**# This gets and plays a frequency from the uer**

def get\_user\_frequency(self):

print('Inside get freq function')

self.freq\_entry = tk.Entry(width = 18, justify='right', font=("Helvetica",10))

self.freq\_entry.grid(row=5, column=2)

self.freq\_entry.focus\_force()

self.freq\_entry.bind('<Return>', self.play\_entered\_freq)

self.enter\_freq\_label = tk.Label(text='Enter and press enter', font=("Helvetica",12), fg="blue")

self.enter\_freq\_label.grid(row=6,column=2)

def play\_entered\_freq(self,event):

userFreq = int(self.freq\_entry.get()) # get the entry

print(userFreq)

winsound.Beep(userFreq, 1000)

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winsound Python

<https://docs.python.org/3/library/winsound.html>

Timothy Koger fall 2019

def play\_freq(self, freq, event=0):

print(freq)

ws.Beep(freq, 100) # frequency, duration

import winsound as ws

def enter\_freq(self):

top = tk.Tk()

top.title("Enter Frequency")

tk.Label(top, text="Enter Frequency").grid(row=0)

e1 = tk.Entry(top)

top.bind('<Return>', lambda event:self.play\_freq(int(e1.get())))

e1.grid(row=0, column=1)

def play\_freq(self, freq, event=0):

print(freq)

ws.Beep(freq, 100) # frequency, duration

Jonathan Hurley fall 2019

Plotting

#plot waveform amp

def plot\_wav\_amp(self):

#read samples

input\_data = read(file)

audio = input\_data[1]

#plot the first 1024 samples

plt.plot(audio[0:1024])

plt.ylabel("Amplitude")

plt.xlabel("1024 Samples")

plt.title(Path(file).stem)

plt.show()

#plot wav freq

def plot\_wav\_freq(self):

#read rate & data

rate, data = scipy.io.wavfile.read(file)

plt.plot(data)

plt.ylabel('Rate')

plt.xlabel('Data')

plt.title(Path(file).stem)

plt.show()

**#1.19.4 has a bug MS says fix in January 2021, note 2 equal signs at install**

pip uninstall numpy

then

pip install numpy==1.19.3

Here is the error:

RuntimeError: The current Numpy installation ('E:\\RCBC\\Python\\Python\_3\_9\_0\\lib\\site-packages\\numpy\\\_\_init\_\_.py') fails to pass a sanity check due to a bug in the windows runtime. See this issue for more information: https://tinyurl.com/y3dm3h86

Plotting

import matplotlib.pyplot as plt

from scipy.io import wavfile as wav

rate, data = wav.read('bells.wav')

%matplotlib inline

plt.plot(data)

plt.show()

OR

import matplotlib.pyplot as plt

from scipy import signal

from scipy.io import wavfile

sample\_rate, samples = wavfile.read('h1.wav')

samples=samples[:,0]

frequencies, times, spectrogram = signal.spectrogram(samples, sample\_rate)

plt.imshow(spectrogram)

plt.pcolormesh(times, frequencies, spectrogram)

plt.ylabel('Frequency [Hz]')

plt.xlabel('Time [sec]')

plt.show()