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/* The following code example is taken from the book
 * "The C++ Standard Library – A Tutorial and Reference, 2nd Edition"
 * by Nicolai M. Josuttis, Addison-Wesley, 2012
 *
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 */
#include "alghostuff.hpp"
using namespace std;

int main()
{
    vector<int> coll1 = { 9, 8, 7, 7, 7, 5, 4, 2, 1 };
    vector<int> coll2 = { 5, 3, 2, 1, 4, 7, 9, 8, 6 };
    PRINT_ELEMENTS(coll1, "coll1: ");
    PRINT_ELEMENTS(coll2, "coll2: ");

    // check whether the collections are heaps
    cout << boolalpha << "coll1 is heap: "
         << is_heap(coll1.cbegin(), coll1.cend()) << endl;
    cout << "coll2 is heap: "
         << is_heap(coll2.cbegin(), coll2.cend()) << endl;

    // print the first element that is not a heap in coll2
    auto pos = is_heap_until(coll2.cbegin(), coll2.cend());
    if (pos != coll2.end()) {
        cout << "first non-heap element: " << *pos << endl;
    }
}

```