

Object-Oriented Programming Language

11/14/2018

Homework Assignment No. 8

Due 11:59 pm, Thursday November 22, 2018

Late submission within 24 hours: score*0.9;

Late submission within one week: score*0.8.

The solutions will be posted after one week of the due date.

(Total 25%)

1. **(25%):** Implement a class named `Person`. The definition of the class is as follows:

```
class Person {
    friend istream& operator>> (istream& s, Person& p);

private:
    float weight;
    float height;
public:
    Person() {
    }
    Person(const float& w, const float& h)
        : weight(w), height(h) {
    }
    float getWeight() const;
    float getHeight() const;
    bool operator< (const Person& j) const;
};
```

The comparison of persons is to first compare their height. However, if two persons have the same height, you will then compare their weight.

As for the input, if one of the height or weight is negative, you will take it as the signal to end the input for persons' information.

The following is portions of the main function:

```
int main () {

    vector<Person> pv;

    int i = 0;
    Person p;
    while(true){
        cout << "Please input "<< i+1 << " Persons\' information
(first weight then height): ";
        cin >> p;
        //add some code

        pv.push_back(p);
        i++;
    }
}
```

```
sort(pv.begin(), pv.end());

// print out content:
cout << "Persons:";
for (auto p : pv)
    cout << p;
cout << endl;

return 0;
}
```

The following are sample runs.

```
Please input 1 Persons' information (first weight then height): 63.2 -168.5
Persons:
```

```
Please input 1 Persons' information (first weight then height): 64.5 173.5
Please input 2 Persons' information (first weight then height): 72.3 173.5
Please input 3 Persons' information (first weight then height): 64.5 172.0
Please input 4 Persons' information (first weight then height): 80.5 180.3
Please input 5 Persons' information (first weight then height): 72.3 168.3
Please input 6 Persons' information (first weight then height): -1 -1
Persons:[72.3, 168.3][64.5, 172][64.5, 173.5][72.3, 173.5][80.5, 180.3]
```

```
Please input 1 Persons' information (first weight then height): 55.3 162.5
Please input 2 Persons' information (first weight then height): 48.8 162.5
Please input 3 Persons' information (first weight then height): 55.3 158.5
Please input 4 Persons' information (first weight then height): 48.8 155.5
Please input 5 Persons' information (first weight then height): 84.3 175.2
Please input 6 Persons' information (first weight then height): 63.8 175.2
Please input 7 Persons' information (first weight then height): -1 1
Persons:[48.8, 155.5][55.3, 158.5][48.8, 162.5][55.3, 162.5][63.8, 175.2][84.3, 175.2]
```