**CSC 545/645 Computer Speech, Music and Images**

**Exercise No. 11a, Week 14, due April 25, 2021**

**Intro to Audio Programming in Processing**

**Goal**

Learn basics of audio programming in Processing

Write a song player

**Background**

Processing was developed as a graphics and image processing environment but has been extended to audio programming though the third party Minim library (<http://code.compartmental.net/minim/>). You will have to install Minim before using it (use *Sketch/Import Library*). In this exercise, you will extend an audio program to add signal processing effects to audio.

**Procedure**

The program creates an array of SoundFiles. Currently, two files are loaded and one starts to play. You could add other files – however, the program is slow to start, probably because of loading the sound files. The documentation states that decoding mp3 is slow on some architectures; perhaps it would be faster if you used wav files.

The number of files loaded (assuming they are in the program’s data folder) is controlled by the global variable *nsongs* and the String array *playlist.* The program also displays the spectrum of the currently playing file. The user can select between files ‘0’ and ‘1’ by pressing keys. Pressing the space bar toggles pause.

The exercise folder downloaded from Blackboard includes two audio files. Feel free to load others but do not put the included songs or any others under copyright in a public location.

There are any number of enhancements you could make to the song player. See the Processing Sound library documentation to see what effects are available. You could add high pass, low pass, and band pass filters, delay and reverb. You could control the sound volume using the mouse or the arrow keys. You could add controls to enable the user to rewind the current song, to skip ahead in the file, or to set loop positions.

**Deliverables**

If you have added any audio files, zip your entire exercise folder and turn it in on Blackboard. Otherwise, you can just upload your pde file.