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 1: // "Copyright 2020 <Greg Kaplowitz>"
 2: #include <SFML/Graphics.hpp>
 3: #include <string>
 4: #include <iostream>
 5: #include <sstream>
 6: #include <cmath>
 7: #include "FibLFSR.hpp"
 8: // using namespace sf;
 9: // using namespace std;
10:
11:   LFSR::LFSR(std::string Seed) {
12:   seed = Seed;
13:   }
14:   int LFSR::step() {
15:   char endbit = seed[15];
16:   char stepBit;
17:   if (((seed[0] == '1') ^ (seed[2] == '1')) ^
18:   ((seed[3] == '1') ^ (seed[5] == '1'))) {
19:   stepBit = '1';
20:   } else {
21:   stepBit = '0';
22:   }
23:   std::string new_string =  seed.substr(1);
24:   seed = new_string + stepBit;
25:   if (endbit == '1') {
26:   return 1;
27:   }
28:   return 0;
29:   }
30:   std::ostream& operator<< (std::ostream &out, const LFSR &lFSR) {
31:   out << lFSR.seed;
32:   return out;
33:   }
34:   int LFSR::generate(int k) {
35:   int x = 0;
36:   int temp;
37:   for (int i = 0; i < k; i++) {  // run step k times
38:   temp = step();
39:   if (temp == 1) {
40:   x += pow(2, i);
41:   }
42:   }
43:   // cout<<"flag"<<x<<endl;
44:   // cout<<x;
45:   return x;
46:   }
```