

TEAM-3

QUANTAM
QATRAZZZ

Group project

TO CREATE A VOICE
RECORDER USING
PYTHON



Introduction

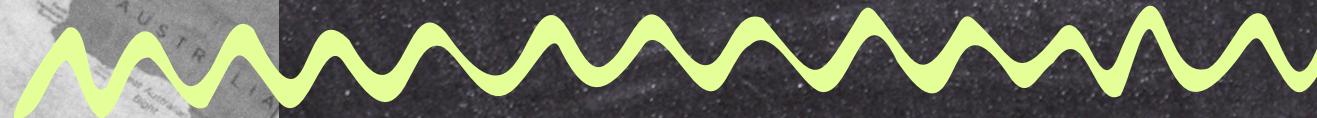
Tkinter is the inbuilt python module that is used to create GUI applications. It is one of the most commonly used modules for creating GUI applications in Python as it is simple and easy to work with. You don't need to worry about the installation of the Tkinter module separately as it comes with Python already. It gives an object-oriented interface to the Tk GUI toolkit.

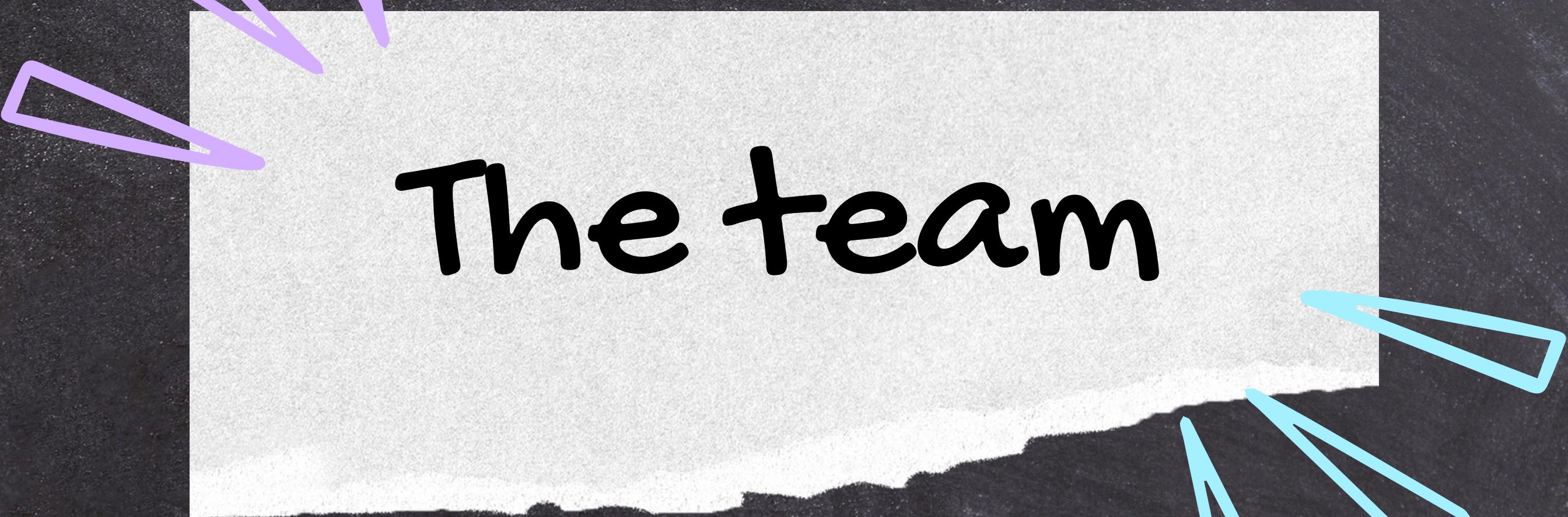




Project overview

Python can be used to perform a variety of tasks. One of them is creating a voice recorder. We can use python's sounddevice module to record and play audio. This module along with the wavio or the scipy module provides a way to save recorded audio.





The team

The team-3

QUANTAM

QATRAZZZ

HARISH
SANJAY S
CHANDRAHAS K
DHANUSH

INSTALLATION

sounddevice: This module provides functions to play and record NumPy arrays containing audio signals. Let's install it by running the following command:

We can use either wave and pyaudio to save the recorded audio in file format. We will see them.

To install wave:

pip install wave

To install pyaudio:

pip install pyaudio

To install threading:

pip install threading

Now, we are done with installing the required modules. So, let's write the code.

This code is a simple Python script that uses the sounddevice and soundfile libraries for recording audio. Additionally, it utilizes the tkinter library to create a basic graphical user interface (GUI) with a "Start" button to trigger the voice recording. tkinter is used for creating the GUI

Here's the code in next slide:)

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```
import os
import wave
import time
import threading
import tkinter as tk
import pyaudio

class VoiceRecorder:
    def __init__(self):
        self.root=tk.Tk()
        self.root.resizable(False,False)
        self.button=tk.Button(text="⏺",font=("Arial",120,"bold"),command=self.click_handler)
        self.button.pack()
        self.label=tk.Label(text="00:00:00")
        self.label.pack()
        self.recording = False
        self.root.mainloop()

    def click_handler(self):
        if self.recording:
            self.recording= False
            self.button.config(fg="black")
        else:
            self.recording=True
            self.button.config(fg="red")
            threading.Thread(target=self.record).start()

    def record(self):
        audio=pyaudio.PyAudio()
        stream=audio.open(format=pyaudio.paInt16,channels=1,rate=44100,
                           input=True,frames_per_buffer=1024)
        frames=[]

        start=time.time()

        while self.recording:
            data=stream.read(1024)
            frames.append(data)

            passed=time.time()-start
            secs=passed%60
            mins=passed //60
            hours= mins // 60
            self.label.config(text=f"{int(hours):02d}:{int(mins):02d}:{int(secs):02d}")

        stream.stop_stream()
        stream.close()
```

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```
        self.button.config(fg="black")
else:
    self.recording=True
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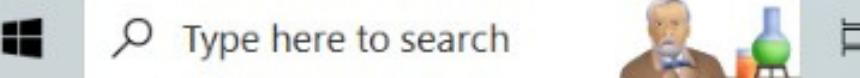
    stream.stop_stream()
    stream.close()
    audio.terminate()

    exists=True
    i=1
    while exists:
        if os.path.exists(f"recording{i}.wav"):
            i+=1
        else:
            exists=False

    sound_file=wave.open(f"recording{i}.wav", "wb")
    sound_file.setnchannels(1)
    sound_file.setsampwidth(audio.get_sample_size(pyaudio.paInt16))
    sound_file.setframerate(44100)
    sound_file.writeframes(b"".join(frames))
    sound_file.close()
```

VoiceRecorder()

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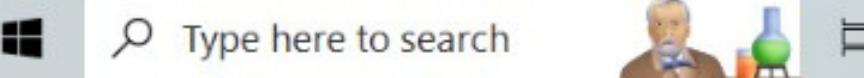
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```
def record(self):  
    audio=pyaudio.PyAudio()  
    stream=audio.open(format=pyaudio.paInt16,channels=1,rate=44100,  
                      input=True,frames_per_buffer=1024)  
    frames=[]  
  
    start=time.time()  
  
    while self.recording:  
        data=stream.read(1024)  
        frames.append(data)  
  
        passed=time.time()-start  
        secs=passed%60  
        mins=passed //60  
        hours= mins // 60  
        self.label.config(text=f"{int(hours):02d}:{int(mins):02d}:{int(secs):02d}")  
  
    stream.stop_stream()  
    stream.close()  
    audio.terminate()  
  
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sound_file.writeframes(b"".join(frames))  
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VoiceRecorder()

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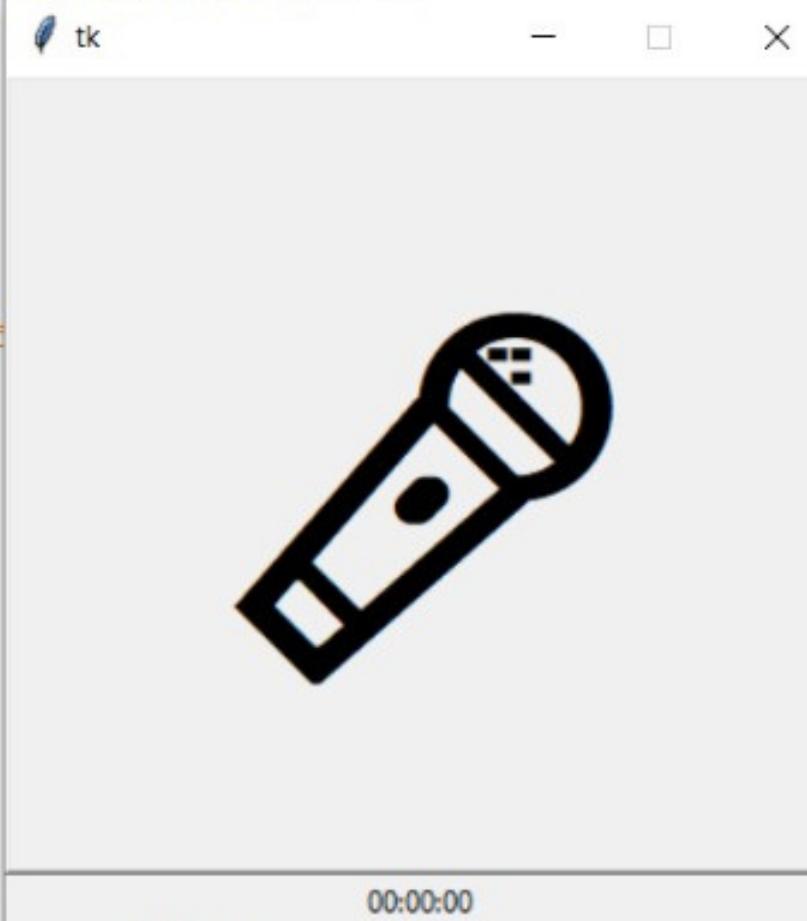


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stream.stop
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stream.close
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audio.termin
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exists=True
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i=1
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while exists:
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    if os.p
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        i+=1
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    else:
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        exist
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sound_file.s
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sound_file.s
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```
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```

```
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```

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```
def click_handler(button):
    if self.recording:
        self.recording= False
        self.button.config(fg="black")
    else:
        self.recording=True
        self.button.config(fg="red")
    threading.Thread(target=self.record).start()
```

```
def record(self):
    audio=pyaudio.PyAudio()
    stream=audio.open(format=FORMAT,
                      channels=CHANNELS,
                      rate=RATE,
                      input=True,
                      frames_per_buffer=CHUNK)
```

```
frames=[]
```

```
start=time.time()
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```
while self.recording:
```

```
    data=stream.read(CHUNK)
    frames.append(data)
```

```
    passed=time.time()-start
    secs=passed%1
    mins=secs//60
    hours=mins//60
    self.lap.config(text=f'{hours}:{mins}:{secs:.2f}')
    self.lap.update()
```

```
    stream.stop_stream()
    stream.close()
    audio.terminate()
```



```
00:00:02
```

```
exists=True
i=1
while exists:
    if os.path.exists(f'./{i}.wav'):
        i+=1
    else:
        exists=False
```

```
sound_file=wave.open(f'./{i}.wav','w')
sound_file.setnchannels(CHANNELS)
sound_file.setframerate(RATE)
sound_file.setsampwidth(audio.get_sample_size(FORMAT))
sound_file.writeframes(b''.join(frames))
sound_file.close()
```

```
Jun 7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)]
: "license()" for more information.

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        self.recording= False
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        self.button.config(fg="red")
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def record(self):
    audio=pyaudio.PyAudio()
    stream=audio.open(format=FORMAT,
                      channels=CHANNELS,
                      rate=RATE,
                      input=True,
                      frames_per_buffer=CHUNK)
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```
frames=[]
```

```
start=time.time()
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while self.recording:
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    data=stream.read(CHUNK)
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    stream.stop_stream()
    stream.close()
    audio.terminate()
```



```
00:00:07
```

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exists=True
i=1
while exists:
    if os.path.exists(f'./{i}.wav'):
        i+=1
    else:
        exists=False
```

```
sound_file=wave.open(f'./{i}.wav','w')
sound_file.setnchannels(CHANNELS)
sound_file.setsampwidth(audio.get_sample_size(FORMAT))
sound_file.setframerate(RATE)
sound_file.writeframes(b''.join(frames))
sound_file.close()
```

```
Jun 7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)]
: "license()" for more information.

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Conclusion

we have learned how to use Python PyAudio Module and Tkinter Module and create the python voice recorder project. Now we can use this project to record audio and save it.

THANK
YOU