

```
1: #ifndef STRINGSOUND_HPP
2: #define STRINGSOUND_HPP
3:
4: #include <SFML/Audio.hpp>
5: #include <SFML/Graphics.hpp>
6: #include <SFML/System.hpp>
7: #include <SFML/Window.hpp>
8: #include <cmath>
9: #include <iostream>
10: #include <string>
11: #include <vector>
12: #include "CircularBuffer.hpp"
13:
14: const int SAMPLING_RATE = 44100;
15: const double ENERGY_DECAY_FACTOR = 0.996;
16:
17: class StringSound {
18: public:
19:     explicit StringSound(double frequency);
20:
21:     explicit StringSound(std::vector<sf::Int16> init);
22:
23:     void pluck();
24:
25:     // advance the simulation one time step
26:     void tic();
27:
28:     // return the current sample
29:     sf::Int16 sample();
30:
31:     // return number of times tic was called
32:     int time();
33:
34: private:
35:     CircularBuffer buff;
36:     int num;
37:     int tictic;
38: };
39: #endif
```