OBJECT ORIENTED PROGRAMMING LABORATORY
LAB ASSIGNMENT 6

Problem Statement :

Write C++ program using STL for sorting and searching user defined records such as Item records (Item code, name, cost, quantity etc) using vector container

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Main Program

```cpp
#include <iostream>
#include <algorithm>
#include <vector>
using namespace std;
class Item
{
        public: char name[10];
        int quantity;
        int cost;
        int code;

        bool operator==(const Item& i1)
        {
                if(code==i1.code)
                return 1;
                return 0;
        }
        bool operator<(const Item& i1)
        {
                if(cost<i1.cost)
                return 1;
                return 0;
        }
};
//vector<type>variable_name
vector<Item> o1;
void print(Item &i1);
void display();
void insert();
void search();
void dlt();
bool compare(const Item &i1, const Item &i2)  // cost 100 50 300 40
{\
        return i1.cost< i2.cost;
}

int main()
{
```

```cpp
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);
          cout<<"\nEXIT!! ";
}

}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);
}
```

```cpp
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.";
}
}
```

*************************************OUTPUT*********************************

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

Enter Item Name:Book

Enter Item Quantity:3

Enter Item Cost:100

Enter Item Code:123

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

Enter Item Name:Pen

Enter Item Quantity:5

Enter Item Cost:10

Enter Item Code:456

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

Enter Item Name:Notebook

Enter Item Quantity:1

Enter Item Cost:80

Enter Item Code:789

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

Item Name:Book
Item Quantity:3
Item Cost:100
Item Code:123

Item Name:Pen
Item Quantity:5
Item Cost:10
Item Code:456

Item Name:Notebook
Item Quantity:1
Item Cost:80
Item Code:789
***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:3

Enter Item Code to search:123

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

 Sorted on Cost

Item Name:Pen
Item Quantity:5
Item Cost:10
Item Code:456

Item Name:Notebook
Item Quantity:1
Item Cost:80
Item Code:789

Item Name:Book
Item Quantity:3

Item Cost:100

Item Code:123

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

Enter Item Code to delete:789

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

Item Name:Pen
Item Quantity:5
Item Cost:10
Item Code:456

Item Name:Book
Item Quantity:3
Item Cost:100
Item Code:123
***** Menu *****
1.Insert
2.Display
3.Search
4.Sort
5.Delete
6.Exit
Enter your choice:6
EXIT!!