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CSE-471 - Project 1

Subtractive Synthesizer:

This program creates a subtractive synthesizer that transforms sheet music from XML files into playable sound based on the provided notes. The constructor for the Subtractive Synthesizer initializes the duration, and in the overloaded constructor, it accepts a BPM value. It reads note attributes such as duration, note pitch, and waveform type (sawtooth, square, triangle). The total duration is adjusted based on the provided BPM.

In the "Start" method, the program configures the Subtractive Wave component, setting and obtaining the sample rate. The Subtractive Synthesizer also incorporates an Attack-Decay-Sustain-Release (ADSR) envelope. In the "Generate" method, both the ADSR envelope and the Subtractive Wave are processed. The envelope is called, affecting the amplitude of the sound. The Subtractive Wave generates audio samples for the left and right channels, and the generated audio frames are stored in the "m_frame" array.