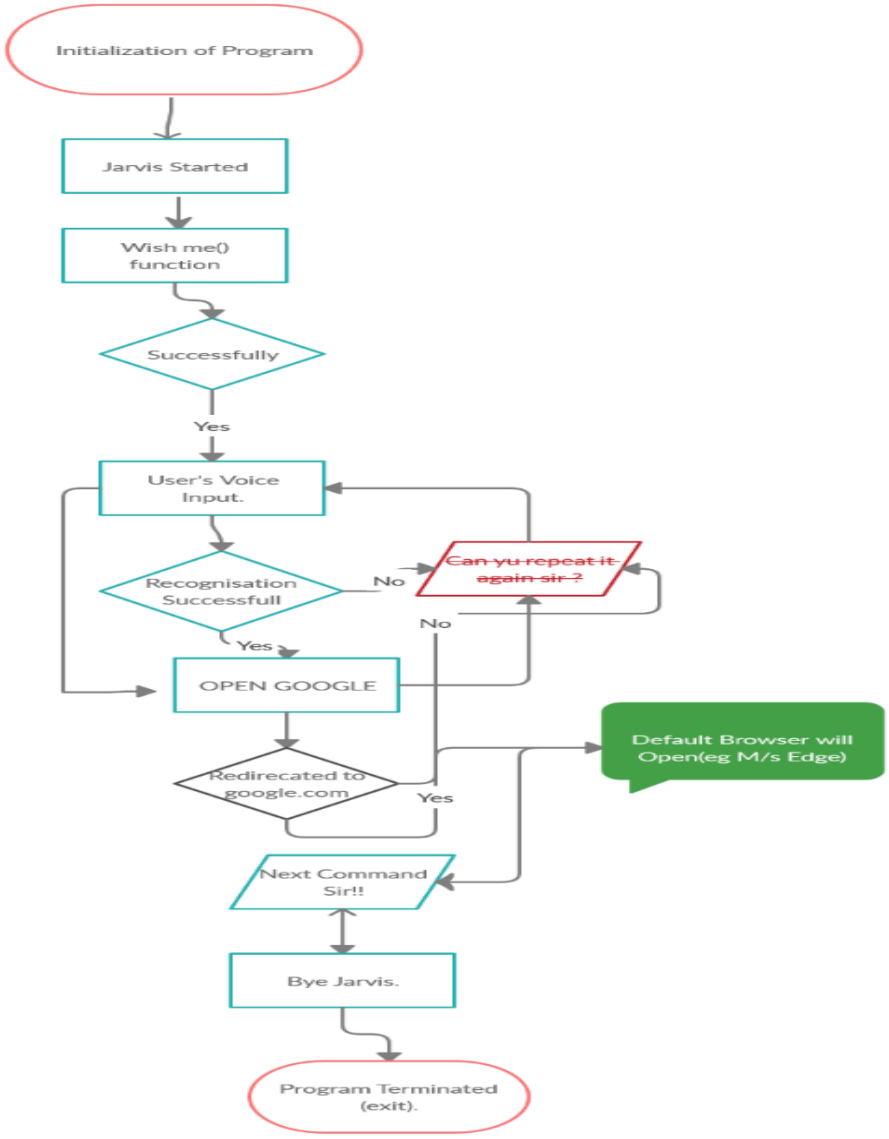
3.1 Use Case Diagram-:



Explanation-:

An Actor(user) will give the voice input and say open google and system will listen and redirected to the URL and open google in web browser. When the output successfully implemented the system will ask for next command sir and like this way a user can give as much as user can give voice input the output will generate.

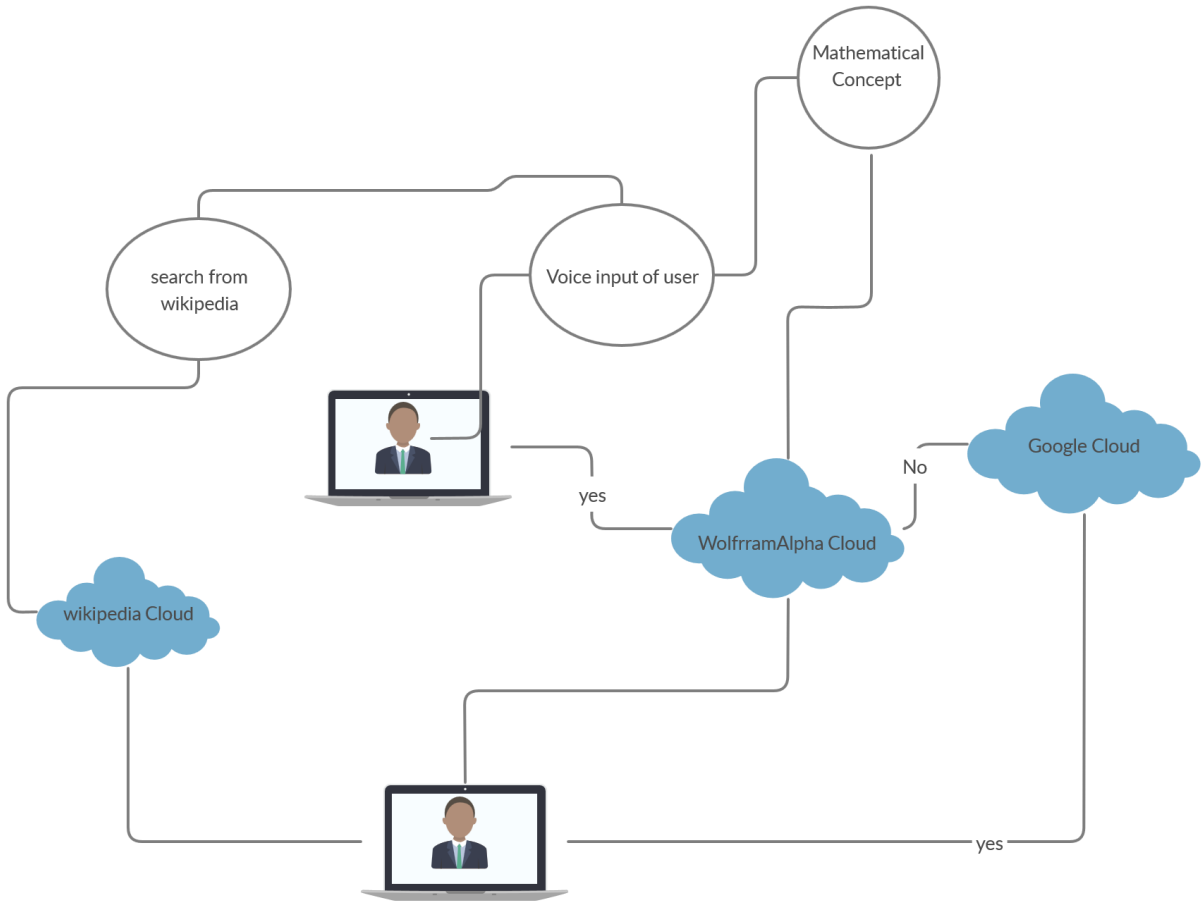
3.2 Flow Chart-:



Explanation-: User will launch the program and run it. once the initialization is completed the user will get greet from and Jarvis. Once it will be completed successfully the user will ask for a voice input. If the pattern of the voice is successfully recognized then it will ask for query (supposed user said open google) if there will be an error while listening then user will redirect to can u repeat this again. Once the command successfully executed the user will get the output from respective default browser (E.g.- Microsoft Edge, Chrome, Firefox). once the command is successfully executed the user will ask for next command and user say (for e.g. Bye Jarvis) so the command will execute successfully and

terminate the program,

3.3- Network Diagram-:



Explanation-:Suppose a User give an input to search and mathematical function so it will categorized that this answer will be from the wolfram alpha cloud and it will give the output by using wolfram alpha client.an wolfram alpha provides an API that help VA to solve major mathematical Problems and it can also help in different topics.

Suppose a user ask for a World War II so it will be categorized that the given input result is from the Wikipedia and it will fetch the data and read it out on the screen and also it will be in text form on screen.

Google Cloud is use if sometime the machine cannot understand the pattern of the voice so it could use google cloud platform to recognize it. we use pyttsx and gTTs modules for google cloud.

3.4 Justification of Technology Used

Technologies used to develop the software are as follows:

An Overview of the front end:

- Natural Language Processing, or NLP for short, is broadly defined as the automatic manipulation of natural language, like speech and text, by software.
- The study of natural language processing has been around for more than 50 years and grew out of the field of linguistics with the rise of computers.
- There are various tools available to convert to the desired data format.

Python (3.6 IDLE):

- Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language.
- Python is a widely used general-purpose, high level programming language.
- Python is a programming language that lets you work quickly and integrate systems more efficiently.

Libraries Used:

- You can define your most used functions in a module and import it, instead of copying their definitions into different programs.
- A module can be imported by another program to make use of its functionality.
- As your program grows more in the size you may want to split it into several files for easier maintenance as well as reusability of the code.

a) Time:

- time — Time access and conversions.
- This module provides various time-related functions. For related functionality, see also the datetime and calendar modules.
- Although this module is always available, not all functions are available on all platforms. Most of the functions defined in this module call platform C library functions with the same name.

b) gTTS:

Google Text-to-Speech is a screen reader application developed by Google for its Android operating system. It powers applications to read aloud the text on the screen with support for many languages.

d) Re (Regular Expression):

- Regular expressions are used to identify whether a pattern exists in a given sequence of characters (string) or not.
- They help in manipulating textual data, which is often a pre-requisite for data science projects that involve text mining.

e) Wikipedia:

- Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia.

f) Web browser:

- The web browser module in Python provides an interface to display Web-based documents.
- web browser. Under most circumstances, simply calling the open () function from this module will do the right thing.

g) Requests:

- Requests is an Apache2 Licensed HTTP library, written in Python.
- It is designed to be used by humans to interact with the language.
- This means you don't have to manually add query strings to URLs, or form-encode your POST data.
- Don't worry if that made no sense to you. It will in due time.

H) Os:

- The OS module in python provides functions for interacting with the operating system. OS, comes under Python's standard utility modules.
- This module provides a portable way of using operating system dependent functionality.

h) Subprocess:

- Subprocess has a method call () which can be used to start a program.
- The parameter is a list of which the first argument must be the program name.
- The full definition is: subprocess. Call (args, *, stdin=None, stdout=None, stderr=None, shell=False) # Run the command described by args.

i) Pygame:

- The game library is an open-source module for the Python programming language specifically intended to help you make games and other multimedia applications.
- Built on top of the highly portable SDL (Simple Direct Media Layer) development library, pygame can run across many platforms and operating systems.

j) Sys (sys — System-specific parameters and functions):

- This module provides access to some variables used or maintained by the interpreter and to functions that interact strongly with the interpreter. It is always available.
-

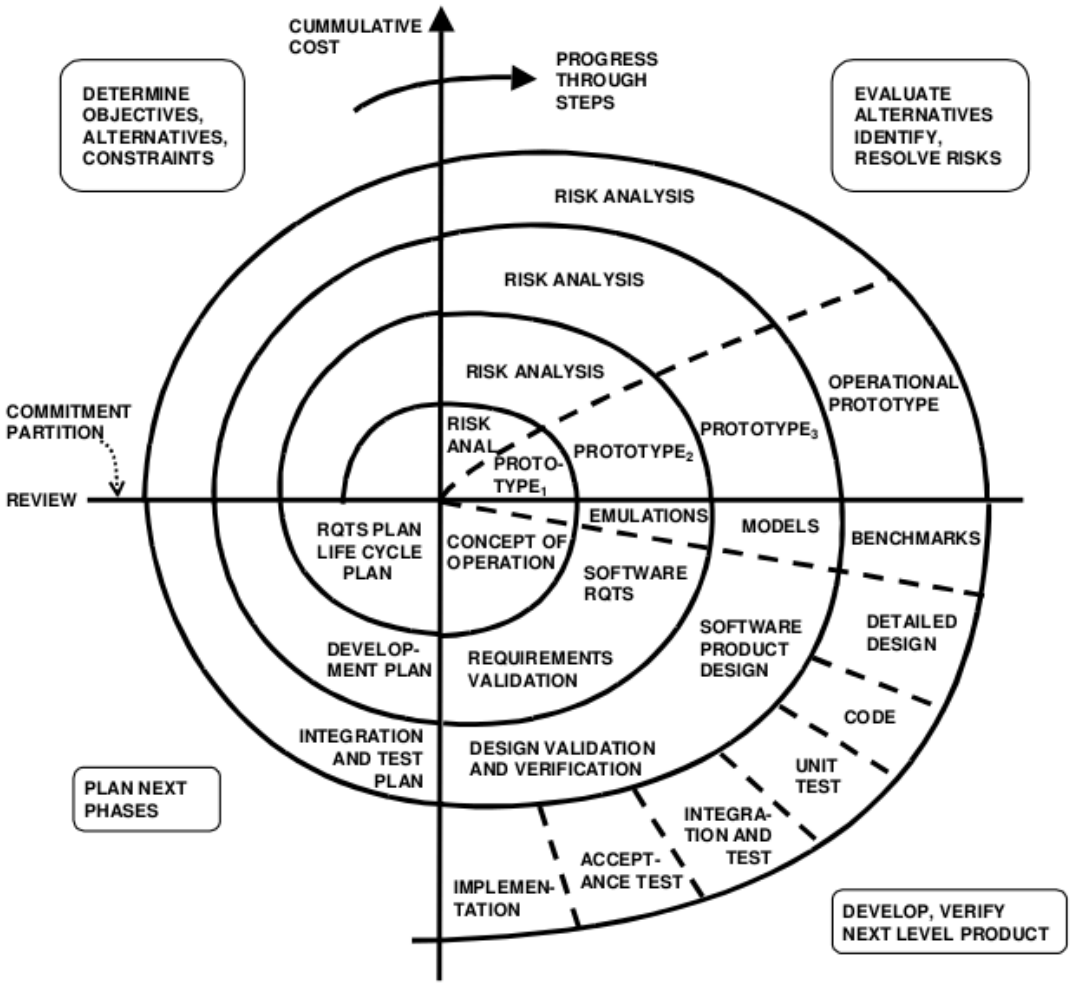
k) bs4:

- This is a dummy package managed by the developer of Beautiful Soup to prevent name squatting.
- The official name of PyPI's Beautiful Soup Python package is beautifulsoup4. This package ensures that if you type *pip install bs4* by mistake you will end up with Beautiful Soup.

l) urlib. request:

- The urllib.request module defines functions and classes which help in opening URLs (mostly HTTP) in a complex world — basic and digest authentication, redirections, cookies and more.
- many functions to interact with the file system

3.5 Spiral Modelling(sdlc)-:



1. Defining concept

On this stage, there was only the initial vision of the product that can create value to the potential users. We wanted to have a possibility to get feedback from our first users as quick as possible. Such conception can help understand more clearly what features are the most valuable for the users. We had some analysis data about features and requirements that should be implemented at first. The main aim was to understand what potential increment we would like to have at the end of the iteration.

2. Inception stage

After we determined the main conception and initial architecture vision, we started to plan our first iteration. The most critical requirements were sent to the top of the list. Then we asked each developer of our team how many requirements they think can be turned into completed functionality. Afterwards, we decomposed each requirement (identified work tasks) and defined the best possible way to develop them. We've included modeling and prototyping solution to make a more accurate estimate.

3. Design stage

We elaborated a mockup that described software functionality and features in detail. The mockup was then processed by our designer. The design elements had to be described quite clearly to help a developer build software with minimal additional input.

4. Construction of iteration and testing

At this stage, the team delivered high-quality working software in priority order, which was created in accordance with the changing needs of our potential users. What's more important, the team could deploy this solution into a pre-production testing/QA sandbox for system integration testing.

5. Installation stage

This stage provides the mechanisms to move the latest application and development changes into production.

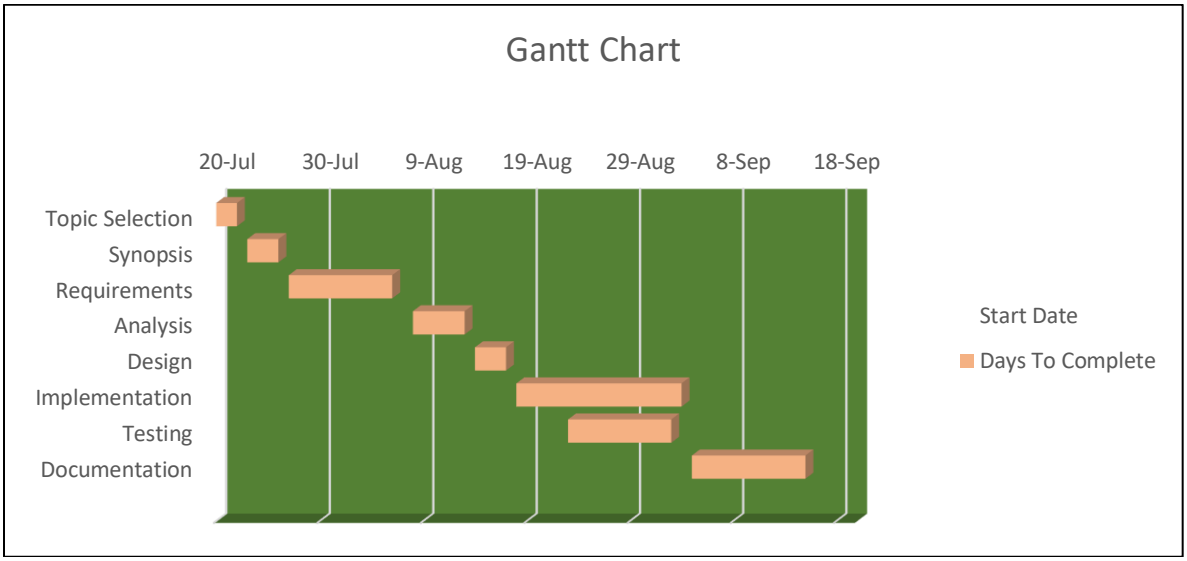
6. Post production / Maintenance stage

At the end of each development iteration, we had a partial working solution to show our users. On this basis, users gave us their feedback on the current state of our system. After collecting and analysing these requirements, we're able to change the priority of tasks in the next iteration and even included some requirements from scratch.

3.6 Project Schedule_-:

Gantt Chart-:

- Gantt chart is type of BAR CHART, which depicts the chronological development of various phases in project. It sometime also refers as the schedule chart because of which a team can keep track of the project in terms of time scheduling.
- A typical Gantt chart gives the start and finish dates of the various phases of development and displays it in the graphical form of bars.



Chapter 4. Implementation and Testing

4.1 Code

```
import pyttsx3 #pip install pyttsx
import webbrowser #pip install Webbrowser
import smtplib
import random
import speech recognition as sr #pip install speech recognition
import datetime #pip install datetime
import wolframalpha # pip install wolframalpha
import os
import sys
from pygame import mixer #pip install pygame
import re
from gtts import gTTS   #pip install gTTs
import requests
import urllib. request  #pip install urllib
import urllib.parse
import bs4          #pip install beautifulspace4
from selenium import web driver #pip install selenium
from selenium.webdriver.common.keys import Keys

engine = pyttsx3.init('sapi5')

WOLFRAMALPHA ID-:
client=wolframalpha.Client('E2AE9E-XET5926KHU')

voices = engine. get Property('voices')
engine.setProperty('voice', voices[0].id)

speak Function-:

def speak(audio):
print ('Jarvis: ' + audio)
engine.say(audio)
engine.runAndWait()
```

Wish ME Function-:

```
def greetMe():
currentH = int(datetime.datetime.now().hour)
if currentH >= 0 and currentH < 12:
speak('You will never have this day again so make it count! ... Good Morning Sayed!')
```

```
if currentH >= 12 and currentH < 18:
speak('Be bright like the afternoon sun and let everyone who sees you feel inspired by all the great things you do. ..Good Afternoon Sayed!')

if currentH >= 18 and currentH !=0:
speak('This evening is as brief as the twinkling of an eye yet such twinklings is what eternity is made of. ..Good Evening !')

greetMe()

speak('Hello Sayed, I am Jarvis your virtual assistant')
speak('How may I help you?')
```

Voice Input via microphone Function-:

```
def myCommand():
"listens for commands"
#Initialize the recognizer
#The primary purpose of a Recognizer instance is, of course, to recognize speech.
r = sr.Recognizer()

with sr.Microphone() as source:
print('Jarvis ...')
r.pause_threshold = 1
#wait for a second to let the recognizer adjust the
#energy threshold based on the surrounding noise level
r.adjust_for_ambient_noise(source, duration=1)
#listens for the user's input
audio = r.listen(source)
print('i am on it sir...')

try:
command = r.recognize_google(audio).lower()
print('You said: ' + command + '\n')


#loop back to continue to listen for commands if unrecognizable speech is received
except sr.UnknownValueError:
print('Your last command couldn\'t be heard')
command = myCommand();

return command

if __name__ == '__main__':

while True:
```

```
query = myCommand()
query = query.lower()

 Youtube Query

if 'open youtube' in query:
speak('okay')
webbrowser.open('www.youtube.com')

elif 'open google' in query:
speak('okay')
webbrowser. open('www.google.co.in')

#Gmail Query-:

elif 'open Gmail' in query:
speak('okay')
web browser. open('www.gmail.com')

elif "what\'s up" in query or 'how are you' in query:
stMsgs = ['Just doing my thing!', 'I am fine!', 'Nice!', 'I am nice and full of energy']
speak (random. Choice (SMSgts))
# Myself Query

elif "your self" in query:
speak('okay')
speak('i was made by a Askari Sayed. i am glad that i could help everyone whenever
they need me!')

elif 'email' in query:
speak('Who is the recipient? ')
recipient = myCommand()

if 'me' in recipient:
try:
speak('What should I say? ')
content = myCommand()

SMTPLIB Function-:
server = smtplib.SMTP('smtp.gmail.com', 587)
server. ehlo()
server. starttls ()
server. Login("askarizaidi3@gmail.com", 'password')
server.sendmail('askarizaidi3@gmail.com', "ansarhusain68@gmail.com", content)
server.close()
```

```
speak('Email sent!')

except:
speak('Sorry Sir! I am unable to send your message at this moment!')


elif 'nothing' in query or 'abort' in query or 'stop' in query:
speak('okay')
speak('Bye Sir, have a good day.')
sys. exit()

elif 'hello' in query:
speak ('Hello Sir')



# Date Query
elif 'the time' in query:
strTime = datetime.datetime.now (). strftime("%H:%M:%S")
speak ("Sir, the time is {strTime}")


elif 'bye' in query:
speak ('Bye Sir, have a good day.')
sys. exit ()


else:
query = query
speak('Searching...')
try:
try:
res = client.query(query)
results = next(res.results).text
speak('WOLFRAM-ALPHA says - ')
speak('Got it.')
speak(results)

except:
results = Wikipedia. Summary (query, sentences=2)
speak ('Got it.')
speak ('WIKIPEDIA says - ')
speak(results)

except:
webbrowser. Open('www.google.com')
```

```
speak('Next Command! Sir!')
```

4.2 Testing Approach

4.2.1 Unit Testing-:

Case 01-Components Testing-:

Components	Expected Result	Actual Result
Microphone	Working.	Working.
Internet	Working.	Working.
Speakers(Speak function).	Working.	Working.

Case 02- Modules Testing-:

Modules	Expected Result	Actual Result
Py-Audio	Import Successfully	Pass
Py-game	Import Successfully	Pass
Speech-recognition	Import Successfully	Pass
Gtts	Import Successfully	Pass
Pyttsx & Pyttsx3	Import Successfully	Pass
Ur-library	Import Successfully	Pass
Selenium Web Driver	Import Successfully	Pass
Wolfram-alpha	Import Successfully	Pass
Wikipedia	Import Successfully	Pass

4.2.2 Integration Testing

System testing-:

System	Expected Result	Actual Result
Wish Me ()	Wishing Me	Pass
How May I Help You	Helping Me	Pass
User Voice Input	Taking input	Pass
Open google	Google Open	Pass
Open You tube	YouTube open	Pass
Search queen Elizabeth	Searching Elizabeth	Pass
Search Mahatma Gandhi	Searching Gandhi	Pass
Mathematical Function	Solving Math Function	Pass
Weather Query	Showing Weather	Pass
Wikipedia Query	Searching from Wikipedia	Pass
Wikipedia Query 2	Searching from Wikipedia	Pass
Wikipedia Query 3	Searching from Wikipedia	Pass
Mathematical Function 2	Solving Math Function	Pass
Mathematical function 3	Solving Math Function	Pass
My Self Query	Describing Jarvis	Pass
Date Query	Current Date	Pass
Hello Query	Wishes Hello	Pass
Bye Query	Exit program	Pass
Wolfram alpha Engine	Fetching Data	Pass
Science & Geography query	O/p related to Science and Geography	Pass

Chapter 5- Results and Discussion

Screenshots-:

1)Wish Me () function-:

```
ɔygame 1.9.6
ɨello from the pygame community. https://www.pygame.org/contribute.html
Jarvis: Be bright like the afternoon sun and let everyone who sees you feel insp
ɨred by all the great things you do. ..Good Afternoon Sayed!
Jarvis: Hello Sayed, I am Jarvis your virtual assistant
```

When user will start the program, the Jarvis will Wish him according to the respected time of the day.

2)Hello Function-:

```
pygame 1.9.6
Hello from the pygame community. https://www.pygame.org/contribute.html
Computer: Good Afternoon!
Computer: Hello Sayed, I am Jarvis your virtual assistant
Computer: How may I help you?
Jarvis ...
i am on it sir...
You said: hello

Computer: Hello Sir
Computer: Next Command! Sir!
```

- After the wish function the completed the Jarvis will ask how may I help you and user voice input will hello and Jarvis will respond as hello sir.

3)My Self Function-:

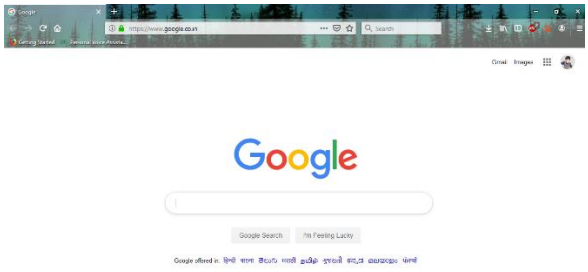
```
Jarvis ...
i am on it sir...
You said: your self

Jarvis: okay
Jarvis: i was made by a Askari Sayed. i am glad that i could help everyone whene
ver they need me!
Jarvis: Next Command! Sir!
```

- ❖ When user will give command that tell me about your self so the Jarvis will respond back and givbe the answer as shown in screenshot.

4)Google Query:-

```
Python 3.6.0 Shell
File  Edit  Shell  Debug  Options  Window  Help
Python 3.6.0 (v3.6.0:41df79263a11, Dec 23 2016, 08:06:12) [MSC v.1900 64 bit
(AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\sayed\Google Drive\virtual\jarvis.py =========
==
pygame 1.9.6
Hello from the pygame community. https://www.pygame.org/contribute.html
Jarvis: This evening is as brief as the twinkling of an eye yet such twinkli
ngs is what eternity is made of. ..Good Evening Sayed!
Jarvis: Hello Sayed, I am Jarvis your virtual assistant
Jarvis: How may I help you?
Jarvis ...
i am on it sir...
You said: open google
```

- ❖ Here user has said the Jarvis to open google and the output will prompt up in default browser.



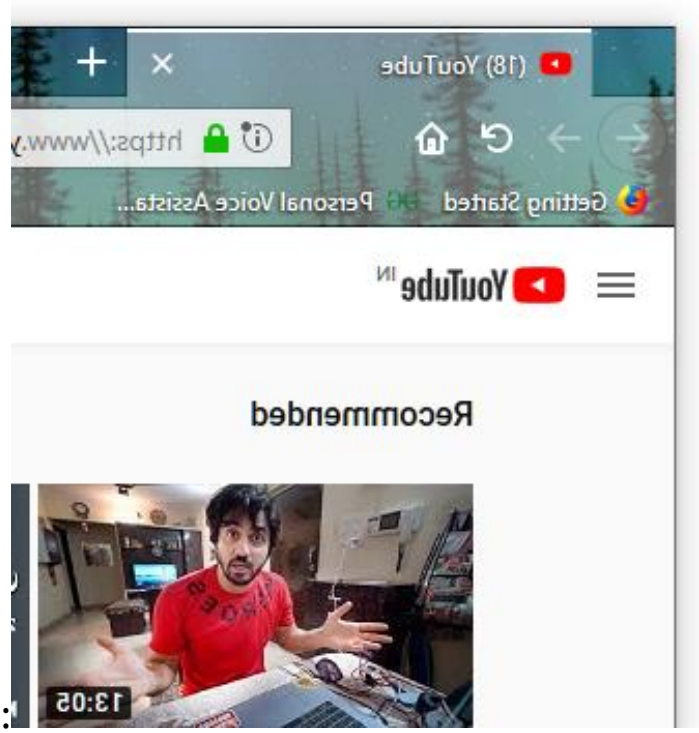
Output: -

5)YouTube Query-:

```
i am on it sir...
You said: open youtube
```

- Here user has said to open you tube and Jarvis has analyzed and open you tube in default browser.

Output-:



6)Weather Query-:

A

```
Computer: Next Command! Sir!
Jarvis ...
i am on it sir...
You said: weather mumbai

Computer: Searching...
Computer: WOLFRAM-ALPHA says -
Computer: Got it.
Computer: temperature | 26 °C
conditions | rain, overcast
relative humidity | 100% (dew point: 26 °C)
wind speed | 5.1 m/s
(1 hour 40 minutes ago)
Computer: Next Command! Sir!
```

B

```
Jarvis ...
i am on it sir...
You said: weather london

Jarvis: Searching...
Jarvis: WOLFRAM-ALPHA says -
Jarvis: Got it.
Jarvis: temperature | 15 °C
conditions | partly cloudy
relative humidity | 55% (dew point: 6 °C)
wind speed | 4.1 m/s
(50 minutes ago)
Jarvis: Next Command! Sir!
```

- As a user ask to tell the weather of certain location the Jarvis has analyzed and give the weather of Mumbai and it read it out for the user. A user could ask for multiple weather of city and country simultaneously and Jarvis will be analyzed and give the output.

7) Wikipedia Query: -

```
Jarvis ...
i am on it sir...
You said: program

Computer: Searching...
Computer: WOLFRAM-ALPHA says -
Computer: Got it.
Computer: 1 | noun | a series of steps to be carried out or goals to be accomplished
2 | noun | a system of projects or services intended to meet a public need
3 | noun | a radio or television show
4 | noun | a document stating the aims and principles of a political party
5 | noun | an announcement of the events that will occur as part of a theatrical or sporting event
6 | noun | an integrated course of academic studies
7 | noun | (computer science) a sequence of instructions that a computer can interpret and execute
8 | noun | a performance (or series of performances) at a public presentation
(10 meanings)
Computer: Next Command! Sir!
```

```
You said: queen elizabeth

Computer: Searching...
Computer: Got it.
Computer: WIKIPEDIA says -
Computer: Elizabeth II (Elizabeth Alexandra Mary Windsor; born 21 April 1926) is Queen of the United Kingdom and the other Commonwealth realms.Elizabeth was
born in London as the first child of the Duke and Duchess of York, later King George VI and Queen Elizabeth, and she was educated privately at home. Her fat
her acceded to the throne on the abdication of his brother King Edward VIII in 1936, from which time she was the heir presumptive.
Computer: Next Command! Sir!
```

```
Computer: Searching...
Computer: Got it.
Computer: WIKIPEDIA says -
Computer: Equal pay for equal work is the concept of labour rights that individuals in the same workplace be given equal pay. It is most commonly used in th
e context of sexual discrimination, in relation to the gender pay gap.
Computer: Next Command! Sir!
```

- A user asks Jarvis to tell about the Program and Jarvis has analyzed search the data from the Wikipedia and output has spoken on the screen of user.
- A user has asked again to search for Queen Elizabeth and Jarvis has analyzed search the data and given the output using Wikipedia and output screenshots has placed above.
- A Jarvis could also search for Law related to equal rights of humans and the Jarvis has analyzed and display the data on the screen of the user

8)Mathematical Query: -

1)

```
Jarvis ...
i am on it sir...
You said: alpha + beta

Computer: Searching...
Computer: WOLFRAM-ALPHA says -
Computer: Got it.
Computer: β = -α
```

- Here User has given input as to find Alpha + beta. alpha and beta are the functions, also called Euler's Integrals, are the improper integrals, which are extremely useful in the evaluation of integrals the Jarvis has analyzed and check the solution on wolframalpha and the output has come from a wolframalpha api.

2)

```
Jarvis ...
i am on it sir...
You said: 20 equal to 10

Computer: Searching...
Computer: WOLFRAM-ALPHA says -
Computer: Got it.
Computer: False
```

- Here user has given the value that 20 is equla to 10 and the given equation is cannot possible because 20 is not equal to 10.the jarvis has analyzed the given input and result has displayed on the screen as this cannot be possible the given data is false.

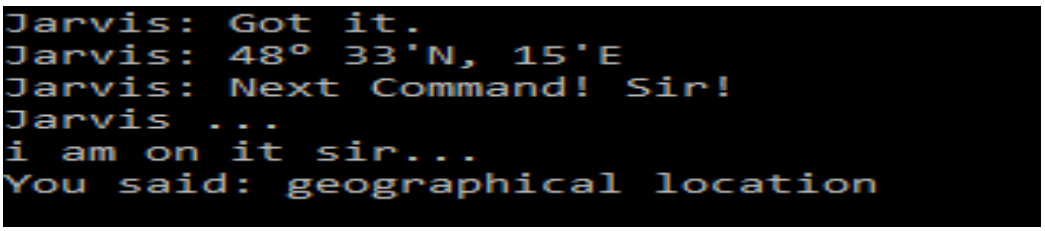
9)Date Query-:

```
You said: mumbai today

Computer: Searching...
Computer: WOLFRAM-ALPHA says -
Computer: Got it.
Computer: Wednesday, September 4, 2019
Computer: Next Command! Sir!
```

- Here user has ask the date of the city Mumbai the jarvis has analyzed the data from the wolframalpha api and the data has fetch and displayed the output on the user screen .

10)Geographical Query-:

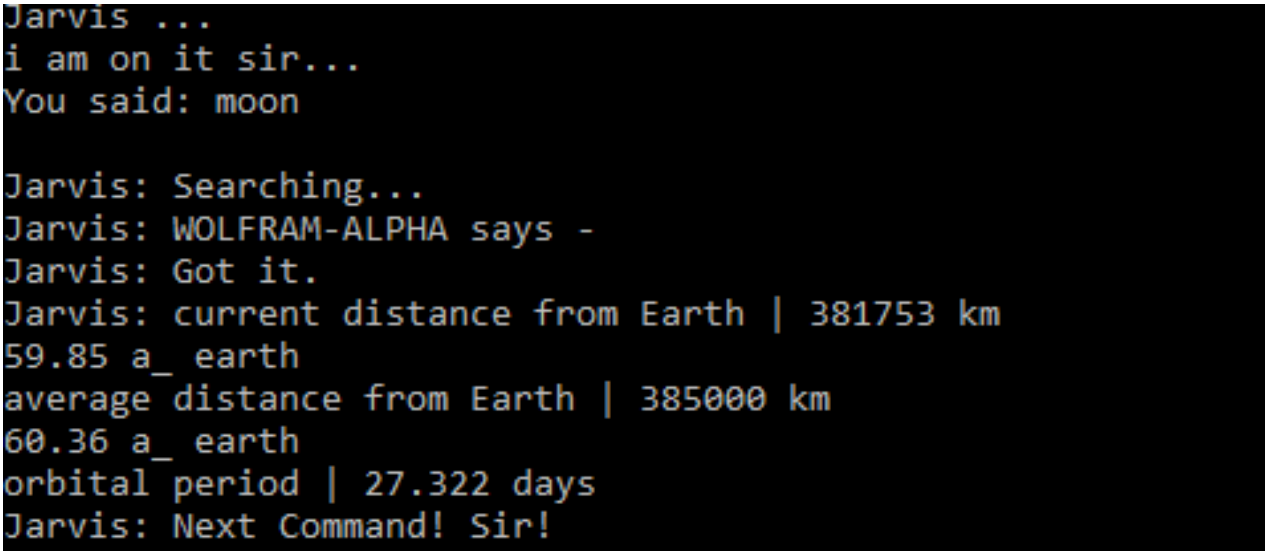
```
Jarvis: Next Command! Sir!
Jarvis ...
i am on it sir...
You said: london

Jarvis: Searching...
Jarvis: WOLFRAM-ALPHA says -
Jarvis: Got it.
Jarvis: city population | 8.674 million people (country rank: 1st) (2015 estimate)
metro area population | 12.58 million people (London metro area) (2007 estimate)
Jarvis: Next Command! Sir!
```



- Here user has asked jarvis to tell geographical condition of london.as jarvis has used the wolframalpha api and has told the entire detail about london including their population and

also predicted the future outcome of london population.

11) Solar System Query-:



- Here user ask jarvis to tell something about Moon and jarvis has analyze the given input and search from the worlframaplha api and the result has that jarvis has given the output of entire deatil of moon.by this an user could ask any query related to solarsystem withj the help of jarvis.

12)Bye or exit Query:-

```
You said: m1

Jarvis: Next Command! Sir!
Jarvis ...
i am on it sir...
You said: bye

Jarvis: Bye Sir, have a good day.
```

- Here user has terminated the program by Saying Bye or exit the loop came to an end and the program end.all the api has shutdown automatically by telling bye command.

Chapter 6. Conclusion and Future Work

Conclusion-:

- The virtual assistant can be use in many ways to find the solution without touching the keyboard
- The virtual assistant enhances the life of human beign without actually manully operating a computer and getting a data.
- It help to find the every solution of the given input.
- Most Virtual assistant cannot recognize the voice pattern of the sub-continent country beacause of different accent of speaking,but this virtual assistant can recognized any voice pattern with a 500 energy thershold of backgrounnd that means even in the noisy place it could work very smoothly without any problem or error.
- This virtual assistant has also been tested on Linux operating System and result is same as windows operating system.
- This can also help to find a solution of an complex maths problem via the keyboard input.most of the time a user can solve the problem of maths by giving the input from the keyboard.
- All this could be possible because of wolfram alpha is a computational knowledge engine or answer engine developed by Wolfram Alpha LLC, a subsidiary of Wolfram Research.

Future Scope-:

- The project has covered almost all the requirements. Further requirements and improvements can easily be done since the coding is mainly structured or modular in nature. Improvements can be appended by changing the existing modules. We think that not a single project is ever considered as complete forever because our mind is always thinking new and our necessities also are growing.
- Our application Also, if you see at the first glance that you find it to be complete but we want to make it still mature and fully automatic. Future plans for the project include allowing the use of different front-ends to communicate with the assistant and possibly a choice of back- ends, such as the AI ", natural language for developer's platform.
- Other planned features include more functionality without an Internet connection, asynchronous behavior and output plug-ins to provide responses via different output systems, such as GUI or text-to-speech. It works on Windows, Linux and OS X and supports programming in both the Python 2 and Python 3 variants. Known for its simplicity and readability, Python has become a go-to programming language for AI, machine learning and other scientific use.
- reveal themselves as the virtual assistant user base grows and new Skills hit the market.

CHAPTER 7. REFERENCES

Books: -

B-1 Virtual Assistant: The Ultimate Guide to Finding, Hiring, and Working with Virtual Assistants Nick Lopper.

B-2 Virtual Assistant Startup Kit: What You Must Know Paul Hafalla.

B-3 Think Python: An Introduction to Software Design

B-4 Automate the Boring Stuff with Python: Practical Programming for Total Beginners.

Websites-:

W-1 https://www.youtube.com/watch?v=FKwicZF7xNE

W-2 https://www.youtube.com/watch?v=VbV_398ngdA

W-3 https://pypi.org/

W-4 https://en.wikipedia.org/wiki/Natural_language_processing

W-5.https://dzone.com/articles/nlp-tutorial-using-python-nltk-simple-examples

Article-:

A-1 https://biz30.timedoctor.com/what-does-a-virtual-assistant-do/

A-2 https://www.entrepreneur.com/article/330337.

A-3 https://www.entrepreneur.com/topic/virtual-assistant.