

```

/* 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
 *
 * (C) Copyright Nicolai M. Josuttis 2012.
 * Permission to copy, use, modify, sell and distribute this software
 * is granted provided this copyright notice appears in all copies.
 * This software is provided "as is" without express or implied
 * warranty, and with no claim as to its suitability for any purpose.
 */
#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
    auto pos1 = lower_bound (coll.cbegin(), coll.cend(),
                             5);
    auto pos2 = upper_bound (coll.cbegin(), coll.cend(),
                             5);

    cout << "5 could get position "
         << distance(coll.cbegin(),pos1) + 1
         << " up to "
         << distance(coll.cbegin(),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);
}

```