#include <iostream>

#include <fstream>

#include <vector>

using namespace std;

// 学生类

class Student {

private:

string name;

int score;

public:

Student(string n, int s) : name(n), score(s) {}

string getName() const {//这里的const是使程序更加的稳定

return name;

}

int getScore() const {

return score;

}

void setScore(int newscore){

score = newscore;

}

};

// 学生管理类

class StudentManager {

private:

vector<Student> students;

string filename;

public:

StudentManager(string file) : filename(file) {

loadFromFile();

}

void addStudent(string name, int score) {

Student newStudent(name, score);

students.push\_back(newStudent);

saveToFile();

}

void removeStudent(string name) {

for (auto it = students.begin(); it != students.end(); ++it) {

if (it->getName() == name) {

students.erase(it);

break;

}

}

saveToFile();

}

void displayStudents() {

for (const auto& student : students) {

cout << "Name: " << student.getName() << ", Score: " << student.getScore() << endl;

}

}

void searchStudent(string name) {

for (const auto& student : students) {

if (student.getName() == name) {

cout << "Name: " << student.getName() << ", Score: " << student.getScore() << endl;

return;

}

}

cout << "未找到该学生的信息。" << endl;

}

void modifyStudent(string name, int newScore) {

for (auto& student : students) {//这个的意思就是使用引用遍历students里面的对象

if (student.getName() == name) {

student.setScore(newScore);

saveToFile();

cout << "学生信息已成功修改。" << endl;

return;

}

}

cout << "未找到该学生的信息，无法修改。" << endl;

}

private:

void loadFromFile() {

ifstream file(filename);

if (file.is\_open()) {

string name;

int score;

while (file >> name >> score) {

Student student(name, score);

students.push\_back(student);

}

file.close();

}

}

void saveToFile() {

ofstream file(filename);

if (file.is\_open()) {

for (const auto& student : students) {

file << student.getName() << " " << student.getScore() << endl;

}

file.close();

}

}

};

// 主菜单类

class MainMenu {

private:

StudentManager manager;

public:

MainMenu(string file) : manager(file) {}

void showMenu() {

int choice;

string name;

int score;

while (true) {

cout << "=== 学生成绩管理系统 ===" << endl;

cout << "1. 添加学生信息和成绩" << endl;

cout << "2. 删除学生信息和成绩" << endl;

cout << "3. 显示所有学生信息和成绩" << endl;

cout << "4. 查找学生的信息" << endl;

cout << "5. 修改学生的信息" << endl;

cout << "0. 退出" << endl;

cout << "请输入选项：";

cin >> choice;

switch (choice) {

case 1:

cout << "请输入学生姓名：";

cin >> name;

cout << "请输入学生成绩：";

cin >> score;

manager.addStudent(name, score);

break;

case 2:

cout << "请输入要删除的学生姓名：";

cin >> name;

manager.removeStudent(name);

break;

case 3:

manager.displayStudents();

break;

case 0:

return;

case 4:

cout << "请输入要查找的学生姓名：";

cin >> name;

manager.searchStudent(name);

break;

case 5:

cout << "请输入要修改的学生姓名：";

cin >> name;

cout << "请输入新的成绩：";

cin >> score;

manager.modifyStudent(name, score);

break;

default:

cout << "无效的选项，请重新输入！" << endl;

break;

}

cout << endl;

}

}

};

int main() {

MainMenu menu("students.txt");

menu.showMenu();

return 0;

}