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Desktop Assistant

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ABSTRACT : A personal desktop assistant is a software that can perform tasks as per the individual's dictated commands. This is done through a synchronous process involving recognition of speech patterns, processing the command and then, responding via synthetic speech. As the technology is developing day by day, one of the mostly used platform is computer. We all want to make the use of these computers more comfortable, traditional way to give a command to the computer is through keyboard but a more convenient way is to input the command through voice. Giving input through voice is not only beneficial for the normal people but also for those who are visually impaired who are not able to give the input by using a keyboard. For this purpose, there is a need of a voice assistant which can not only take commands through voice but also execute the desired instructions and give output either in the form of voice or by performing the action.

I. INTRODUCTION :

The usage of desktop assistants and voice searched started expanding rapidly after 2017. Due to the advancement in technology, many different features are being added in the mobile phone and desktops. To use them with more convenience and fun way we require a means of input which is faster and reliable at the same time.

In our project we use voice command to input the data into the system. For that a microphone is used to input the command. The different python modules and commands executes the task and replies with the output. We have so many virtual assistants like Apple's Siri, Amazon's Cortana. For this project, wake word was chosen as COBRA**.** This system is used effectively on desktops. Personal assistant software increases user productivity by managing routine tasks for the user and providing from the online sources to the user. Call the wake word "COBRA" followed by the command and within seconds, the command gets executed. Voice searches have started dominated over text search on recent years. Statistics and analysis are already predicting that 50% of searches will be via voice by 2022. Virtual assistants are turning out to be smarter than never. This cobra detects intent, pick out important information, automate processes and deliver personalized responses.

The main purpose of an intelligent virtual assistant is to answer basic questions that users may have.Wespend hours in online research then making the report in our terms of understandingCOBRA can do that for you. Provide a topic for research and continue with your tasks while COBRA does the research. Another difficult task is to remember the dates (test dates, birthdates or anniversaries)here COBRApops out with a surprise when you enter the class and realize that it is class test today. If we tell COBRA in advance about your tests and COBRA reminds you well in advance so you can prepare for the test or for any occasion. One of the main advantages of voice assistant is their rapidity and being faster. In fact, voice search is reputed to be four times faster than a written search. whereas we can write about 40 words per minute, we are capable ofspeaking around 150 during the same period of time. So, the ability of personal assistants to accurately recognize spoken words is a prerequisite for them to be adopted by consumers.

Desktop assistance simplifies the whole process of performing basic operations and makes it convenient for different classes of computer owners The biggest merit speech recognition software possesses is that it allows people with disabilities to operate computers. For those who can't operate a computer or use their hands for any reason, being able to dictate commands is incredibly useful.The proposed system eliminates the accent problem and makes it more accessible for Indian users.

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SYSTEM DESIGN:

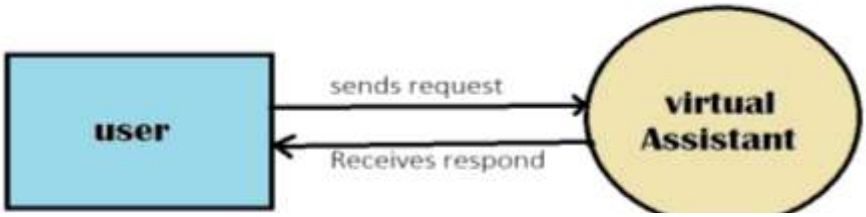

Fig 1: Data flow Diagram

The user sends request in the form of voice message and receives respond from COBRA as a output. The output acts according the command received from the user for instance if the user wants to know the time the user can command byasking"what is the time" after few seconds of listening the COBRA replies with the current time as a output.

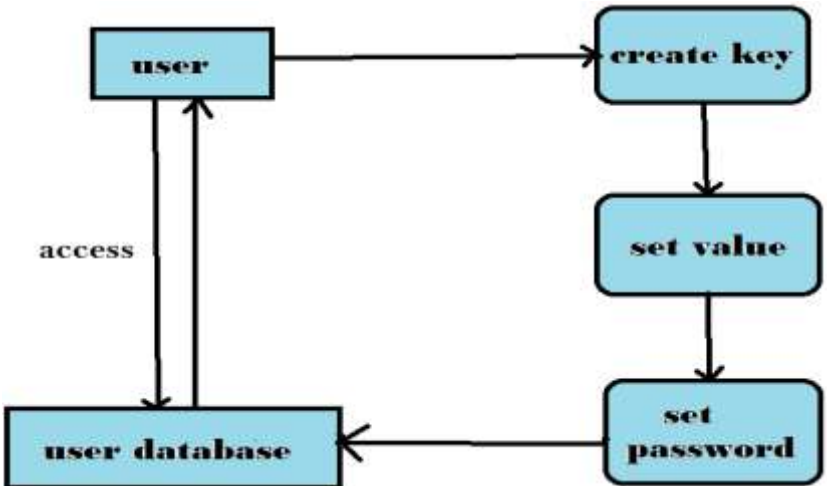

Fig 2:Managing user data

The user creates the data according to the requirement and set the value in the user database. When the stored command is called by the user then it will be accesed and the output is produced for example if the user want to add a new data to increase and decrease the volume of the system then the user can create a key saying "volume up" "volume down" and import the library "pyautogui", now the value is saved in the database when the user calls the volume function then this gets accessed.

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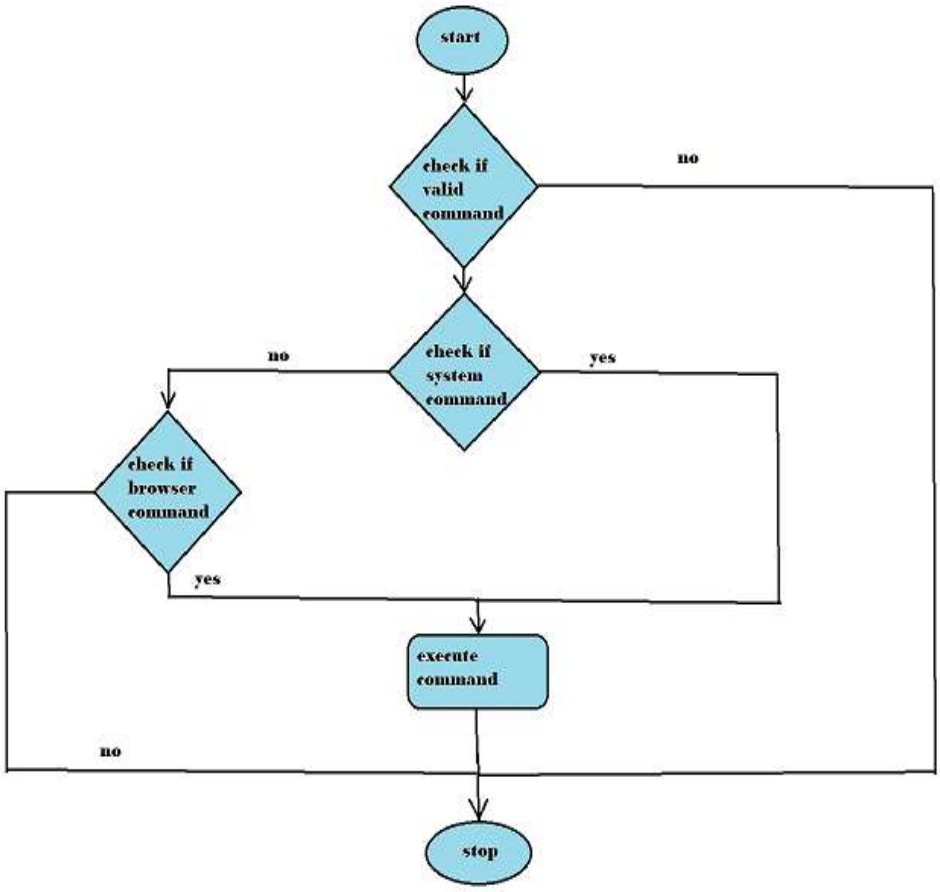

Fig 3:System Architecture

The above diagram shows the system architecture of the desktop assistant COBRA. There are two types of commands available in the desktop assistant. They are system command and browser command. After the user gives the command to the desktop assistant, it checks whether the command is valid or not. If it is valid, it moves to the next step otherwise the desktop assitsnt quits itself. After checking that the given command is valid ot not, it checks whether the command is a system command. If it is a system command, the desktop assistant executes the command. If it does not execute the command, it proceeds to the next step. After checking whether the command is system command, it checks whether the command is a browser command. If it is a browser command, the desktop assistant executes the command.

MODULES:

Matplotlib:

Matplotlib helps with data analyzing, and is a numerical plotting library.

Pandas:

It provides fast, expressive, and flexible data structures to easily (and intuitively) work with structured (tabular, multidimensional, potentially heterogeneous) and time-series data.

Requests:

Requests is a Python Library that lets you send HTTP/1.1 requests, add headers, form data, multipart files, and parameters with simple Python dictionaries.

NumPy:

It has advanced math functions and a rudimentary scientific computing package.

SQL Alchemy:

SQL Alchemy is a library with well-known enterprise-level patterns. It was designed for efficient and high-performing database-access.

Pyglet:

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Pyglet is an excellent choice for an object-oriented programming interface in developing games. In fact, it also finds use in developing other visually-rich applications for Mac OS X, Windows, and Linux. In the 90s, when people were bored, they resorted to playing Minecraft on their computers. Pyglet is the engine behind Minecraft.

SciPy:
SciPy, one of the libraries we have been talking so much about. It has a number of user-friendly and efficient numerical routines. These include routines for optimization and numerical integration.

Scrapy:
If your motive is fast, high-level screen scraping and web crawling, go for Scrapy. You can use it for purposes from data mining to monitoring and automated testing.

Pygame:
PyGame provides an extremely easy interface to the Simple Directmedia Library (SDL) platform-independent graphic, audio, and input libraries.

Twisted:
An event-driven networking engine, Twisted is written in Python, and licensed under the open-source MIT license.

Pillow:
Pillow is a friendly fork of PIL (Python Imaging Library), but is more user-friendly.

Pywin32:
This provides useful methods and class for interaction with Windows, as the name suggests.

iPython:
iPython Python Library has an architecture that facilitates parallel and distributed computing. With it, you can develop, execute, debug, and monitor parallel applications.

Nose:
Nose delivers an alternate test discovery and running process for unittest. This intends to mimic py.test's behavior as much as it can.

Flask:
A web framework, Flask is built with a small core and many extensions.

SymPy:
It is an open-source library for symbolic math. With very simple and comprehensible code that is easily extensible, SymPy is a full-fledged Computer Algebra System (CAS). It is written in Python, and hence does not need external libraries.

Fabric:
Along with being a library, Fabric is a command-line tool for streamlining the use of SSH for application deployment or systems administration tasks. With it, you can execute local or remote shell commands, upload/download files, and even prompt running user for input, or abort execution.

PyGTK:
PyGTK lets you easily create programs with a GUI (Graphical User Interface) with Python

Pytsx3:
Pytsx3 is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline, and is compatible with both Python 2 and 3.

Datetime:
The datetime module supplies classes for manipulating dates and times.

Speech_Recognition:
Library for performing speech recognition, with support for several engines and APIs, online and offline.

Wikipedia:
It is a Python library that makes it easy to access and parse data from Wikipedia. Search Wikipedia, get article summaries, get data like links and images from a page, and more. Wikipedia wraps the Media so you can focus on using Wikipedia data, not getting it.

OS:
This module provides a portable way of using operating system dependent functionality.

PyautoGUI:
PyAutoGUI is a cross-platform GUI automation Python module for human beings. Used to programmatically control the mouse & keyboard.

Web browser:
The web browser module provides a high-level interface to allow displaying Web-based documents to users. Under most circumstances, simply calling the open() function from this module will do the right thing.

Screen brightness control:
A Python tool for controlling the brightness of your monitor. Supports Windows and most of Linux.

Psutil:
Processes and system utilization (CPU, memory, disks, network, sensors) in Python. It is useful mainly psutil (process and system utilities) is a cross-platform library for retrieving information on runningfor system monitoring**,** profiling and limiting process resources and management of running processes**.**

Smptlib:
The smptlib module defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon

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SCREENSHOTS:

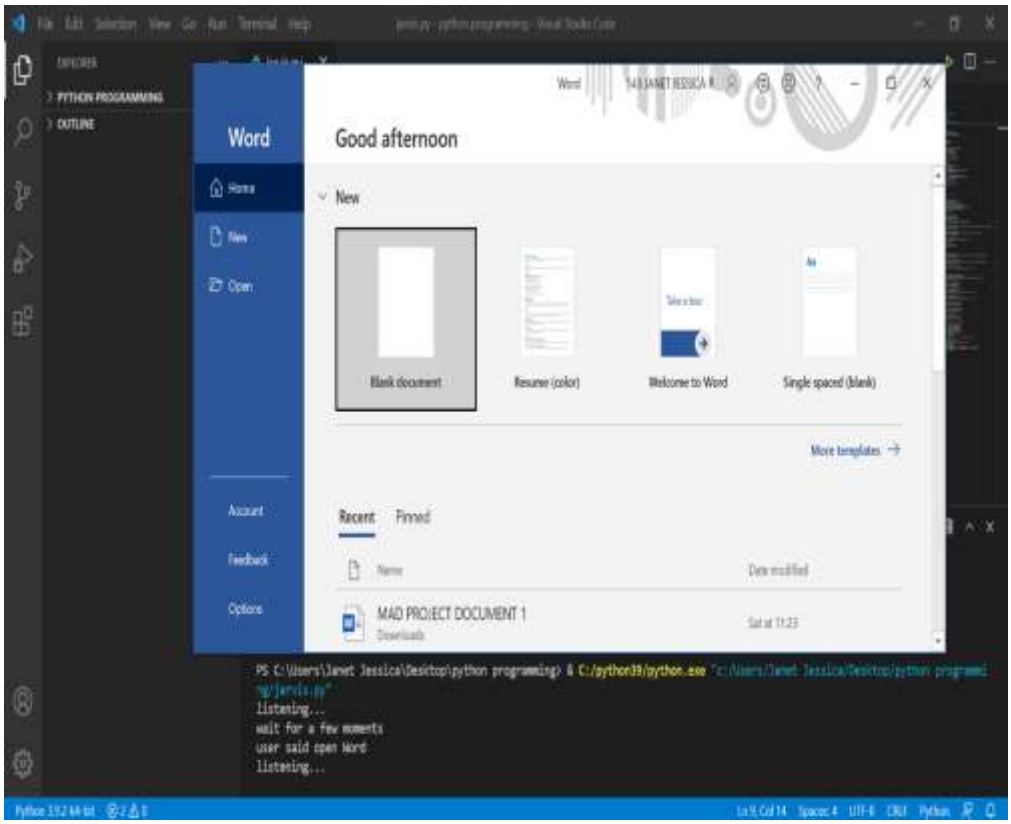

Fig 4: Opens MS Word

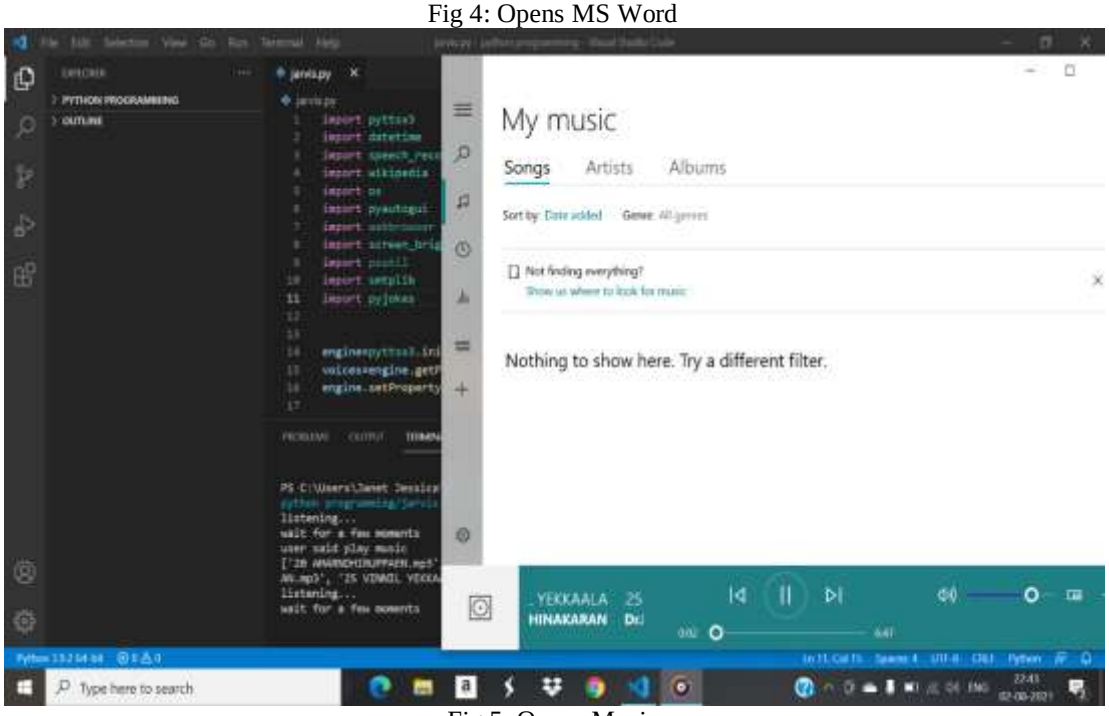

Fig 5: Opens Music

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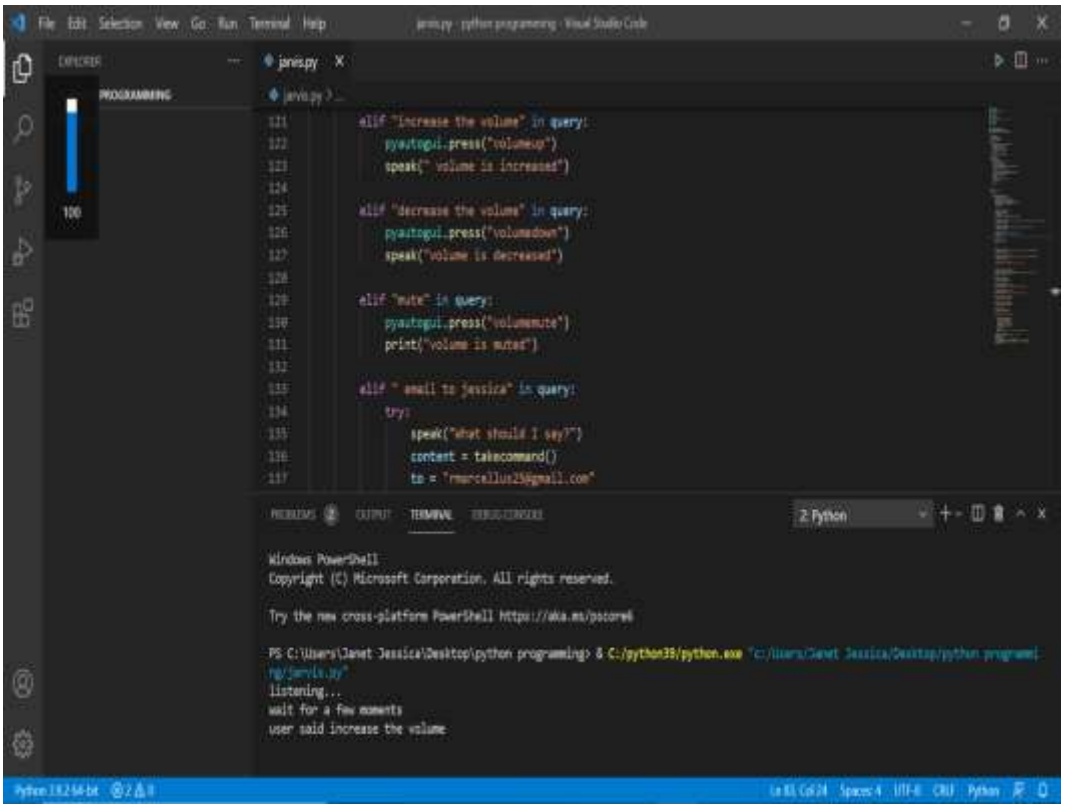

Fig 6: Increase Volume

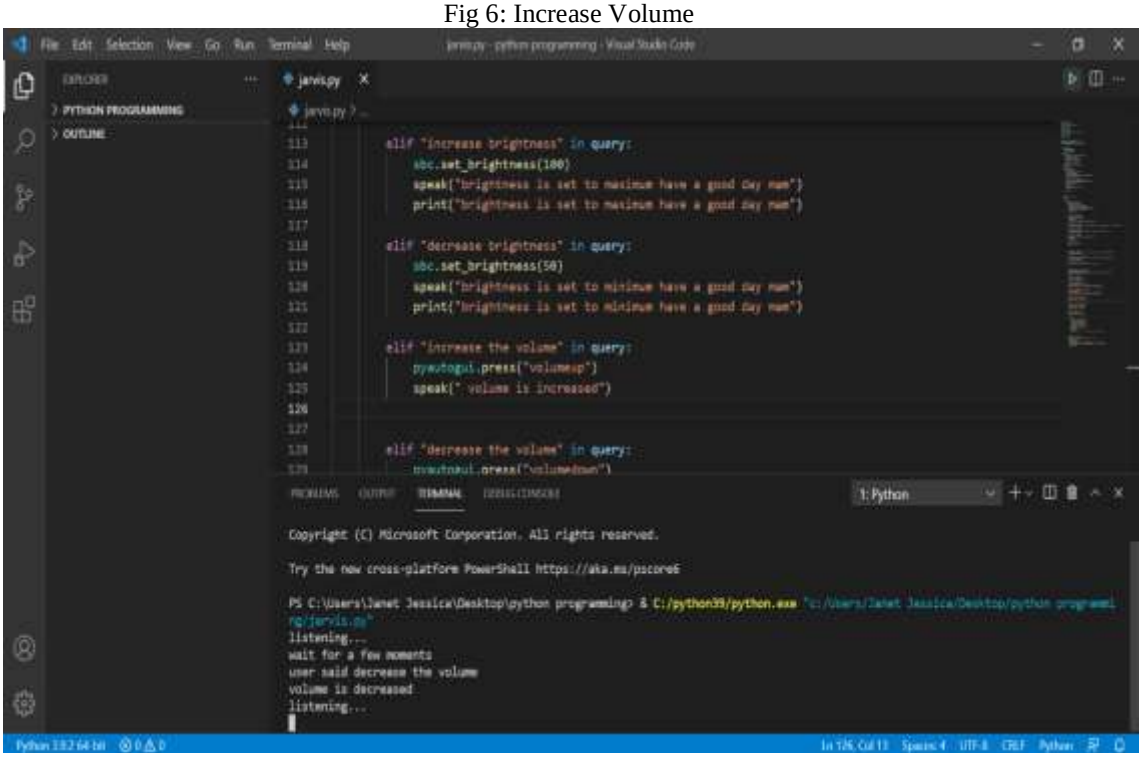

Fig 7: Decrease Volume

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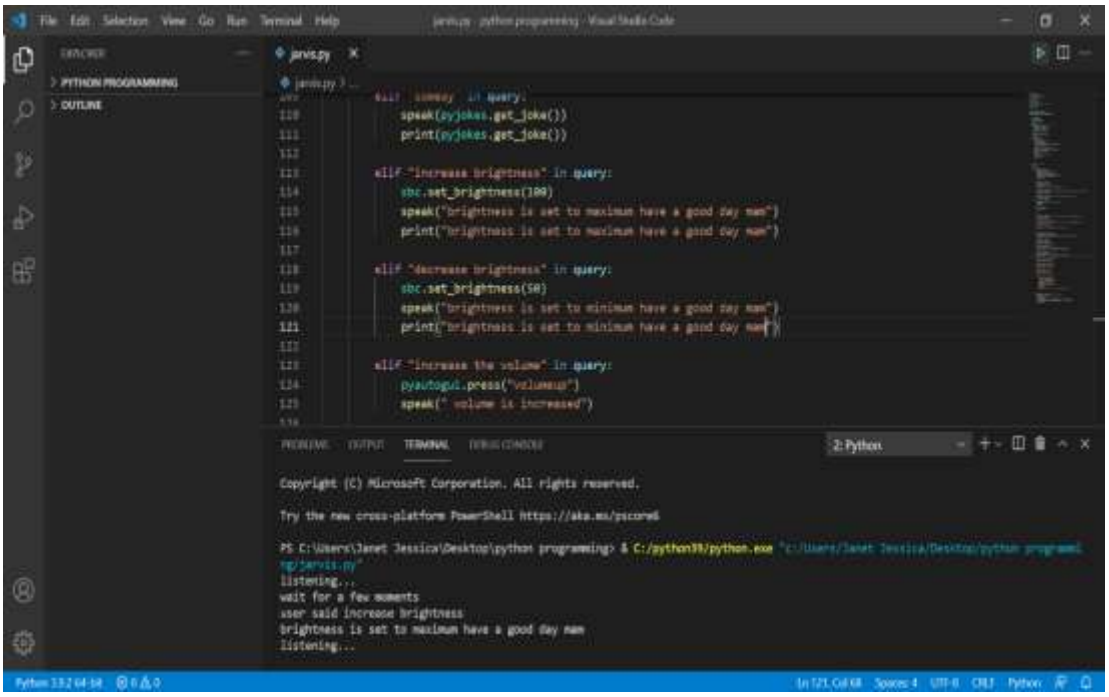

Fig 8: Increase and Decrease brightness

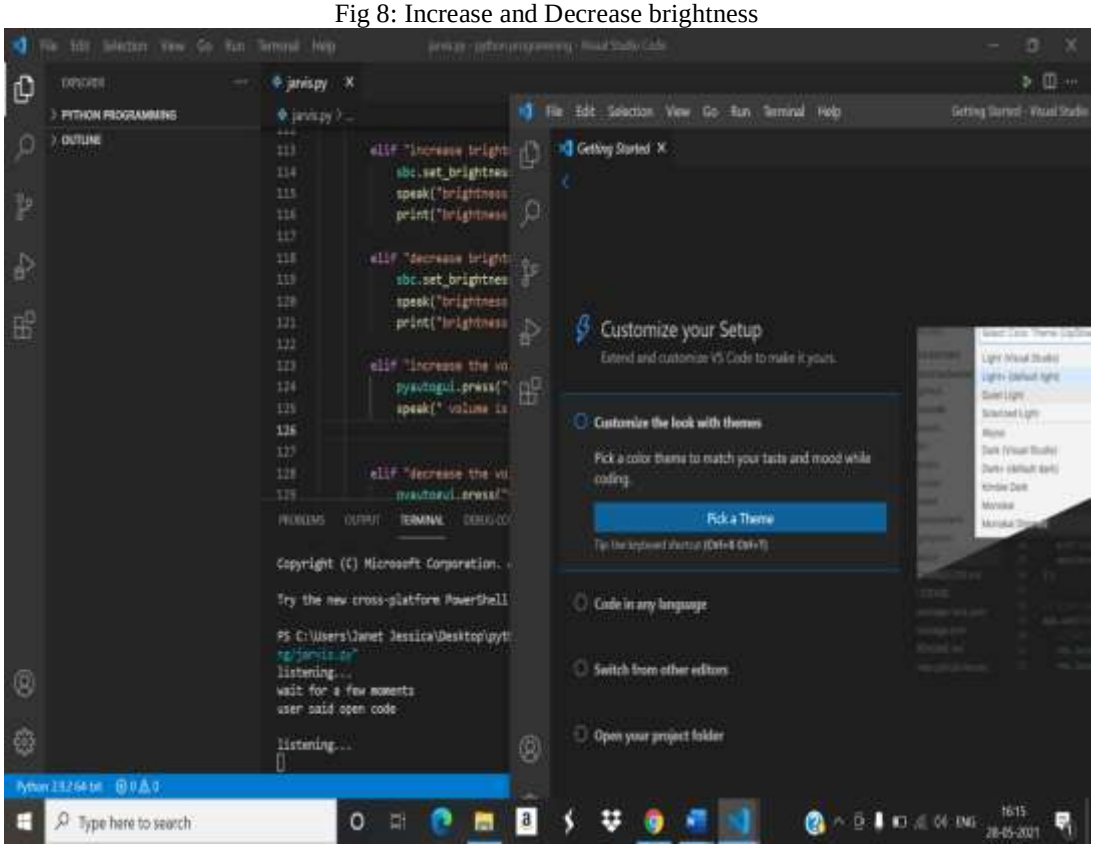

Fig 9: Opening Visual Studio code

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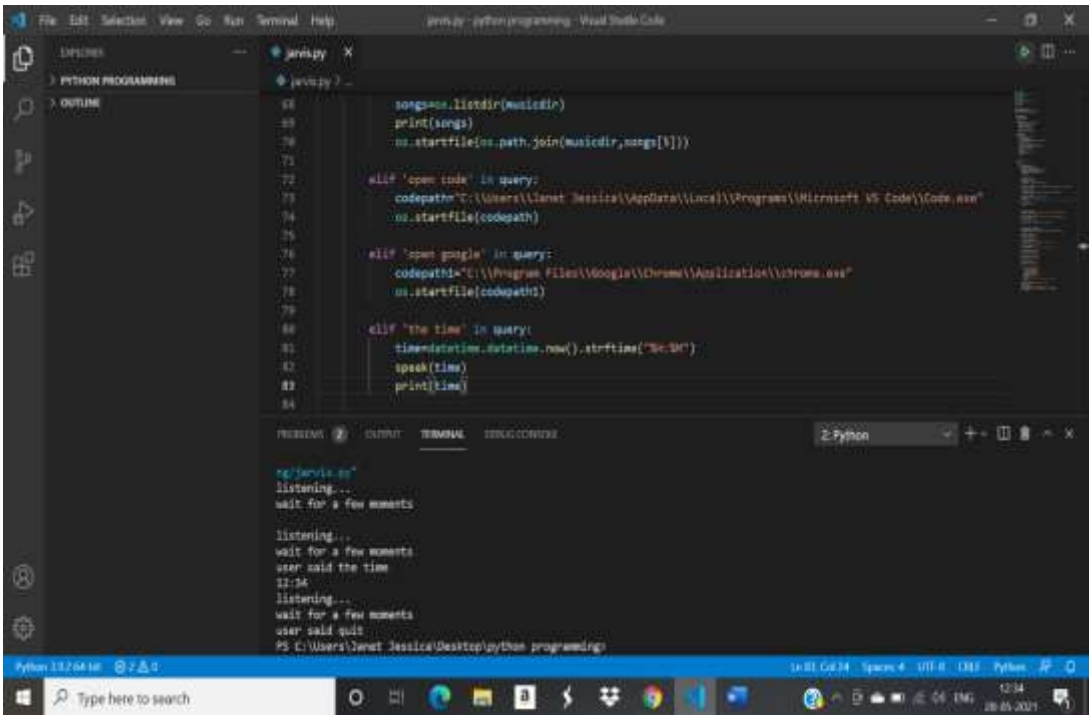

Fig 10: Quitting

II. CONCLUSION:

Through this desktop assistant, we have made automation to various services using a single line of command. COBRA eases most of the tasks of the user like searching the web, system tasks such as increasing and decreasing volume, vocabulary help and providing entertainment by playing music and movies. We are aiming to make this project a complete server assistant and make it as a replacement for a general server administration. The future plans include integrating COBRA with mobile app using Android App development to use this assistant service from the comfort of our mobile phones Speech Recognition applications like our desktop assistant COBRA is growing day by day and has unlimited uses. This desktop assistant project was carried out to provide a means by which the elderly and disabled in our society can also use. The functionality of this desktop assistant is limited to online only.

III. FUTURE ENHANCEMENT:

The virtual assistants which are available now are fast and responsive but we still have to go a long way because of the wide problem of accent. Computer does not understand more than American or British accent. The future scope of this desktop assistant is to develop in such a way that people who does not have English as their native language can use this desktop assistant.. The future of this assistant will have the assistant incorporated with Artificial Intelligence which includes Machine Learning, Neural Networks, and IoT. Another future enhancement is that the incorporation of this desktop assistant into an app using app development tools and use it in the comfort of our mobiles to control the desktop assistant COBRA. With the incorporation of these technologies, we will be able to achieve new level of these speech recognition system.

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