Project Proposal

Group members (list all members GitHub IDs):
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Group name: Soft Synth

CCIS GitHub location:
csun/CS3520-2017FA-PROJ

Project description:
We plan to make a software synthesizer plugin that can be used as an instrument in music production software.

Describe the major features of your project:
We want to make a synth that you can control using a GUI. The JUCE API will help us to actually construct the GUI and the sounds of the synth. If it's feasible, we would also want to be able to import the sounds the user makes into music editing software like Ableton, and have the user be able to actually play a USB keyboard.

Describe the advanced feature(s) of your project, and the library/SDK/API you plan to use:
We are planning on using JUCE. JUCE has a lot of advanced features, including GUI creation and advanced audio synthesis and processing.

Describe what user input your program will take and how it will affect the state of the program:

Our program will take in MIDI input from either a GUI or an external midi device. There will be knobs and switches in the GUI that affect the timbre of the sound, and an on screen keyboard that can be clicked to play the synth at different pitches. All of these parameters will also be able to be controlled with external hardware.

Briefly describe plans for dynamic memory management and class inheritance structure:
Just using the JUCE libraries requires inheriting from various classes. Other than that, we will probably need classes for different GUI components and other components of the synthesizer.

Because we will be dealing with buffers for audio, there will probably be a good amount of dynamic memory management.