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1: /*****
*****/
2: /* LFSR.cpp
   */
3: /* Yoo Min Cha
   */
4: /* Linear Feedback Shift Register
   */
5: /* Professor Martin
   */
6: /* 02 March 2014
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7: /*****
*****/
8:
9: #include "LFSR.hpp"
10:
11: using namespace std;
12:
13: LFSR::LFSR(string seed, int t):
14:     sequence(seed),
15:     keyBit(t)
16: {}
17:
18: int LFSR::step()
19: {
20:     int result = ((sequence[sequence.size()-keyBit-1]-'0') ^ (sequence[0]
- '0'));
21:     char intchar = result + '0';
22:     string ctemp(1, intchar);
23:     sequence.erase(sequence.begin(), sequence.begin()+1);
24:     sequence.append(ctemp);
25:     return result;
26: }
27:
28: int LFSR::generate(int k)
29: {
30:     int result = 0;
31:     for(int i = 0; i < k; i++)
32:     {
33:         result = 2 * result + step();
34:
35:     }
36:     return result;
37: }
38:
39: string LFSR::toString()
40: {
41:     return sequence;
42: }
43:
44: int LFSR::getKeyBit() const
45: {
46:     return keyBit;
47: }
48:
49: ostream& operator << (ostream &out, const LFSR &cLFSR)
50: {
51:     out << cLFSR.sequence;
52:     return out;
53: }
54:
```