C++ Programming

STL Set

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Teaching, Training and Coaching since more than a decade!

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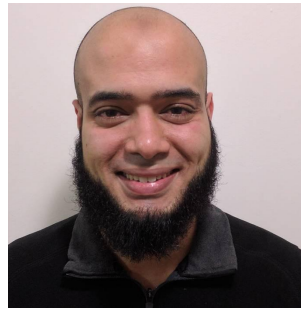

Set

```
6  void print(set<string> &v) {
7      for (string x : v)
8          cout << x << " ";
9      cout << "\n";
10 }
11
12 int main() {
13     set<string> strSet;             // Sorted & unique
14     strSet.insert("ziad");
15     strSet.insert("mostafa");
16     strSet.insert("mostafa");
17     strSet.insert("mostafa");
18     strSet.insert("ali");
19
20     print(strSet);  // ali mostafa ziad
21
22     if (strSet.count("mostafa"))
23         cout << "YES\n";
24
25     set<string>::iterator it = strSet.find("mostafa");
26     //auto it = strSet.find("mostafa");     // or shorter using auto
27
28     if (it != strSet.end())
29         strSet.erase(it);
30
31     print(strSet);  // ali ziad
32
33     return 0;
34 }
35
```

Multiset

```
6  void print(multiset<string> &v) {
7      for (string x : v)
8          cout << x << " ";
9      cout << "\n";
10 }
11
12 int main() {
13     multiset<string> strSet;                // Sorted & can repeat
14     strSet.insert("ziad");
15     strSet.insert("mostafa");
16     strSet.insert("mostafa");
17     strSet.insert("mostafa");
18     strSet.insert("ali");
19
20     print(strSet);  // ali mostafa mostafa mostafa ziad
21
22     if (strSet.count("mostafa"))
23         cout << "YES\n";
24
25     multiset<string>::iterator it = strSet.find("mostafa");
26     //auto it = strSet.find("mostafa");     // or shorter using auto
27
28     if (it != strSet.end())
29         strSet.erase(it);
30
31     print(strSet);  // ali mostafa mostafa ziad
32
33     return 0;
34 }
35
```

Struct that is ready for comparison

```
struct employee {
    int num1, num2;
    string str;

    employee(int a, int b, string name) {
        num1 = a, num2 = b, str = name;
    }

    bool operator <(const employee& rhs) const {
        // compare as we did before
        if (false) {
            if (num1 != rhs.num1)
                return num1 < rhs.num1;

            if (str != rhs.str)
                return str < rhs.str;

            return num2 < rhs.num2;
        }

        if (false) {
            // Or use pair
            return make_pair(num1, make_pair(str, num2))
                    < make_pair(rhs.num1, make_pair(rhs.str, rhs.num2));
        }

        // To use tie: must be variables
        return std::tie(num1, str, num2) <
                std::tie(rhs.num1, rhs.str, rhs.num2);
    }
};
```

Set over struct

```
36
37 int main() {
38     set<employee> s;
39     s.insert(employee(10, 35, "mostafa"));
40     s.insert(employee(7, 15, "ali"));
41     s.insert(employee(10, 17, "ziad"));
42     s.insert(employee(10, 20, "mostafa"));
43
44     for (auto emp : s)
45         cout << emp.num1 << " " << emp.str << " " << emp.num2 << "\n";
46
47     return 0;
48 }
```

Problems Tasks Console Properties Call Graph Search

<terminated> ztemp [C/C++ Application] /home/moustafa/workspaces/eclipse_cpp/ztemp

```
7 ali 15
10 mostafa 20
10 mostafa 35
10 ziad 17
```

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."