

6 Write C++ program using STL for sorting and searching with user defined records such as person record(Name, DOB, Telephone number) using vector container

```
#include <iostream>
#include<cstring>
#include<cstdlib>
#include<algorithm>
#include <vector>
using namespace std;
typedef struct rec
{
    char name[20];
    char BirthDt[20];
    char phone[11];
}node;
node temp;
vector<node> rec; // create an empty vector
vector<node>::iterator ptr;

bool compare(node &r1,node &r2)
{
    if(strcmp(r1.name,r2.name)<0)
        return true;
    else
        return false;
}
void Create()
{
    int n,i;
    cout <<"\n How many elements you want to insert?"<<endl;
    cin>>n;
    cout<<"\n Enter the Elements in the database"<<endl;
    for(i=0; i<n; i++)
    {
        cout<<"\n Name: ";
        cin>>temp.name;
        cout<<"\n Birth Date(dd-mm-yy): ";
        cin>>temp.BirthDt;
        cout<<"\n Phone: ";
        cin>>temp.phone;
        rec.push_back(temp);
    }
}
void Display()
{
```

```

        cout<<"\n\tThe contents of the database are: ";
        cout<<"\n-----";
        cout<<"\n Name          Birth Date          Phone";
        cout<<"\n-----";
        for(ptr=rec.begin();ptr!=rec.end();ptr++)//accessing the contents thru iterator
        {
            cout<<"\n";
            cout<<" " <<(*ptr).name;
            cout<<" " <<(*ptr).BirthDt;
            cout<<" " <<(*ptr).phone;
        }
    }
    void Searching()
    {
        char key[20];
        int flag=0;
        cout<<"\n Enter the name which you want to search ";
        cin>>key;
        for(ptr=rec.begin();ptr!=rec.end();ptr++)
        {
            if(strcmp((*ptr).name,key)==0)
            {
                flag=1;
                break;
            }
            else
                flag=0;
        }
        if(flag==1)
            cout<<"\n The desired element is present in the database ";
        else
            cout<<"\n The desired element is not present in the database ";
    }
    void Sorting()
    {
        sort(rec.begin(),rec.end(),compare);
        cout <<"\n\n Record is Sorted!!! " <<endl;
    }
    int main()
    {
        char ans='y';
        int choice;
        cout<<"\n Program for Searching and sorting ";

```

```

do
{
    cout<<"\n Main Menu ";
    cout<<"\n 1. Create a database ";
    cout<<"\n 2. Display a database ";
    cout<<"\n 3. Search particular element";
    cout<<"\n 4. Sort the database(based on name)";
    cout<<"\n Enter your choice: ";
    cin>>choice;
    switch(choice)
    {
        case 1:Create();
                break;
        case 2:Display();
                break;
        case 3:Searching();
                break;
        case 4:Sorting();
                Display();
                break;
    }
    cout<<"\n Do you want to go back to Main Menu? ";
    cin>>ans;
}while(ans=='y');
return 0;
}

```

## Output

Program for Searching and sorting

Main Menu

1. Create a database
2. Display a database
3. Search particular element
4. Sort the database(based on name)

Enter your choice: 1

How many elements you want to insert?

3

Enter the Elements in the database

Name: BBB

Birth Date(dd-mm-yy): 01-01-01

Phone: 1111

Name: CCC

Birth Date(dd-mm-yy): 11-11-19

Phone: 2222

Name: AAA

Birth Date(dd-mm-yy): 05-10-05

Phone: 3333

Do you want to go back to Main Menu? y

Main Menu

1. Create a database
2. Display a database
3. Search particular element
4. Sort the database(based on name)

Enter your choice: 2

The contents of the database are:

Name	Birth Date	Phone
BBB	01-01-01	1111
CCC	11-11-19	2222
AAA	05-10-05	3333

Do you want to go back to Main Menu? y

Main Menu

1. Create a database
2. Display a database
3. Search particular element
4. Sort the database(based on name)

Enter your choice: 3

Enter the name which you want to search CCC

The desired element is present in the database

Do you want to go back to Main Menu? y

Main Menu

1. Create a database
2. Display a database
3. Search particular element
4. Sort the database(based on name)

Enter your choice: 4

Record is Sorted!!!

The contents of the database are:

Name	Birth Date	Phone
AAA	05-10-05	3333
BBB	01-01-01	1111
CCC	11-11-19	2222

Do you want to go back to Main Menu?