代码：（截图在后面）

#include <iostream>

#include <string>

using namespace std;

typedef struct A

{

string name;

int number;

}stu;

class Student

{

private:

stu \*array;

int mid;

int left;

int right;

int count;

void Myswap(stu &a , stu &b); //交换两个学生信息的位置

int Find(int num); //查找数字，内置于Search函数

int Find(string na); //查找姓名，内置于Search函数

public:

Student(int count); //初始化Student数组，count表示学生人数

void Num\_sort(); //按号码从小到大排序

void String\_sort(); //按名字从小到大排序

void Input(); //输入全部数据

void Print(); //输出全部数据

void Search(int num); //显示查找信息

void Search(string na); //显示查找信息

};

Student::Student(int cou)

{

this->count = cou;

this->array = new stu[cou];

left = 0;

right = this->count-1;

mid = (left+right)/2;

}

void Student::Input()

{

for(int i = 0 ; i < this->count ; ++i)

{

cout << "请输入姓名：";

cin >> this->array[i].name;

cout << "请输入号码：";

cin >> this->array[i].number;

}

}

void Student::Print()

{

cout << endl << "------------------>" << endl;

cout << "姓名\t" << "号码" << endl;

for(int i = 0 ; i < this->count ; ++i)

{

cout << this->array[i].name << "\t" << this->array[i].number << endl;

}

cout << "------------------>" << endl << endl;

}

void Student::Myswap(stu &a , stu &b)

{

stu t = a;

a = b;

b = t;

}

void Student::Num\_sort()

{

for(int i = 0 ; i < this->count ; ++i)

{

for(int j = 0 ; j < this->count-i-1 ; ++j)

{

if(array[j].number > array[j+1].number)

{

this->Myswap(this->array[j] , this->array[j+1]); //交换学生数据

}

}

}

}

void Student::String\_sort()

{

for(int i = 0 ; i < this->count ; ++i)

{

for(int j = 0 ; j < this->count-i-1 ; ++j)

{

if(array[j].name > array[j+1].name)

{

this->Myswap(this->array[j] , this->array[j+1]); //交换学生数据

}

}

}

}

int Student::Find(int num)

{

if(this->left > this->right)

{

return 0;

}

if(num == this->array[mid].number)

{

return 1;

}

if(num < this->array[mid].number)

{

this->right = mid-1;

this->mid = (left+right)/2;

if(Find(num))

{

return 1;

}

else

{

return 0;

}

}

else if(num > this->array[mid].number)

{

this->left = mid+1;

this->mid = (left+right)/2;

if(Find(num))

{

return 1;

}

else

{

return 0;

}

}

}

int Student::Find(string na)

{

if(this->left > this->right)

{

return 0;

}

if(na == this->array[mid].name)

{

return 1;

}

if(na < this->array[mid].name)

{

this->right = mid-1;

this->mid = (left+right)/2;

if(Find(na))

{

return 1;

}

else

{

return 0;

}

}

else if(na > this->array[mid].name)

{

this->left = mid+1;

this->mid = (left+right)/2;

if(Find(na))

{

return 1;

}

else

{

return 0;

}

}

}

void Student::Search(int num)

{

//初始化查找所需的数据

left = 0;

right = this->count-1;

mid = (left+right)/2;

//排序

this->Num\_sort();

if(this->Find(num))

{

cout << "---> 姓名：" << this->array[mid].name << "\t" << "号码：" << this->array[mid].number << endl;

}

else

{

cout << "没有找到该学生" << endl;

}

}

void Student::Search(string na)

{

//初始化查找所需的数据

left = 0;

right = this->count-1;

mid = (left+right)/2;

//排序

this->String\_sort();

if(this->Find(na))

{

cout << "---> 姓名：" << this->array[mid].name << "\t" << "号码：" << this->array[mid].number << endl;

}

else

{

cout << "没有找到该学生" << endl;

}

}

int main()

{

int number = 0;

string name;

Student s(6);

s.Input();

s.Print();

cin >> number;

s.Search(number);

cin >> name;

s.Search(name);

}

截图：

