DSP Lab 5
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3. Random frequencies. The notes produces by the demo program play_randomly.py are not very random. Only the start-times of the notes are random. Write a program that generates notes with random frequencies. In your program, you may use a discrete set of frequencies.

See the file Lab5_Sec1_Ex3_kwc305.py. in this file, I give a random frequency for f1 and f11, which will generate different frequency in left and right channel with random time to sound. Besides, I use matplotlib to show the result with yellow and blue color for left and right channel.

4. The demo program play_randomly.py does not use the callback method. Rewrite this demo program so it uses the callback method. When opening the audio stream, do not set frames_per_buffer. Instead, use the default block size.

See the file Lab5_Sec2_Ex4_kwc305.py, in this file, I modify the file let it use the callback function which is my_callback_fun() to substitute the original for loop.

7. Write a program to implement the vibrato effect using the callback method. The input should be from the microphone. The output should be to the speakers. (No wave files.) The parameter frames_per_buffer should be set to 1024 or left unspecified (default value). (Note that the parameter frames_per_buffer is set to 1 in many of the demo files. For this exercise, change this to frames_per_buffer = 1024 or omit it.)

See the file Lab5_Sec2_Ex7_NetID.py, in this file, I change to use the microphone and use the callback function, which is my_callback(), which process the input string and do the original vibrate process, then finally send to the output. So my result is use the microphone and get the vibrato effect.