#include <iostream>

using namespace std;

class student

{

public:

 int ID;

 char lastName[100];

 char firstName[100];

};

class course

{

public:

 int CRN;

 int n;

 student\* C;

 course();

 course(int crn, int x);

 void print() const;

 void set();

 bool contains(student & st);

 student\* common(course & cr, int &nb);

};

course::course()

{

 CRN=0;

 n=0;

 C=NULL;

}

course::course(int crn, int x)

{

 CRN=crn;

 n=x;

 C=new student[n];

}

void course:: print() const

{

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

 cout<<C[i].lastName<<" "<<C[i].firstName<<endl;

}

void course::set()

{

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

 {

 cout<<"Student "<<i<<":"<<endl;

 cout<<"Please enter first name: ";

 cin>>C[i].firstName;

 cout<<"Please enter last name: ";

 cin>>C[i].lastName;

 cout<<"Please enter ID: ";

 cin>>C[i].ID;

 }

}

bool course:: contains(student & st)

{

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

 {

 if(C[i].ID==st.ID)

 return true;

 }return false;

}

student\* course::common(course & cr, int & nb)

{

 student\* commonCourse = new student[n];

 int counter=0;

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

 {

 if(cr.contains(C[i]))

 {

 commonCourse[counter]=C[i];

 counter++;

 }

 }

 nb=counter;

 return commonCourse;

}

int main()

{

 course c1(1111,2);

 course c2(2222,3);

 c1.set();

 c2.set();

 cout<<endl;

 cout<<"course 1:"<<endl;

 c1.print();

 cout<<"course 2:"<<endl;

 c2.print();

 cout<<endl;

 student s1;

 s1.ID= 1;

 strcpy(s1.firstName, "Ghassan");

 strcpy(s1.lastName, "Zughaib");

 bool x= c1.contains(s1);

 if (x==true)

 cout<<"Course 1 contains Ghassan"<<endl;

 else if (x==false)

 cout<<"Course 1 doesn't contan Ghassan"<<endl;

 cout<<endl;

 int studs=0;

 student\* commonStud= c1.common(c2,studs);

 cout<<"C1 & C2 have these common students : "<<endl;

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

 {

cout<<commonStud[i].firstName<<" "<<commonStud[i].lastName<<" "<<commonStud[i].ID<<endl;

 }

 system("pause");

 return 0;

}