Name: Kaustubh S Kabra

Class: SE Comp-1

Roll no: 20

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.

Code:

#include <algorithm>

#include <iostream>

#include <vector>

#include <string>

using namespace std;

/\*-------<< Declaration of Student Class >>--------\*/

class student

{

public:

int rollno;

string name;

char dob[15];

bool operator==(const student &student1)

{

return(rollno==student1.rollno);

}

bool operator<(const student &student1)

{

return(rollno<student1.rollno);

}

friend ostream& operator << (ostream &out, const student &);

friend istream& operator >> (istream &in, student &k);

};

ostream & operator << (ostream &out, const student &k)

{

out<<"\n\t\t"<<k.rollno<<"\t\t"<<k.name<<"\t\t"<<k.dob;

return out;

}

istream & operator >> (istream &in , student &k)

{

cout<<"\nEnter Roll No : ";

in>>k.rollno;

cout<<"\nEnter Name : ";

in>>k.name;

cout<<"\nEnter DOB : ";

in>>k.dob;

return in;

}

bool myfunc(const student &k, const student &i2)

{

return(k.rollno<i2.rollno);

}

/\*-------<< Function Defination For Accept Record >>-------\*/

vector<student> read()

{

int n;

student k;

vector<student> j;

cout<< "\nEnter total no. of students : ";

cin>>n;

for(int i=0;i<n;i++)

{

cin>>k;

j.push\_back(k);

}

return j;

}

void printfunction(const student &k)

{

cout<<k;

}

/\*-------<< Function Defination For Display Record >>-------\*/

void print( const vector<student> &j)

{

cout<<"\n\t\tROLL NO\t\tNAME\t\tDATE OF BIRTH";

for\_each(j.begin(),j.end(),printfunction);

}

/\*-----<< Function Defination For Inserting New Record >>------\*/

void insert(vector<student> &j)

{

student k;

cin>>k;

j.push\_back(k);

}

/\*-------<< Function Defination For Delete Record >>-------\*/

void delet(vector<student>&j)

{

student k;

cout<<"\nEnter Student Roll No To Delete : ";

cin>>k.rollno;

vector<student>::iterator p;

p=find(j.begin(),j.end(),k);

if(p!=j.end())

j.erase(p);

else

cout<<"\nNot found ";

}

/\*-------<< Function Defination For Search Record >>-------\*/

void search( vector<student>&j )

{

student k;

cout<<"\nEnter Student Roll No To Search : ";

cin>>k.rollno;

cout<<"\n\n\t\tROLL NO\t\tNAME\t\tDATE OF BIRTH";

vector<student>::iterator p;

p=find(j.begin(),j.end(),k);

if(p!=j.end())

cout<<\*p;

else

cout<<"\nNot found ";

}

/\*-------<< Function Defination For Sort Record >>-------\*/

void sort( vector<student> &j)

{

sort(j.begin(),j.end(),myfunc);

}

/\*-------------<< Main Function Starts >>------------\*/

int main()

{

vector<student> j;

int op;

do

{

cout<<"\n\n\t\t-------<< MENU >>---------";

cout<<"\n\t\t1.Create ";

cout<<"\n\t\t2.Display ";

cout<<"\n\t\t3.Insert ";

cout<<"\n\t\t4.Delete ";

cout<<"\n\t\t5.Search ";

cout<<"\n\t\t6.Sort";

cout<<"\n\t\t7.Quit";

cout<<"\n\t\t--------------------------";

cout<<"\n\t\tEnter your choice : ";

cin >> op;

switch(op)

{

case 1:

j=read();

break;

case 2:

print(j);

break;

case 3:

insert(j);

break;

case 4:

delet(j);

break;

case 5:

search(j);

break;

case 6:

sort(j);

print(j);

break;

}

}while(op!=7);

}

/\*-------------<< End Of Main Function >>---------------\*/

Output:-

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 1

Enter total no. of students : 5

Enter Roll No : 25

Enter Name : Harsh

Enter DOB : 01/05/2001

Enter Roll No : 16

Enter Name : Onasvee

Enter DOB : 18/01/2002

Enter Roll No : 18

Enter Name : Unnati

Enter DOB : 12/05/2001

Enter Roll No : 20

Enter Name : Kaustubh

Enter DOB : 29/05/2001

Enter Roll No : 79

Enter Name : Akash

Enter DOB : 24/03/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 2

ROLL NO NAME DATE OF BIRTH

25 Harsh 01/05/2001

16 Onasvee 18/01/2002

18 Unnati 12/05/2001

20 Kaustubh 29/05/2001

79 Akash 24/03/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 3

Enter Roll No : 17

Enter Name : Vaishnavi

Enter DOB : 30/03/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 2

ROLL NO NAME DATE OF BIRTH

25 Harsh 01/05/2001

16 Onasvee 18/01/2002

18 Unnati 12/05/2001

20 Kaustubh 29/05/2001

79 Akash 24/03/2001

17 Vaishnavi 30/03/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 4

Enter Student Roll No To Delete : 20

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 2

ROLL NO NAME DATE OF BIRTH

25 Harsh 01/05/2001

16 Onasvee 18/01/2002

18 Unnati 12/05/2001

79 Akash 24/03/2001

17 Vaishnavi 30/03/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 5

Enter Student Roll No To Search : 25

ROLL NO NAME DATE OF BIRTH

25 Harsh 01/05/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 6

ROLL NO NAME DATE OF BIRTH

16 Onasvee 18/01/2002

17 Vaishnavi 30/03/2001

18 Unnati 12/05/2001

25 Harsh 01/05/2001

79 Akash 24/03/2001

-------<< MENU >>---------

1.Create

2.Display

3.Insert

4.Delete

5.Search

6.Sort

7.Quit

--------------------------

Enter your choice : 7

Thank You