```
/* The following code example is taken from the book
 * "The C++ Standard Library - A Tutorial and Reference"
 * by Nicolai M. Josuttis, Addison-Wesley, 1999
 *
 * (C) Copyright Nicolai M. Josuttis 1999.
 * 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 <iostream>
#include <set>
#include <algorithm>
#include <iterator>
using namespace std;

int main()
{
    /* type of the collection:
     * - no duplicates
     * - elements are integral values
     * - descending order
     */
    typedef set<int,greater<int> > IntSet;

    IntSet coll1;        // empty set container

    // insert elements in random order
    coll1.insert(4);
    coll1.insert(3);
    coll1.insert(5);
    coll1.insert(1);
    coll1.insert(6);
    coll1.insert(2);
    coll1.insert(5);

    // iterate over all elements and print them
    IntSet::iterator pos;
    for (pos = coll1.begin(); pos != coll1.end(); ++pos) {
        cout << *pos << ' ';
    }
    cout << endl;

    // insert 4 again and process return value
    pair<IntSet::iterator,bool> status = coll1.insert(4);
    if (status.second) {
        cout << "4 inserted as element "
             << distance(coll1.begin(),status.first) + 1
             << endl;
    }
    else {
        cout << "4 already exists" << endl;
    }

    // assign elements to another set with ascending order
    set<int> coll2(coll1.begin(),
```

```
                coll1.end());

    // print all elements of the copy
    copy (coll2.begin(), coll2.end(),
          ostream_iterator<int>(cout," "));
    cout << endl;

    // remove all elements up to element with value 3
    coll2.erase (coll2.begin(), coll2.find(3));

    // remove all elements with value 5
    int num;
    num = coll2.erase (5);
    cout << num << " element(s) removed" << endl;

    // print all elements
    copy (coll2.begin(), coll2.end(),
          ostream_iterator<int>(cout," "));
    cout << endl;
}
```