#include<iostream>

#include<fstream>

#include<string>

using namespace std;

class student {

private:

string name, lastN;

double mark;

public:

student() {

name = "Madara";

lastN = "Uchiha";

mark = 0;

}

student(string valueName, string valueLastN, double valueMark) {

name = valueName;

lastN = valueLastN;

mark = valueMark;

}

//////////////

string getName() {

return name;

}

string getLastN() {

return lastN;

}

double getMark() {

return mark;

}

void setName(string value) {

name = value;

}

void setLastN(string value) {

lastN = value;

}

void setMark(double value) {

mark = value;

}

//////////////

void showContent() {

cout << name << " " << lastN << " " << mark << endl;

}

void changeContent() {

cout << "name: ";

cin >> name;

cout << "lastname: ";

cin >> lastN;

cout << "mark: ";

cin >> mark;

}

};

void sort(student arr[], int n) {

student temp;

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

for (int j = 0; j < n-i-1; j++) {

if(arr[j].getLastN() > arr[j+1].getLastN()) {

temp = arr[j];

arr[j] = arr[j + 1];

arr[j+1] = temp;

}

}

}

}

student maxValue(student arr[], int n) {

student max = arr[0];

for (int i = 1; i < n; i++) {

if (arr[i].getMark() > max.getMark())

max = arr[i];

}

return max;

}

double averageValue(student arr[], int n) {

double value = 0;

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

value += arr[i].getMark();

}

return value/n;

}

void main() {

string path("data.txt");

ifstream data;

data.open(path);

int n;

data >> n;

student \*arr = new student[n];

string name, lastN;

double mark;

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

data >> name >> lastN >> mark;

student someone(name, lastN, mark);

arr[i] = someone;

}

///////////

sort(arr, n);

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

arr[i].showContent();

}

cout << endl;

///////////

maxValue(arr, n).showContent();

cout << endl;

///////////

cout << "Average mark: " << averageValue(arr, n) << endl;

}