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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 <iostream>
#include <list>
#include <algorithm>
#include <iterator>
using namespace std;

void printLists (const list<int>& l1, const list<int>& l2)
{
    cout << "list1: ";
    copy (l1.begin(), l1.end(), ostream_iterator<int>(cout," "));
    cout << endl << "list2: ";
    copy (l2.begin(), l2.end(), ostream_iterator<int>(cout," "));
    cout << endl << endl;
}

int main()
{
    // create two empty lists
    list<int> list1, list2;

    // fill both lists with elements
    for (int i=0; i<6; ++i) {
        list1.push_back(i);
        list2.push_front(i);
    }
    printLists(list1, list2);

    // insert all elements of list1 before the first element with value 3 of
list2
    // - find() returns an iterator to the first element with value 3
    list2.splice(find(list2.begin(),list2.end(),  // destination position
                      3),
                 list1);                          // source list
    printLists(list1, list2);

    // move first element to the end
    list2.splice(list2.end(),        // destination position
                 list2,              // source list
                 list2.begin());     // source position
    printLists(list1, list2);

    // sort second list, assign to list1 and remove duplicates
    list2.sort();
    list1 = list2;
    list2.unique();
    printLists(list1, list2);
```

```
    // merge both sorted lists into the first list
    list1.merge(list2);
    printLists(list1, list2);
}
```