Assignment Title:	Write C++ program using STL for sorting and searching with user defined records such as person record(Name, DOB, Telephone number), Item record (Item code, name, cost,quantity) using vector container
Assignment No.:	07
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Program Code:

```
#include <iostream>    //standard input output stream header file
#include <algorithm>    //The STL algorithms are generic because they can operate on a variety
of data structures
#include <vector>    //The header file for the STL vector library is vector.

using namespace std;
class Item
{
     public:
        char name[10];
       int quantity;
       int cost;
       int code;

       bool operator==(const Item& i1)    //Boolean operators allow you to
create more complex conditional statements
   {
       if(code==i1.code)    //operator will return 1 if the comparison is true, or 0 if
the comparison is false
       return 1;
       return 0;
```

```
    }

    bool operator<(const Item& i1)
    {
        if(code<i1.code)    //operator will return 1 if the comparison is true, or 0 if
the comparison is false
        return 1;
        return 0;
    }

};

vector<Item> o1;
void print(Item &i1);
void display();
void insert();
void search();
void dlt();

bool compare(const Item &i1, const Item &i2)
{
   //if (i1.name != i2.name) return i1.cost < i2.cost;
   return i1.cost < i2.cost;
}

int main()
{
    int ch;
      do
    {
        cout<<"\n***** Menu *****";
        cout<<"\n1.Insert";
        cout<<"\n2.Display";
        cout<<"\n3.Search";
        cout<<"\n4.Sort";
        cout<<"\n5.Delete";
        cout<<"\n6.Exit";
        cout<<"\nEnter your choice:";
        cin>>ch;

        switch(ch)
        {
              case 1:
                    insert();
```

```
                    break;

            case 2:
                    display();
                    break;

            case 3:
                    search();
                    break;

            case 4:
                    sort(o1.begin(),o1.end(),compare);
                    cout<<"\n\n Sorted on Cost";
                    display();
                    break;

            case 5:
                   dlt();
                    break;

            case 6:
                    exit(0);
       }

    }while(ch!=7);

      return 0;
}

void insert()
{
    Item i1;
    cout<<"\nEnter Item Name:";
    cin>>i1.name;
    cout<<"\nEnter Item Quantity:";
    cin>>i1.quantity;
    cout<<"\nEnter Item Cost:";
    cin>>i1.cost;
    cout<<"\nEnter Item Code:";
    cin>>i1.code;
    o1.push_back(i1);
}

void display()
```

```
{
   for_each(o1.begin(),o1.end(),print);
}

void print(Item &i1)
{
    cout<<"\n";
    cout<<"\nItem Name:"<<i1.name;
    cout<<"\nItem Quantity:"<<i1.quantity;
    cout<<"\nItem Cost:"<<i1.cost;
    cout<<"\nItem Code:"<<i1.code;
}

void search()
{
   vector<Item>::iterator p;
   Item i1;
   cout<<"\nEnter Item Code to search:";
   cin>>i1.code;
   p=find(o1.begin(),o1.end(),i1);
   if(p==o1.end())
   {
       cout<<"\nNot found.";
   }
   else
   {
       cout<<"\nFound.";
   }
}

void dlt()
{
    vector<Item>::iterator p;
   Item i1;
   cout<<"\nEnter Item Code to delete:";
   cin>>i1.code;
   p=find(o1.begin(),o1.end(),i1);
   if(p==o1.end())
   {
       cout<<"\nNot found.";
   }
   else
   {
       o1.erase(p);
```

```
        cout<<"\nDeleted.";
    }
}
```

Program Output:

Paste Output here…...

***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:1

Enter Item Name:OOP

Enter Item Quantity:4

Enter Item Cost:100

Enter Item Code:101

***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:1

Enter Item Name:CG

Enter Item Quantity:3

Enter Item Cost:150

Enter Item Code:102

***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:2

Item Name:OOP
Item Quantity:4
Item Cost:100
Item Code:101

Item Name:CG
Item Quantity:3
Item Cost:150
Item Code:102
***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:3

Enter Item Code to search:102

Found.
***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit

Enter your choice:4

Sorted on Cost

Item Name:OOP
Item Quantity:4
Item Cost:100
Item Code:101

Item Name:CG
Item Quantity:3
Item Cost:150
Item Code:102
***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:5

Enter Item Code to delete:101

Deleted.
***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:2

Item Name:CG
Item Quantity:3
Item Cost:150
Item Code:102

***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:6

...Program finished with exit code 0