Create a Voice Recorder using Python

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.

Installation:

- **sounddevice:** This module provides functions to play and record NumPy arrays containing audio signals. Let's install it by running the following commapip3 install sounddevice.
- We can use either **wavio** and **scipy** to save the recorded audio in file format. We will see both of them here.
- To install **wavio:**

pip install wavio

To install **scipy**:

pip install scipy

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

Getting Started

First, import the required libraries.

```
# import required libraries

import sounddevice as sd

from scipy.io.wavfile import write

import wavio as wv
```

Now, before starting the recorder, we have to declare a few variables. The first one is the sampling frequency of the audio (in most cases this will be 44100 or 48000 frames per second) and the second is recording duration. We have to specify the duration in seconds so that it stops recording after that duration.

So, let's declare them too.

```
# Sampling frequency

freq = 44100


# Recording duration

duration = 5
```

Now, we are ready to start the recorder. It will create a NumPy array of the recorded audio.

Channels – The position of each audio source within the audio signal is known a channel.

Here number of channels can be 1 or 2 only.

```
# Start recorder with the given values of
# duration and sample frequency
recording = sd.rec(int(duration * freq),
            samplerate=freq, channels=2)
```

```
# Record audio for the given number of seconds
sd.wait()
```

Now, we are done with recording the audio. So, let's save it. To save the audio file, we can either use the **scipy** module or the **wavio** module. Let's go through them one by one.

Using Scipy:

We will use the write function from scipy.io.wavfile to convert the NumPy array to an audio file.

```
# This will convert the NumPy array to an audio
# file with the given sampling frequency
write("recording0.wav", freq, recording)
```

Using wavio:

We can also use the write function from the **wavio** library.

```python
# Convert the NumPy array to audio file
wv.write("recording1.wav", recording, freq, sampwidth=2)
```

Complete Code:

```python
# import required libraries
import sounddevice as sd
from scipy.io.wavfile import write
import wavio as wv


# Sampling frequency
freq = 44100


# Recording duration
duration = 5


# Start recorder with the given values
# of duration and sample frequency
recording = sd.rec(int(duration * freq),
        samplerate=freq, channels=2)


# Record audio for the given number of seconds
sd.wait()


# This will convert the NumPy array to an audio
# file with the given sampling frequency
write("recording0.wav", freq, recording)
```

```python
# Convert the NumPy array to audio file

wv.write("recording1.wav", recording, freq, sampwidth=2)
```