```
 1: #include <iostream>
 2: #include <cmath>
 3: #include "LFSR.hpp"
 4:
 5: LFSR::LFSR(std::string seed, int t)
 6: {
 7:     _data = seed;
 8:     length = _data.size();
 9:     tap = t;
10: }
11:
12: int LFSR::step()
13: {
14:     int bit;
15:     int length = _data.size();
16:     std::string s_bit;
17:     bit = _data.front() ^ _data[length - tap - 1];
18:     s_bit = std::to_string(bit);
19:     _data.erase(0,1);
20:     _data = _data + s_bit;
21:     return bit;
22: }
23:
24: int LFSR::generate(int k)
25: {
26:     int count = 0;
27:     for (int i = k - 1 ;i >= 0; i--)
28:     {
29:         if(step() == 1)
30:             count+= pow(2, i);
31:     }
32:     return count;
33: }
34:
35: std::ostream& operator << (std::ostream& out, LFSR& lfsr)
36: {
37:     out << lfsr._data;
38:     return out;
39: }
```