Special Search Functions

The functions listed in this lesson make searching more efficient.

Ordered associative containers are optimized for searching, and so they offer unique search functions.

| Seach function | Description |
|--|--|
| ordAssCont.count(key) | Returns the number of values with the key. |
| ordAssCont.find(key) | Returns the iterator of key in ordAssCont. If there is no key in ordAssCont it returns ordAssCont.end(). |
| ordAssCont.lower_bound(key) | Returns the iterator to the first key in ordAssCont in which key would be inserted. |
| <pre>ordAssCont.upper_bound(key)</pre> | Returns the last position of key in ordAssCont in which key would be inserted. |
| <pre>ordAssCont.equal_range(key)</pre> | Returns the range ordAssCont.lower bound(key) and ordAssCont.upper_bound(key) in a std::pair. |

Now, the application of the special search functions.

```
// associativeContainerSearch.cpp
                                                                                            6
#include <iostream>
#include <set>
int main(){
  std::multiset<int> mySet{3, 1, 5, 3, 4, 5, 1, 4, 4, 3, 2, 2, 7, 6, 4, 3, 6};
  for (auto s: mySet) std::cout << s << " "; // 1 1 2 2 3 3 3 3 4 4 4 4 5 5 6 6 7
  std::cout<<"\n";</pre>
  mySet.erase(mySet.lower_bound(4), mySet.upper_bound(4));
  for (auto s: mySet) std::cout << s << " "; // 1 1 2 2 3 3 3 5 5 6 6 7
  std::cout<<"\n";</pre>
  std::cout << mySet.count(3) << std::endl; // 4</pre>
  std::cout << *mySet.find(3) << std::endl; // 3</pre>
  std::cout << *mySet.lower_bound(3) << std::endl; // 3</pre>
  std::cout << *mySet.upper_bound(3) << std::endl; // 5</pre>
  auto pair= mySet.equal_range(3);
  std::cout << "(" << *pair.first << "," << *pair.second << ")"; // (3,5)
  return 0;
```



Search in an associative container

In the next lesson, we'll discuss the features of std::map.