/*
* stack-client.cpp
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* This program is a client that tests the ArrayStack class.
*/

#include <iostream>
#include "console.h"
#include "arraystack.h"
using namespace std;

// function prototype declarations
void test1();
void test2();
void test3();

int main() {
    cout << "main begins" << endl;
    cout << "ArrayStack tester" << endl << endl;
    test1();
    cout << endl;
    test2();
    cout << endl;
    test3();

    cout << "Complete!" << endl;
    cout << "main ends" << endl;
    return 0;
}

// A first test of the ArrayStack.
// It just pushes and pops several values and prints them.
void test1() {
    ArrayStack s;
    cout << "Test 1:" << endl;
    cout << "isEmpty? " << boolalpha << s.isEmpty() << " " << endl;
    cout << "push 7, 10" << endl;
    s.push(7);
    s.push(10);
    cout << "peek: " << s.peek() << endl;
    cout << "pop : " << s.pop() << endl;
    cout << "isEmpty? " << boolalpha << s.isEmpty() << " " << endl;
    cout << "peek: " << s.peek() << endl;
    cout << "push 3, 5" << endl;
    s.push(3);
    s.push(5);
    cout << "pop : " << s.pop() << endl;
    cout << "pop : " << s.pop() << endl;
    cout << "isEmpty? " << boolalpha << s.isEmpty() << " " << endl;
    cout << "peek: " << s.peek() << endl;
    cout << "push 8" << endl;
    s.push(8);
    cout << "pop : " << s.pop() << endl;
    cout << "pop : " << s.pop() << endl;
}

// A second test of the ArrayStack.
// It pushes several values onto the stack, printing it, then pops them.
void test2() {
    cout << "Test 2:" << endl;
    // add (push) some values onto the stack
    ArrayStack stack;
    cout << "push tests:" << endl;
    for (int value : {42, 3, 17, 88}) {
        cout << "push: " << value << endl;
        stack.push(value);
    } // TODO
    // cout << "after: " << stack << endl;
}
cout << "peek/pop tests:" << endl;
while (!stack.isEmpty()) {
    cout << "peek: " << stack.peek() << endl;
    cout << "pop: "   << stack.pop()   << endl;
    // TODO
    /* cout << "after:" << stack << endl; */
}

// A third test that pushes many values to test the array enlarging.
void test3() {
    ArrayStack stack;
    for (int i = 0; i < 20; i++) {
        cout << "pushing "  << i  << endl;
        stack.push(i);
    }
    cout << "stack is:"  << stack  << endl;
    while (!stack.isEmpty()) {
        cout << "pop"   << endl;
        cout << stack.pop() << endl;
    }
}