```
 1: #include "GuitarString.hpp"
 2:
 3: #define DECAY 0.996
 4:
 5: GuitarString::GuitarString(double frequency) : rb(ceil(44100/frequency)) {
 6:     count = 0;
 7: }
 8: GuitarString::GuitarString(vector<Int16> init) : rb(init.size()) {
 9:     for (unsigned i = 0; i < init.size(); i++)
10:         rb.enqueue(init[i]);
11:     count = 0;
12: }
13:
14: void GuitarString::pluck() {
15:     rb.empty();
16:     while (!rb.isFull())
17:         rb.enqueue((int16_t)(rand() & 0xffff));
18: }
19:
20: void GuitarString::tic() {
21:     int N1 = rb.dequeue();
22:     int N2 = rb.peek();
23:     rb.enqueue(DECAY * 0.5 * (N1 + N2));
24:     count++;
25: }
26: Int16 GuitarString::sample() {
27:     return rb.peek();
28: }
29: int GuitarString::time() {
30:     return count;
31: }
```