Ps4: Karplus-Strong String Simulation

Assignment Description:

For this assignment we were tasked to simulate the plucking of a guitar string using the Karplus-Strong algorithm. This algorithm combined with a queue called a Ringbuffer creates the sound of a string reverberating. We were tasked to take the keyboard input and produce a different note of a guitar being played. However I was unable to make the program produce different notes.

Key Concepts and Algorithms:

The key algorithm for this assignment was the Karplus-Strong Algorithm which calculates the energy decay from the string being plucked. The algorithm is:

0.996 * 1/2(a + b) where a and b are the next 2 frequencies in the Ring Buffer.

The program uses a class called StringSound that contains a shared pointer to a Ring Buffer. My understanding of shared pointers from the previous assignment made this assignment easier to accomplish. The class is inherited from sf::Sound this allows for it to be played with .play().

What I learned in this assignment:

While making this assignment I learned how c++ modules and sf::Sound works based on reading the Documentation for the class. This further understanding on how to use different libraries in c++ is something I didn't truly understand until this assignment. The ability to create music notes from a keyboard input could become useful in future projects within c++ and I look forward to creating them in the future.