4600 Data Structures and Algorithms - Final Project

Hand-in Date: Tuesday, 5th of December 2016, 1.40 pm in class

Audio Programming Using Pyo and Python

Goals:

Demonstrate applied knowledge of audio programming within the python language

Description:

Program an audio application with pyo and python.

Take the code you produced for project 1. Change the design of the program in such a way that it replaces the MIDI output with sound directly generated by a pyo synthesizer.

You are free to choose any type of synthesis from the pyo documentation as long as you can generate chords with defined pitches. An example synthesizer would be an FM synthesizer, but there are many more types of synthesis available. You are free to make the synthesizer as complex and sophisticated as you want. A bare bones synthesizer has at least one **oscillator**, one **envelope generator** to control the amplitude and a **filter**, which is usually a resonant low-pass type of filter. Browse the pyo documentation for finding good examples of **signal generators**:
http://ajaxsoundstudio.com/pyodoc/api/classes/generators.html

To get an overview of **filters**, look here:http://ajaxsoundstudio.com/pyodoc/api/classes/filters.html

For **triggering envelopes**, see http://ajaxsoundstudio.com/pyodoc/api/classes/triggers.html - trigenv

In order to trigger the chords from the user input according to the rhythms and bassline that were entered, you have to program a new translation method that generates and triggers the correct pitches and rhythms for the pyo synthesizer. Note that in the script,x the server always needs to boot first before you add any audio objects. Once the server has started, the program should loop the sequence entered by the user.

Pyo has a large array of triggers. Investigate this section:
http://ajaxsoundstudio.com/pyodoc/api/classes/triggers.html

and choose an appropriate method for triggering the chords of your program.

Along with the documented python code, record an audio file of one minute in length demonstrating the use of the application.

Hand In:

On the day of the deadline at 1.40 pm: All code, including any scripts needed for compilation, and sound files, are to be submitted within a folder named 'final project' in your folder in the class shared folder of MUSIC 4600.