```
    1: //
    2: //  test.cpp
    3: //  ps2
    4: //
    5: //  Created by Jingxian Shi on 2/5/18.
    6: //  Copyright Â© 2018 Jingxian Shi. All rights reserved.
    7: //
    8:
    9: #include <stdio.h>
   10: #include <iostream>
   11: #include <string>
   12:
   13: #include "LFSR.hpp"
   14:
   15: #define BOOST_TEST_DYN_LINK
   16: #define BOOST_TEST_MODULE Main
   17: #include <boost/test/unit_test.hpp>
   18:
   19: BOOST_AUTO_TEST_CASE(fiveBitsTapAtTwo)
   20: {
   21:
   22:     LFSR l("00111", 2);
   23:     BOOST_REQUIRE(l.step() == 1);
   24:     BOOST_REQUIRE(l.step() == 1);
   25:     BOOST_REQUIRE(l.step() == 0);
   26:     BOOST_REQUIRE(l.step() == 0);
   27:     BOOST_REQUIRE(l.step() == 0);
   28:     BOOST_REQUIRE(l.step() == 1);
   29:     BOOST_REQUIRE(l.step() == 1);
   30:     BOOST_REQUIRE(l.step() == 0);
   31:
   32:     LFSR l2("00111", 2);
   33:     BOOST_REQUIRE(l2.generate(8) == 198);
   34: }
   35:
   36: BOOST_AUTO_TEST_CASE(longSeedString)
   37: {
   38:     LFSR l("00110101010000011011111101011011", 22);
   39:
   40:     BOOST_REQUIRE(l.step() == 1);
   41:     BOOST_REQUIRE(l.step() == 0);
   42:     BOOST_REQUIRE(l.step() == 1);
   43:     BOOST_REQUIRE(l.step() == 1);
   44:     BOOST_REQUIRE(l.step() == 0);
   45:
   46:     LFSR l2("00110101010000011011111101011011", 22);
   47:     BOOST_REQUIRE(l2.generate(32) == -1);
   48:     BOOST_REQUIRE(l2.generate(5) == 22);
   49: }
   50:
   51: BOOST_AUTO_TEST_CASE(generateZeroBitInteger)
   52: {
   53:     LFSR l("10110010", 3);
   54:     BOOST_REQUIRE(l.generate(0) == 0);
   55:
   56:     LFSR l2("1", 0);
   57:     BOOST_REQUIRE(l2.generate(0) == 0);
   58:
   59:     LFSR l3("01", 0);
   60:     BOOST_REQUIRE(l3.generate(0) == 0);
   61:     BOOST_REQUIRE(l3.generate(5) == 22);
   62: }
   63:
```