HW 2 write-up

CS 4590

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One of the fundamental ideas for homework 2 was to create different nodes using WebAudio, and then to connect those nodes together to the output node. This is a general overview, but a good description of the project requires looking closer into the individual components.

Everything starts with the source nodes, which – depending on user input – may be either an oscillator or a specific sound file. Each of these sources is connected to a gain node for individual channel volume adjustment. Depending on which of the filters are on (if either), the sources may be connected to high-pass or low-pass filter nodes, or they may bypass all filter nodes and connect directly to the crossfader gain node. This node reads in the value from the crossfader slider, then uses this value to determine additional gain for each sound source. Finally, after the crossfader nodes (one for each source), the sound is routed to the WebAudio’s “destination” node for output.

All the connections between the nodes are important to understand, but the most important part of the system is the functionality of each sound source. Each source can be one of two modes, Oscillator Mode or File Mode. The simpler of the two modes is Oscillator Mode. In this mode, the user inputs a frequency for the source wave and chooses which type of waveform will be used for that source – sine, square, sawtooth, or triangle. In File mode, the source is not a single-frequency wave but the contents of a provided sound file, as played back from a buffer. For my submission, these specific sound files are ((file 1)) for source 1 and ((file 2)) for source 2. (Note: I was unable to fully implement this feature before the midnight deadline.)

Most of the features on the webpage are relatively self-explanatory (such as the start/stop button and the volume controls), but the slider control for each source deserves additional mention here. The functionality of this slider control depends on whether the sound source is in Oscillator Mode or File Mode. In Oscilliator Mode, the speed at which the slider is moved is used to create a frequency multiplier, which changes the wave’s frequency. In File Mode, this speed is used to modify the playback rate for the buffer source. If the slider is held still, no adjustments are made to the rate or frequency at which the sound is played.

Sources used:

JQuery UI library

The example code Rob gave us (on T-square)

“Web Audio API how-to: Playing audio based on user interaction”. Author: Eric Bidelman. <http://ericbidelman.tumblr.com/post/13471195250/web-audio-api-how-to-playing-audio-based-on-user>

“Getting Started with WebAudio API.” Author: Boris Smus. <http://www.html5rocks.com/en/tutorials/webaudio/intro/>