

VOICE BASED VIRTUAL ASSISTANT

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INTRODUCTION

A voice assistant is a digital assistant that uses voice synthesis to listen to specific voice commands and return relevant information or perform specific functions as requested by the user. Voice assistants can return relevant information by listening for specific keywords and filtering out the ambient noise. Voice assistants are integrated into many of the devices we use on a daily basis, such as cell phones, computers.

LITERATURE SURVEY

S.No	Year	Author name	Title of the project	Merits	Demerits
1	2015	A.M. Weeratunga S.A.U. Jayawardana P.M.A.K Hasindu	Project <u>Nethra</u> - an intelligent assistant for the visually disabled to interact with internet services. <u>Algorithm</u> used-PLP features.	Talking is faster than typing!	Privacy of voice recorded data
2	2018	S Jagadesh M ArulPugazhendhi G Rohith Raj	Automatic Face Recognition and Virtual Assistant using IOT and AI. <u>Algorithm</u> used- WFST framework.	Voice based has come a long way	Error and misinterpretation of words
3	2021	Arva Saniaya Handri Santoso	Virtual Assistant Prototype for Property Sales. <u>Algorithm</u> used- deep neural networks.	Voice recognition boosts productivity levels	data privacy

PROBLEM STATEMENT

As we know each human have their own characteristics and every developer applies his own method and approaches for development of a product. One assistant can synthesize speech more qualitatively, another can more accurately and without additional explanations and corrections perform tasks, others are able to perform a narrower range of tasks, but most accurately and as the user wants. Therefore, there is no such assistant that can perform all the work and tasks equally. Despite the different approaches to learn different algorithms, the principle of building voice assistant remains the same. The technologies that are used to build a voice assistant that can interact with the humans are speech recognition, Teach-To-Speech etc.

DEVELOPMENT ENVIRONMENT

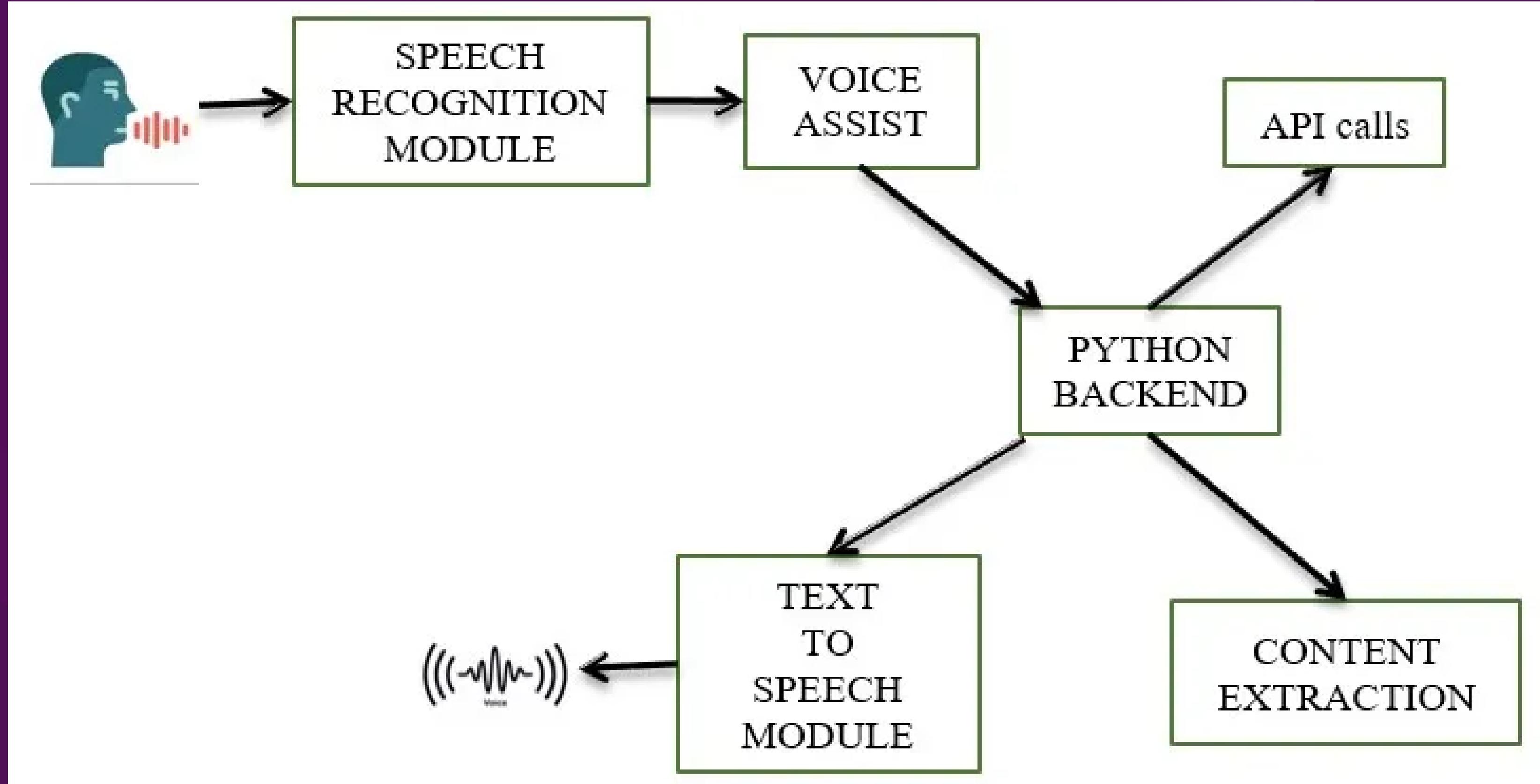
HARDWARE

- *Pentium-pro processor or later.*
- *RAM 512MB or more*

SOFTWARE

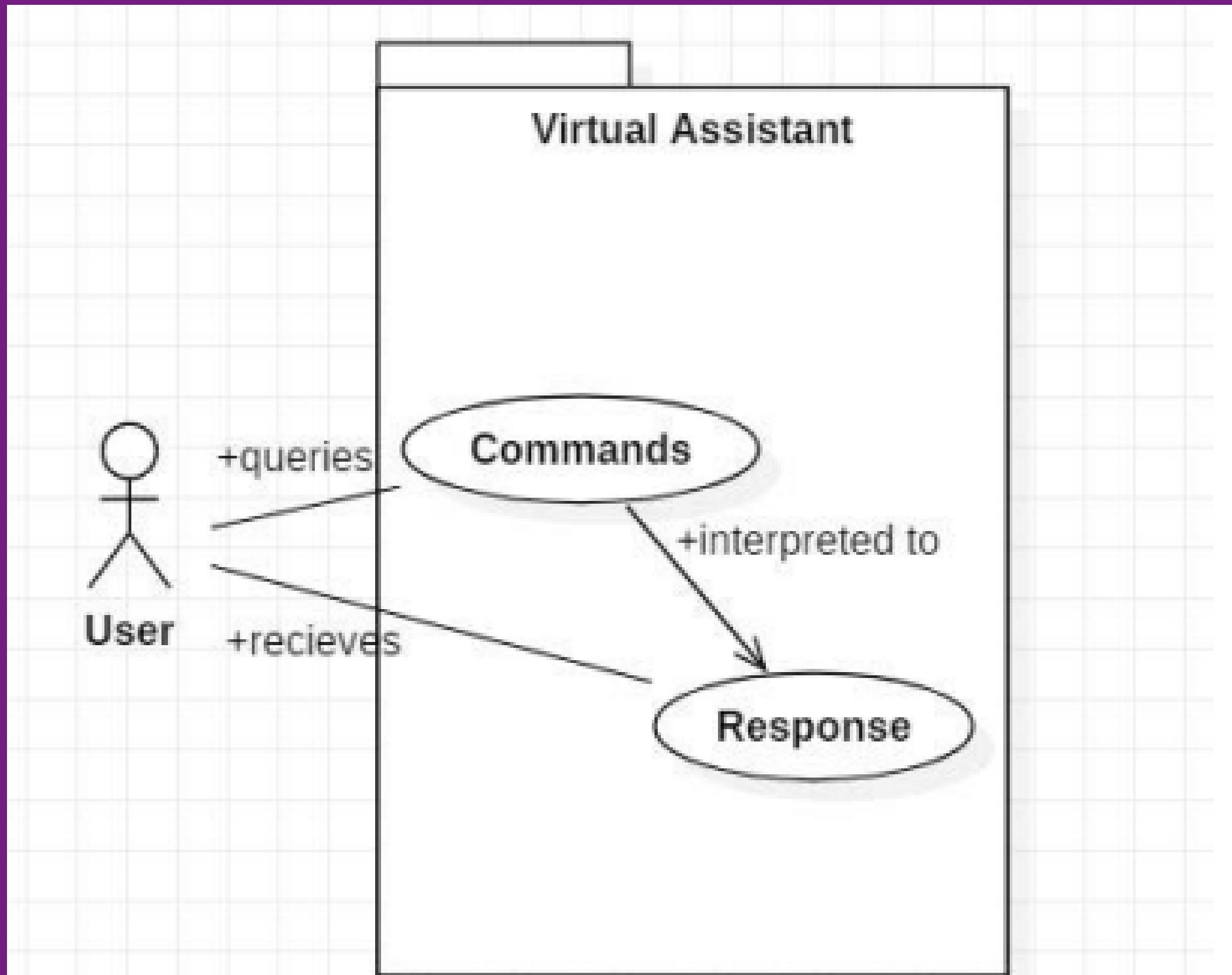
- *Windows 7(32-bit) or above.*
- *Python 2.7 or later*
- *Chrome Driver*
- *Visual Studio*

SYSTEM ARCHITECTURE

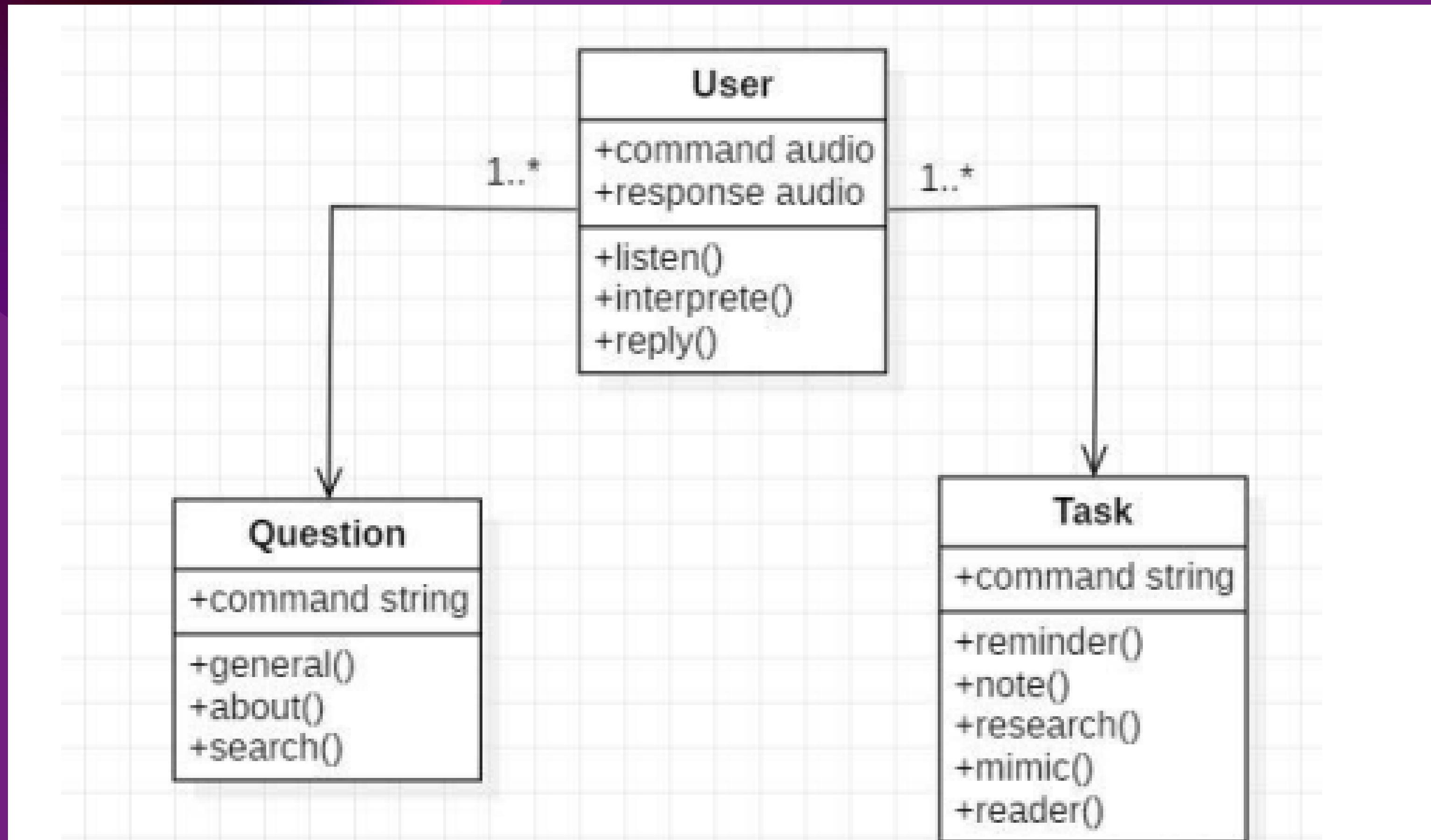


SYSTEM DESIGN

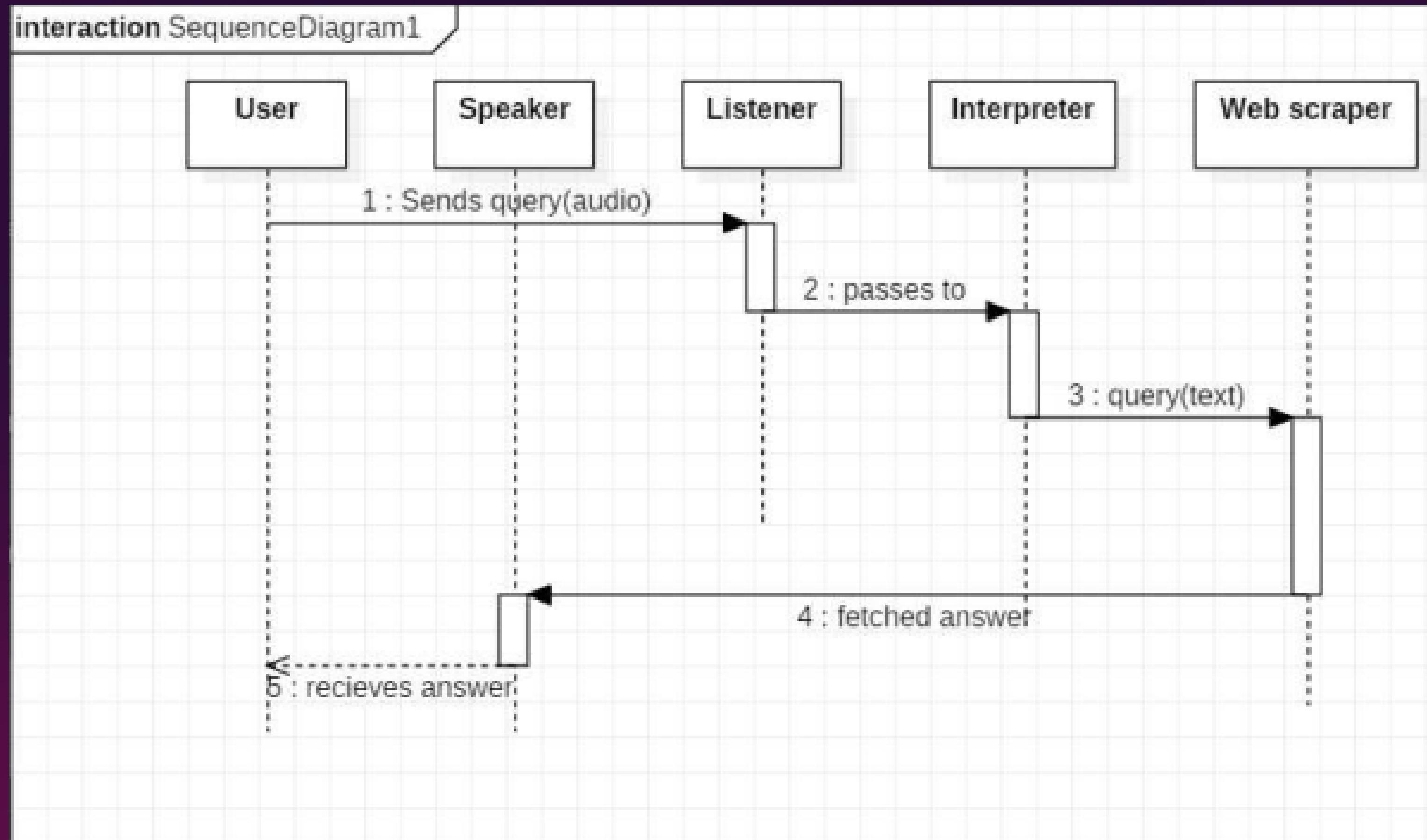
USE CASE DIAGRAM



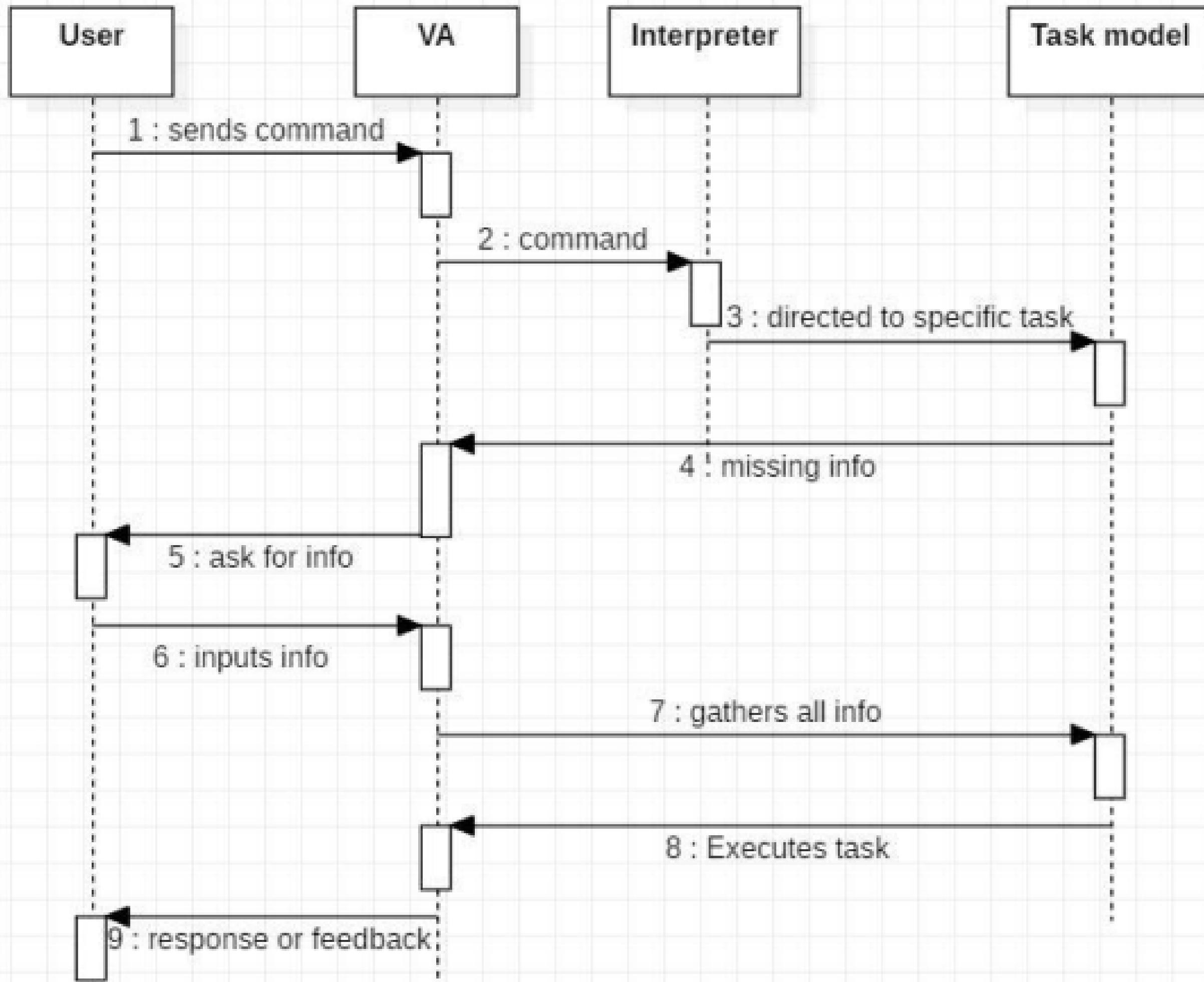
CLASS DIAGRAM



SEQUENCE DIAGRAM



interaction SequenceDiagram1



MODULE DESCRIPTION



*Speech
Recognition:-*

*one of the most
important things in this
is that your assistant
recognizes your voice
(means what you want to
say/ ask).*

Web browser:-

*To perform Web
Search. This module
comes built-in with
Python.*

Pyttsx3:-

*This module is used for
the conversion of text
to speech in a program
it works offline.*

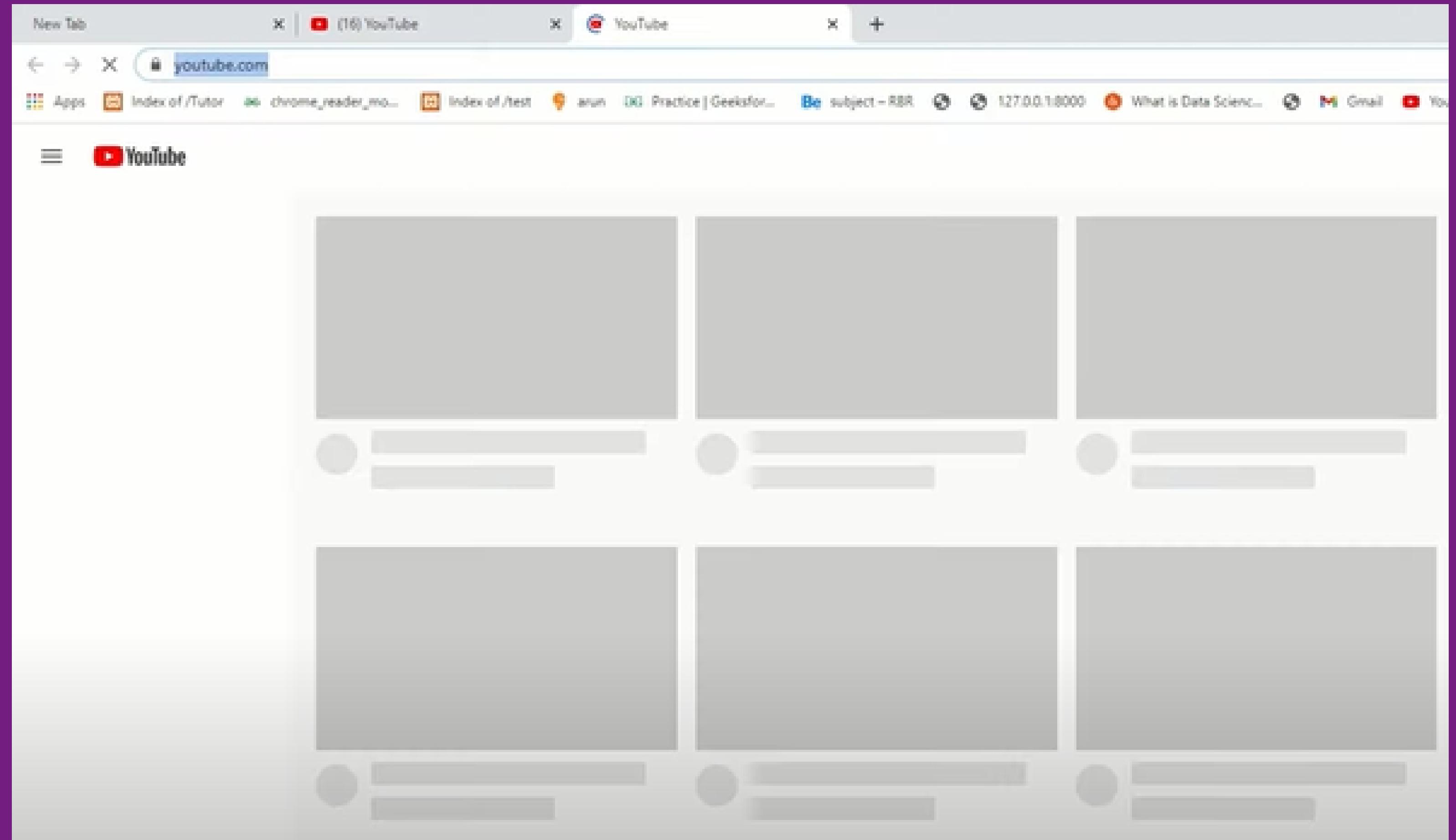
TESTING

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** virassitant.py - VScode - Visual Studio Code
- Terminal Tab:** TERMINAL (selected)
- Terminal Content:**

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS E:\Backup files\VScode> & C:/Users/admin/AppData/Local/Programs/Python/Python38/python.exe "e:/Backup files/VScode/virassitant.py"
Clearing background noises..Please wait
Ask me anything..
Your message: open youtube
```
- Explorer View:** Shows a list of files under the 'VS CODE' folder:
 - geckoDriver.log
 - Googleimages.py
 - HCF.py
 - helloworld.cpp
 - Mailautomation.py
 - matrices are identical.py
 - meetbot.py
 - OOPS.py
 - otp login.py
 - palindrome.py
 - productofall.py
 - pygoripy
 - pythonfibonacci.py
 - pywhatkit_dbs.txt
 - resnet50_coco_best_v2.h5
 - resnet50_imagenet_tf.h5
 - sentence_tokenizer.pickle
 - Simple Game.py
 - Sleep detection.py
 - sortarraydes.py
 - Test.jpeg
- Bottom Status Bar:** 1



A screenshot of the Visual Studio Code interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar shows "virassitant.py - VScode - Visual Studio Code". The left sidebar has icons for Explorer, Search, Open Editors (1 unsaved), and others. The main area has tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, and TERMINAL. The TERMINAL tab is active, displaying a Windows PowerShell session. The session output is as follows:

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS E:\Backup files\VScode> & C:/Users/admin/AppData/Local/Programs/Python/Python38/python.exe "e:/Backup files/VScode/virassitant.py"
Clearing background noises..Please wait
Ask me anything..
Your message: open youtube
Clearing background noises..Please wait
Ask me anything..
Your message: open chrome browser
```

New Tab



Apps

Index of /Tutor

chrome_reader_mo...

Index of /test

anun

Practice | Geeksfor...

subject - RER

127.0.0.1:8000

What is Data Scienc...

127.0.0.1:8000

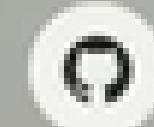
Gmail

YouTube

My...

Google

Search Google or type a URL.



GitHub



Be



Cross - RER



Gmail (sigma...)



WhatsApp

GeeksforGeeks



Inbox (4,905)



HackerRank



(30) YouTube



Cricbuzz.com



Add shortcut

SCREENSHOTS

A screenshot of the Visual Studio Code (VS Code) interface. The top navigation bar includes 'EXPLORER', 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL'. The 'TERMINAL' tab is active, showing a Windows PowerShell session. The terminal output is as follows:

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS E:\Backup files\VScode> & C:/Users/admin/AppData/Local/Programs/Python/Python38/python.exe "e:/Backup files/VScode/virassitant.py"
Clearing background noises..Please wait
Ask me anything..
Your message: open youtube
```

The left sidebar shows a file tree with a folder named 'VScode' containing various Python scripts and other files like 'Test.jpeg' and 'Test1.pdf'. The status bar at the bottom indicates there is 1 unsaved change.

☰ YouTube



CONCLUSION

We have discussed a Voice Assistant developed using python. This assistant currently works as an application based and performs basic tasks like stream music, search Wikipedia, open desktop applications, etc. The functionality of the current system is limited to working on application based only. The upcoming updates of this assistant will have machine learning incorporated in the system which will result in better suggestions with IoT to control the nearby devices.

REFERENCES

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- [2] B. S. Atal and L. R. Rabiner, “A pattern recognition approach to voiced unvoiced-silence classification with applications to speech recognition,” *Acoustics, Speech and Signal Processing, IEEE Transactions on*, vol. 24, no. 3, pp. 201–212, 1976.
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- [4] T. Schultz and A. Waibel, “Languageindependent and language adaptive acoustic modeling for speech recognition”, *Speech Communication*, vol. 35, no. 1, pp. 31–51, 2001.

THANK YOU!

