```cpp
 1: #ifndef FIB_LFSR
 2: #define FIB_LFSR
 3:
 4: #include <iostream>
 5: #include <string>
 6: #include <bitset>
 7: #include <exception>
 8:
 9: using namespace std;
10:
11: class FibLFSR {
12: public:
13:     // Constructor to create LFSR with the given initial seed
14:     FibLFSR(string seed);
15:
16:     // Simulate one step and return the new bit as 0 or 1
17:     int step();
18:
19:     // Simulate k steps and return a k-bit integer
20:     int generate(int k);
21:
22:     // Getters:
23:     string getState(void) const;
24:     const int* getTaps(void) const;
25:
26:     // Helper functions:
27:     int XOR(int a, int b);
28:     bool notZeroOne(const string seed);
29:
30: private:
31:     const int TAPS[4] = {15, 13, 12, 10};
32:     bitset<16> state;
33: };
34: ostream& operator<<(ostream& out, const FibLFSR& lfsr);
35:
36: #endif
```