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CIS 407

Project Milestone

I have made decent progress on my project so far, but I have also faced some significant challenges. So far I have successfully coded a white noise generator, a sine wave oscillator, and a square wave oscillator. I made a simple GUI with a comboBox to select which type of sound to output, and 4 sliders to control the amplitude of the output. The next big task was to handle Midi input. This required me to create a number of new classes and refactor my existing code considerably. When this was done, I had a simple piano roll at the bottom of my GUI that could be played with the computer mouse, a laptop keyboard, or a Midi Keyboard. The side effect of this was that my sliders no longer controlled the amplitude, or anything for that matter. The issue is that my SynthVoice class, which is instantiated by my SynthAudioSource class, which is in turn instantiated by my mainComponent class, needs to be able to get the value of the sliders, but has no knowledge of the MainComponent class, and visa versa. The JUCE framework I am using provides a solution to this, but it is for audio plugins, not standalone audio applications. This is probably a fairly trivial problem, but I am completely new to C++ so I struggled with it for about a week. As of 5 minutes ago, I came up with an ugly but working solution. I gave my synthAudioSource and SynthVoice classes public member variables that are pointers to uninitialized sliders. My mainComponent constructs the slider, sets the Synthvoice's slider pointer to its address, and then used that to set the synthAudioSource's slider pointer to the same address. Then in the synthAudioSource class I added the class as a listener to the slider, and wrote a function sliderValueChanged that reacts to the slider's state and updates the audio output level. There is undoubtedly a cleaner way to do this, but for now, it works. I still have to use this approach (or something cleaner) to fix the other sliders and the comboBox. As of right now, the synth takes in Midi data, and produces sinewaves dependent on the master volume level. I am not quite where I wanted to be at this stage, but I am close. I need to fix the other sliders, add in other oscillator types, add in effects, and polish the GUI. To get the synth to where it is, I learned a considerable amount of C++ and brushed up on my OOP. I am also a lot more comfortable with using and troubleshooting outside libraries.

Repository: Blue / https://bitbucket.org/noahtigner/blue/src/master/

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