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/* The following code example is taken from the book
 * "The C++ Standard Library – A Tutorial and Reference"
 * by Nicolai M. Josuttis, Addison-Wesley, 1999
 *
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 */
#include "alghostuff.hpp"
using namespace std;

int main()
{
    list<int> coll;

    INSERT_ELEMENTS(coll, 1, 9);
    INSERT_ELEMENTS(coll, 1, 9);
    coll.sort ();
    PRINT_ELEMENTS(coll);

    // print first and last position 5 could get inserted
    list<int>::iterator pos1, pos2;

    pos1 = lower_bound (coll.begin(), coll.end(),
                        5);
    pos2 = upper_bound (coll.begin(), coll.end(),
                        5);

    cout << "5 could get position "
         << distance(coll.begin(), pos1) + 1
         << " up to "
         << distance(coll.begin(), pos2) + 1
         << " without breaking the sorting" << endl;

    // insert 3 at the first possible position without breaking the sorting
    coll.insert (lower_bound(coll.begin(), coll.end(),
                             3),
                3);

    // insert 7 at the last possible position without breaking the sorting
    coll.insert (upper_bound(coll.begin(), coll.end(),
                             7),
                7);

    PRINT_ELEMENTS(coll);
}

```