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Solution:

Speech Recognition as Personal Voice AI Assistance

Steps to perform:

1. First install all the required modules using pip.

Before we proceed, we will need to install some eternal modules.

- ✔ gTTS – Google Text To Speech, for converting the given text to speech
- ✔ speech_recognition – for recognizing the voice command and converting to text
- ✔ selenium – for web based work from browser
- ✔ wolframalpha – for calculation given by user
- ✔ playsound – for playing the saved audio file.
- ✔ pyaudio – for voice engine in python

Commands to install the packges

```
pip install gTTS

pip install SpeechRecognition

pip install selenium

pip install wolframalpha

pip install playsound

conda install pyaudio
```

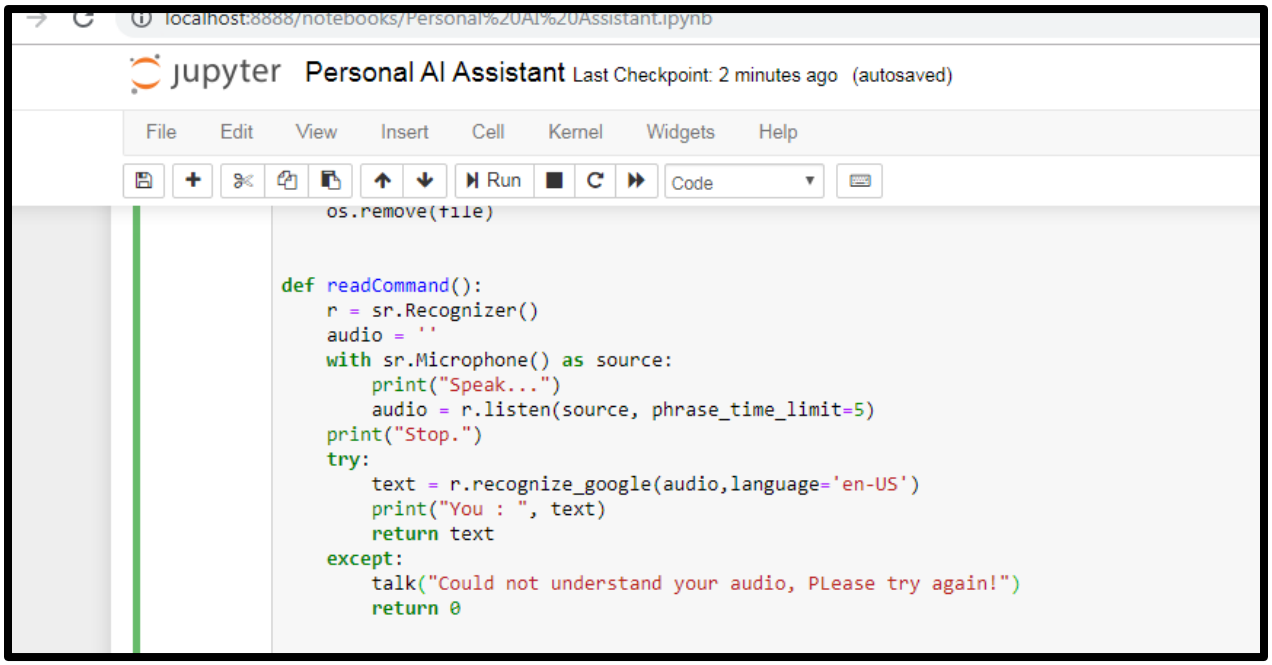
2. Well, Now let's get started with code. We will divide each function as a single code for easy understanding.

Here's the main function, with readCommand() and talk function.

- ✔ **readCommand()** function is created to get the audio from user using microphone

```
def readCommand():

    r = sr.Recognizer()

    audio = ''
```

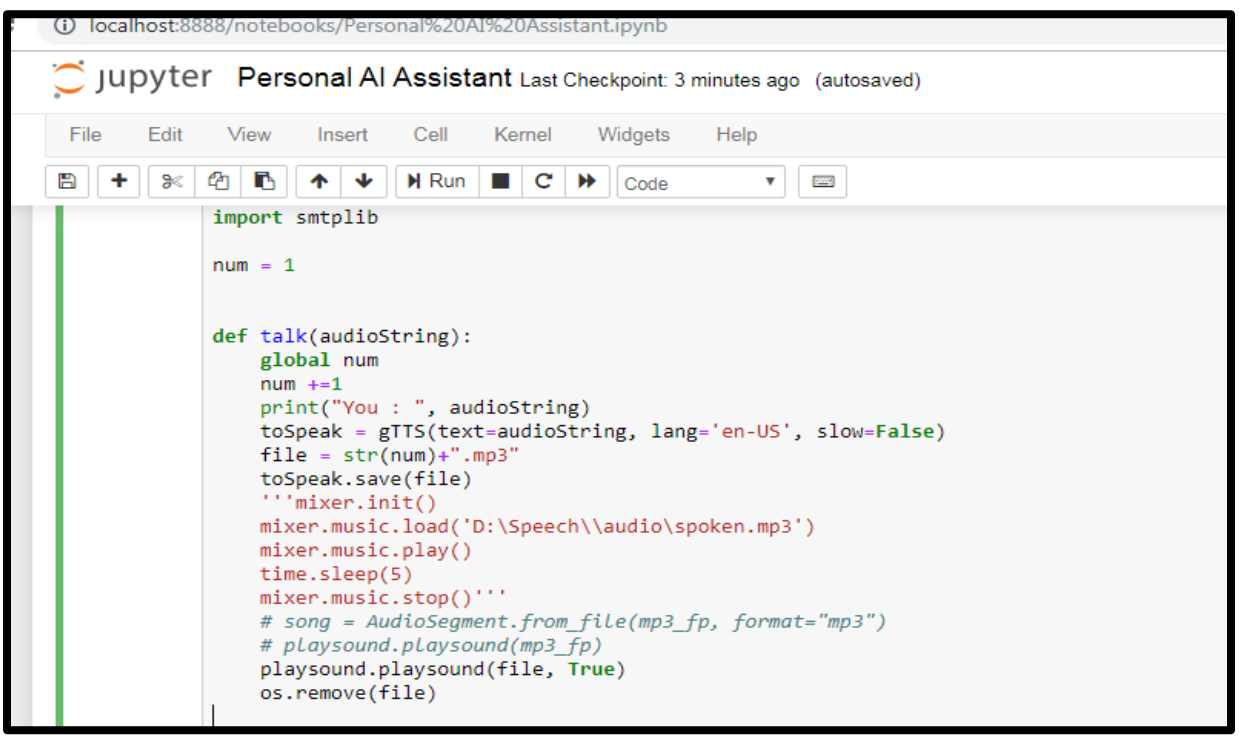
```
    with sr.Microphone() as source:
        print("Speak...")
        audio = r.listen(source, phrase_time_limit=5)
    print("Stop.")
    try:
        text = r.recognize_google(audio,language='en-US')
        print("You : ", text)
        return text
    except:
        talk("Could not understand your audio, PLease try again!")
        return 0
```



✔ talk() function is created to provide the output according to the processed data.

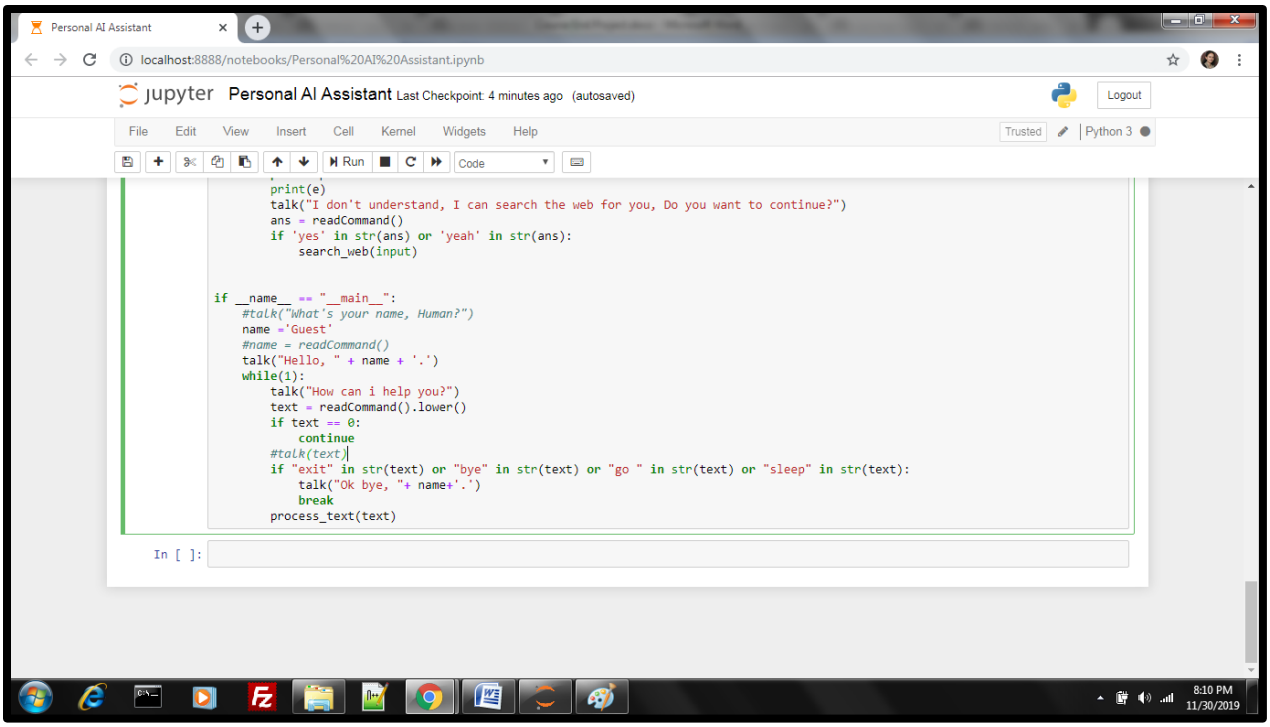
```
def talk(audioString):
    global num
```

```
num +=1
print("You : ", audioString)
toSpeak = gTTS(text=audioString, lang='en-US', slow=False)
file = str(num)+".mp3"
toSpeak.save(file)
'''mixer.init()
mixer.music.load('D:\Speech\\audio\spoken.mp3')
mixer.music.play()
time.sleep(5)
mixer.music.stop()'''
# song = AudioSegment.from_file(mp3_fp, format="mp3")
# playsound.playsound(mp3_fp)
playsound.playsound(file, True)
os.remove(file)
```



✔ this is how we will call these two functions from our main function

```
if __name__ == "__main__":
  #talk("What's your name, Human?")
  name ='Guest'
  #name = readCommand()
  talk("Hello, " + name + '.')
  while(1):
    talk("How can i help you?")
    text = readCommand().lower()
    if text == 0:
      continue
    #talk(text)
    if "exit" in str(text) or "bye" in str(text) or "go " in str(text) or "sleep" in str(text):
      talk("Ok bye, "+ name+'.')
      break
```

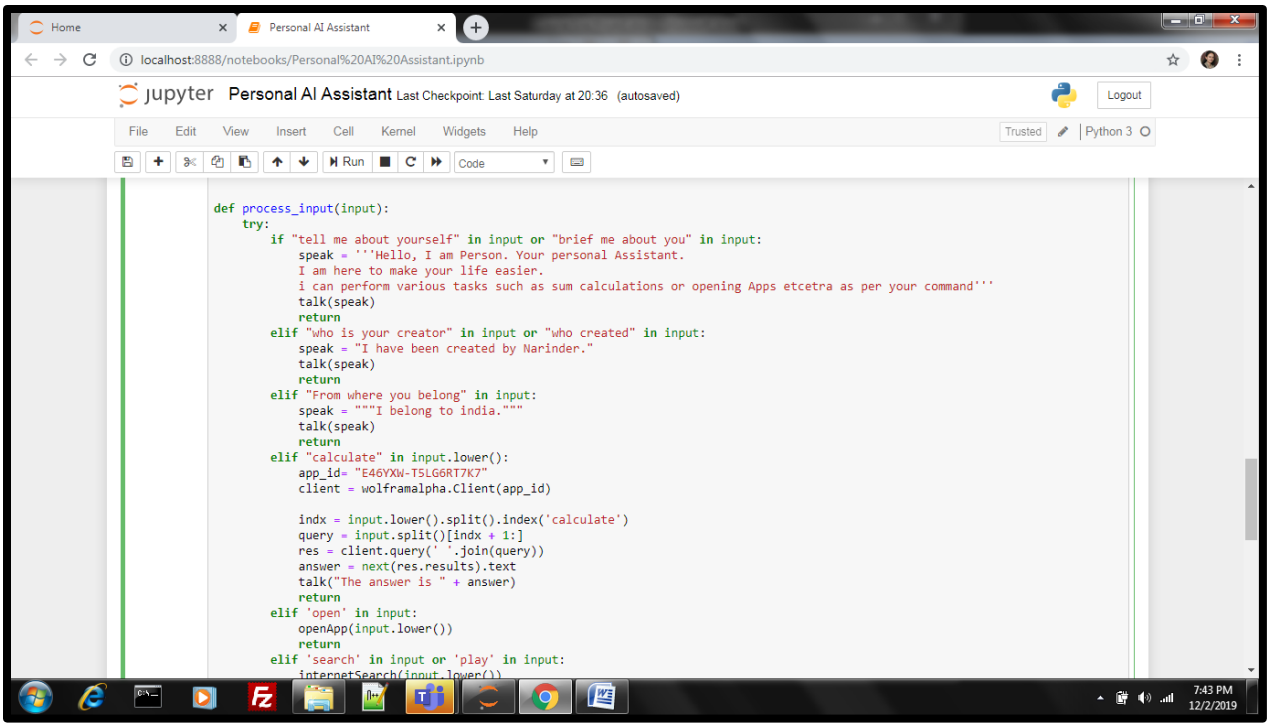


3. So, above we have shown the cases how we are giving the input voice to system and take input from user. Now we are going to show you how process your sound input and get Output as results . Here we are going to use "Wolframalpha api" to calculate the calculations part.

```
def process_input(input):

    try:

        if "tell me about yourself" in input or "brief me about you" in input:

            speak = '''Hello, I am Person. Your personal Assistant.

            I am here to make your life easier.

            i can perform various tasks such as sum calculations or opening Apps etcetra as per your command'''

            talk(speak)

            return

        elif "who is your creator" in input or "who created" in input:
```

```
        speak = "I have been created by Narinder."
        talk(speak)
        return
    elif "From where you belong" in input:
        speak = """I belong to india."""
        talk(speak)
        return
    elif "calculate" in input.lower():
        app_id= "E46YXW-T5LG6RT7K7"
        client = wolframalpha.Client(app_id)

        indx = input.lower().split().index('calculate')
        query = input.split()[indx + 1:]
        res = client.query(' '.join(query))
        answer = next(res.results).text
        talk("The answer is " + answer)
        return
    elif 'open' in input:
        openApp(input.lower())
        return
    elif 'search' in input or 'play' in input:
        internetSearch(input.lower())
        return
    elif 'email' in input or 'send message' in input:
```

```
        s = smtplib.SMTP('smtp.gmail.com', 587)
        s.starttls()
        s.login("sender_email_id", "sender_email_id_password")
        message = "Message_you_need_to_send"
        s.sendmail("sender_email_id", "receiver_email_id", message)
        s.quit()
    else:
        talk("I can perform web search for you, Can i do it now?")
        ans = readCommand()
        if 'yes' in str(ans) or 'yeah' in str(ans):
            internetSearch(input)
        else:
            return
  except Exception as e:
    print(e)
    talk("I don't understand, I can perform web search for you, Can i do it now?")
    ans = readCommand()
    if 'yes' in str(ans) or 'yeah' in str(ans):
        internetSearch(input)
```



4. Well since we have processed the information now we need to take necessary actions like Doing internet Search, Opening installed applications or sending email Events , We are going to define here two functions ;- openApp() & internetSearch()
   - ✔ " internetSearch " just act like a web crawler in which we are using selenium package to process the incoming inputs. It will process the coming input text and search in chrome, wikipedia youtube etc , You can define your own set of information sources from where you want to do search

```
def internetSearch(input):
    driver = webdriver.Firefox()
    driver.implicitly_wait(1)
    driver.maximize_window()
    if 'youtube' in input.lower():
        talk("Opening in youtube")
        indx = input.lower().split().index('youtube')
        query = input.split()[indx+1:]
```

```
        driver.get("http://www.youtube.com/results?search_query=" + '+'.join(query))
        return

    elif 'wikipedia' in input.lower():
        talk("Opening Wikipedia")
        indx = input.lower().split().index('wikipedia')
        query = input.split()[indx + 1:]
        driver.get("https://en.wikipedia.org/wiki/" + '_'.join(query))
        return
    else:
        if 'google' in input:
            indx = input.lower().split().index('google')
            query = input.split()[indx + 1:]
            driver.get("https://www.google.com/search?q=" + '+'.join(query))
        elif 'search' in input:
            indx = input.lower().split().index('google')
            query = input.split()[indx + 1:]
            driver.get("https://www.google.com/search?q=" + '+'.join(query))
        else:
            driver.get("https://www.google.com/search?q=" + '+'.join(input.split()))
        return
```

localhost:8888/notebooks/Personal%20AI%20Assistant.ipynb

jupyter Personal AI Assistant Last Checkpoint: 11 minutes ago (autosaved)

File Edit View Insert Cell Kernel Widgets Help

Run Code

```
def internetSearch(input):
    driver = webdriver.Firefox()
    driver.implicitly_wait(1)
    driver.maximize_window()
    if 'youtube' in input.lower():
        talk("Opening in youtube")
        indx = input.lower().split().index('youtube')
        query = input.split()[indx+1:]
        driver.get("http://www.youtube.com/results?search_query=" + '+'.join(query))
        return

    elif 'wikipedia' in input.lower():
        talk("Opening Wikipedia")
        indx = input.lower().split().index('wikipedia')
        query = input.split()[indx + 1:]
        driver.get("https://en.wikipedia.org/wiki/" + '_'.join(query))
        return
    else:
        if 'google' in input:
            indx = input.lower().split().index('google')
            query = input.split()[indx + 1:]
            driver.get("https://www.google.com/search?q=" + '+'.join(query))
        elif 'search' in input:
            indx = input.lower().split().index('google')
            query = input.split()[indx + 1:]
            driver.get("https://www.google.com/search?q=" + '+'.join(query))
        else:
            driver.get("https://www.google.com/search?q=" + '+'.join(input.split()))
        return
```

Run the code and you will see the response in the form of the output.