#include "Student.h"

#include<iostream>

//显示功能表

void Student::showMenu() {

cout << " 学生信息管理(SIM)系统菜单: " << endl << endl;

cout << "—— 0、退出SIM系统 —— " << endl;

cout << "—— 1、添加学生信息 —— " << endl;

cout << "—— 2、显示所有学生信息 —— " << endl;

cout << "—— 3、删除学生信息 —— " << endl;

cout << "—— 4、修改学生信息 —— " << endl;

cout << "—— 5、查找学生信息 —— " << endl;

cout << "—— 6、排序学生成绩 —— " << endl;

cout << "—— 7、读取txt文件 —— " << endl;

cout << "—— 8、写入txt文件 —— " << endl << endl;

}

//0、退出系统

void Student::exitSystem()

{

cout << "欢迎下次使用" << endl;

system("pause");

exit(0);

}

//1、增加学生信息

int Student::addStudent(int num) {

array[num] = new Student[max];

cout << "请输入你要添加的学生信息：" << endl;

//基本信息

long long id;

int age, klass, year;

string name, sex, profession;

//成绩信息

double math, english, dsa, java;

//姓名

cout << "输入姓名：" << endl;

cin >> name;

array[num]->s\_name = name;

cout << endl;

//学号

cout << "输入学号：" << endl;

cout << "【1-4位为入学年份：2017-2020】"<<endl;

cout << "【5-9位为专业号：软件工程：11701 / 计算机科学与技术：11602】"<<endl;

while (true) {

part1:

string s;

cin >> s;

while(ss(s) == 0)

{

cout << "输入错误，请重新输入！"<<endl;

cin >> s;

}

id = atoll(s.c\_str());

//cin >> id;

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

if (id == array[i]->s\_id) {

cout << "学号重复！请重新添加！" << endl<<endl;

goto part1;

}

}

part:

//推导：入学年份、专业、班级

if (id / 100000000000 >= 1 && id / 100000000000 < 10 ) {

if (id / 100000000 >= 2017 && id / 100000000 < 2021) {

if (id / 1000 % 100000 == 11701) {

Student::se(num, id);

cout << "请输入各科成绩：" << endl;

cout << "高等数学：";

cin >> math;

Student::math(math, num);

cout << "大学英语：";

cin >> english;

Student::english(english, num);

cout << "数据结构与算法：";

cin >> dsa;

Student::dsa(dsa, num);

array[num]->g\_grade = (array[num]->a\_math + array[num]->a\_english + array[num]->b\_dsa) / 3;

break;

}

else if (id / 1000 % 100000 == 11602) {

Student::cst(num, id);

cout << "请输入各科成绩：" << endl;

cout << "高等数学：";

cin >> math;

Student::math(math, num);

cout << "大学英语：";

cin >> english;

Student::english(english, num);

cout << "数据结构与算法：";

cin >> java;

Student::java(java, num);

array[num]->g\_grade = (array[num]->a\_math + array[num]->a\_english + array[num]->b\_java) / 3;

break;

}

}

}

cout << "您输入的学号有误！请重新输入！" << endl;

}

//性别

cout << "性别：(男 or 女)" << endl;

cout << "【可输入0跳过】" << endl;

while (true) {

cin >> sex;

if (sex == "男" || sex == "女") {

array[num]->s\_sex = sex;

break;

}

else if (sex == "0") {

array[num]->s\_sex = " x ";

break;

}

else {

cout << "您输入的性别有误！请重新输入！" << endl;

}

}

cout << endl;

//年龄

cout << "年龄：(14--28)" << endl;

cout << "【可输入0跳过】" << endl;

while (true) {

cin >> age;

if (age <= 28 && age >= 14) {

array[num]->s\_age = age;

break;

}

else if (age == 0) {

array[num]->s\_age = 000;

break;

}

else {

cout << "您输入的年龄有误！请重新输入！" << endl;

}

};

cout << endl;

//结束增加操作

cout << "添加学生操作成功！" << endl;

system("pause");

system("cls");

return ++num;

}

//2、显示所有学生信息

void Student::showStudent(int num){

cout << endl;

//int a = 0;

cout << "所有学生基本信息：" << endl;

cout << "学生学号： 姓名： 班级： 性别： 年龄： 专业：" << endl;

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

//判空

if (array[i]->s\_id != 0) {

cout << array[i]->s\_id << " "

<< array[i]->s\_name << " ";

if (array[i]->s\_id / 1000 % 100000 == 11701) {

cout << "软件" << "1" << array[i]->s\_id / 100000000 % 100 << array[i]->s\_klass << " ";

}

else if (array[i]->s\_id / 1000 % 100000 == 11602) {

cout << "计科" << "1" << array[i]->s\_id / 100000000 % 100 << array[i]->s\_klass << " ";

}

cout << array[i]->s\_sex << " "

<< array[i]->s\_age << " "

<< array[i]->s\_profession << endl;

}

}

cout << endl;

cout << "所有学生成绩信息：" << endl;

cout << "软件工程学生：" << endl;

//软件工程学生

cout << "学生学号： 姓名： 高等数学： 大学英语： 数据结构与算法： 总绩点： " << endl;

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

if (array[i]->s\_id!=0 && array[i]->s\_id / 1000 % 100000 == 11701) {

cout << array[i]->s\_id << " "

<< array[i]->s\_name << " "

<< array[i]->a\_math << " "

<< array[i]->a\_english << " "

<< array[i]->b\_dsa << " "

<< setprecision(3) << array[i]->g\_grade << endl;

}

}

cout << endl;

cout << "计算机科学与技术学生：" << endl;

//计算机科学与技术学生

cout << "学生学号： 姓名： 高等数学： 大学英语： java程序设计： 总绩点： " << endl;

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

if (array[i]->s\_id != 0 && array[i]->s\_id / 1000 % 100000 == 11602) {

cout << array[i]->s\_id << " "

<< array[i]->s\_name << " "

<< array[i]->a\_math << " "

<< array[i]->a\_english << " "

<< array[i]->b\_java << " "

<< setprecision(3) << array[i]->g\_grade << endl;

}

}

cout << endl;

system("pause");

system("cls");

}

//3、删除学生信息

int Student::deleteStudent(int num) {

int choice = 0;

long long id;

cout << "您要进行某个学生信息的整体信息删除还是部分信息删除？" << endl;

head1:

cout << "返回 —— 0" << endl;

cout << "整体删除 —— 1" << endl;

cout << "部分删除 —— 2" << endl;

cin >> choice;

cout << endl;

if (choice == 0) {

cout << "返回成功！" << endl;

system("pause");

system("cls");

return num;

}

else if (choice == 1) {

cout << "请输入学生学号：(12位有效数字)" << endl;

//删除某个学生所有信息

cin >> id;

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

if (id == array[i]->s\_id) {

array[i]->s\_id = 0; array[i]->s\_name = "x";

array[i]->s\_klass = 0; array[i]->s\_sex = "x";

array[i]->s\_age = 0; array[i]->s\_profession = "x";

array[i]->a\_math = 0; array[i]->a\_english = 0;

array[i]->b\_dsa = 0; array[i]->b\_java = 0;

array[i]->g\_grade = 0;

cout << "删除成功！" << endl;

system("pause");

system("cls");

return --num;

}

}

cout << endl;

cout << "没有找到该学生！请重新选择你要执行的操作：" << endl;

goto head1;

}

else if (choice == 2) {

cout << "请输入学生学号：(12位有效数字)" << endl;

cin >> id;

//删除学生的性别、年龄、总成绩

int select = 0;

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

if (id == array[i]->s\_id) {

cout << endl;

cout << "找到该学生！" << endl << endl;

cout << "请输入你要删除的该学生信息：" << endl;

head2:

cout << "【性别 —— 1 || 年龄 —— 2 || 总绩点 —— 3】" << endl;

cin >> select;

if (select == 1) {

array[i]->s\_sex = " x ";

cout << "删除成功！" << endl;

system("pause");

system("cls");

return num;

}

else if (select == 2) {

array[i]->s\_age = 0;

cout << "删除成功！" << endl;

system("pause");

system("cls");

return num;

}

else if (select == 3) {

array[i]->g\_grade = 0.0;

cout << "删除成功！" << endl;

system("pause");

system("cls");

return num;

}

else {

cout << "输入错误信息，请重新输入！";

goto head2;

}

}

}

cout << endl << endl;

cout << "没有找到该学生！退出功能" << endl;

system("pause");

system("cls");

return num;

}

else {

cout << "你选择的功能错误，请重新输入:" << endl;

goto head1;

}

}

//4、修改学生信息

void Student::modifyStudent(int num) {

int choice1,choice2;

int i = 0;

double math, english, dsa, java, grade;

string name, sex, profession;

int klass, age;

long long id;

cout << "输入你要修改的学生学号：" << endl;

head2:

cin >> id;

for (i; i < num; i++) {

if (id == array[i]->s\_id) {

cout << "找到学生！" << endl;

goto head1;

}

}

cout << "没有找到该学生，请重新输入学号！" << endl;

i = 0;

goto head2;

head1:

cout << "输入你要修改的信息（基本信息—1 / 成绩信息—2）：" << endl;

cin >> choice1;

if (choice1 == 2) {

cout << "请选择你要修改的信息" << endl;

head4:

cout << "【高等数学—1，大学英语—,2，专业科目—3，总绩点—4】" << endl;

cin >> choice2;

if (choice2 == 1) {

cout << "请输入新数学成绩：" << endl;

cin >> math;

array[i]->a\_math = math;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else if (choice2 == 2) {

cout << "请输入新英语成绩：" << endl;

cin >> english;

array[i]->a\_english = english;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else if (choice2 == 3) {

if (array[i]->s\_id / 1000 % 100000 == 11701) {

cout << "请输入数据结构与算法成绩：" << endl;

cin >> dsa;

array[i]->b\_dsa = dsa;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else {

cout << "请输入新java程序设计成绩：" << endl;

cin >> java;

array[i]->b\_java = java;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

}

else if (choice2 == 4) {

cout << "请输入新总成绩：" << endl;

cin >> grade;

array[i]->g\_grade = grade;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else {

cout << "操作失败，请重新输入！" << endl;

goto head4;

}

}

else if (choice1 == 1) {

cout << "请选择你要修改的信息" << endl;

head3:

cout << "【姓名—1，班级—2，性别—3，年龄—4，专业—5】" << endl;

cin >> choice2;

if (choice2 == 1) {

cout << "请输入新姓名：" << endl;

cin >> name;

array[i]->s\_name = name;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else if (choice2 == 2) {

cout << "请输入新班级：" << endl;

cin >> klass;

array[i]->s\_klass = klass;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else if (choice2 == 3) {

cout << "请输入新性别：" << endl;

cin >> sex;

array[i]->s\_sex = sex;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else if (choice2 == 4) {

cout << "请输入新年龄：" << endl;

cin >> age;

array[i]->s\_age = age;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else if(choice2 == 5) {

cout << "请输入新专业：" << endl;

cin >> profession;

array[i]->s\_profession = profession;

cout << "修改成功！" << endl;

system("pause");

system("cls");

}

else {

cout << "操作失败，请重新输入！" << endl;

goto head3;

}

}

else {

cout << "操作失败，请重新输入！" << endl;

goto head1;

}

}

//5、查找学生信息

void Student::findStudent(int num) {

long long id;

int i = 0;

int choice1, choice2;

cout << "输入你要查询的学生学号：" << endl;

head2:

cin >> id;

for (i; i < num; i++) {

if (id == array[i]->s\_id) {

cout << "找到学生！" << endl;

goto head1;

}

}

cout << "没有找到该学生，请重新输入学号！" << endl;

i = 0;

goto head2;

head1:

cout << "输入你要查询的学生信息：" << endl;

cout << "输入你要查询的信息（全部信息—1 / 基本信息—2 / 成绩信息—3）：" << endl;

cin >> choice1;

if (choice1 == 1) {

cout << "该学生的基本信息：" << endl;

cout << "学生学号： 姓名： 班级： 性别： 年龄： 专业：" << endl;

//pankong

if (array[i]->s\_id != 0) {

cout << array[i]->s\_id << " "

<< array[i]->s\_name << " ";

if (array[i]->s\_id / 1000 % 100000 == 11701) {

cout << "软件" << "1" << array[i]->s\_id / 100000000 % 100 << array[i]->s\_klass << " ";

}

else if (array[i]->s\_id / 1000 % 100000 == 11602) {

cout << "计科" << "1" << array[i]->s\_id / 100000000 % 100 << array[i]->s\_klass << " ";

}

cout << array[i]->s\_sex << " "

<< array[i]->s\_age << " "

<< array[i]->s\_profession << endl;

}

cout << endl;

cout << "该学生的成绩信息：" << endl;

//软件工程学生

if (array[i]->s\_id != 0 && array[i]->s\_id / 1000 % 100000 == 11701) {

cout << "学生学号： 姓名： 高等数学： 大学英语： 数据结构与算法： 总绩点： " << endl;

cout << array[i]->s\_id << " "

<< array[i]->s\_name << " "

<< array[i]->a\_math << " "

<< array[i]->a\_english << " "

<< array[i]->b\_dsa << " "

<< setprecision(3) << array[i]->g\_grade << endl;

}

cout << endl;

//计算机科学与技术学生

if (array[i]->s\_id != 0 && array[i]->s\_id / 1000 % 100000 == 11602) {

cout << "学生学号： 姓名： 高等数学： 大学英语： java程序设计： 总绩点： " << endl;

cout << array[i]->s\_id << " "

<< array[i]->s\_name << " "

<< array[i]->a\_math << " "

<< array[i]->a\_english << " "

<< array[i]->b\_java << " "

<< setprecision(3) << array[i]->g\_grade << endl;

}

cout << endl;

system("pause");

system("cls");

}

else if (choice1 == 2) {

cout << "输入你要查询的信息：" << endl;

head3:

cout << "【姓名—1，班级—2，性别—3，年龄—4，专业—5】" << endl;

cin >> choice2;

if (choice2 == 1) {

cout << "查找成功！" << endl;

cout << "本学生的姓名为：" << array[i]->s\_name << endl;

system("pause");

system("cls");

}

else if (choice2 == 2) {

cout << "查找成功！" << endl;

cout << "本学生的班级为：" << array[i]->s\_klass <<"班" << endl;

system("pause");

system("cls");

}

else if (choice2 == 3) {

cout << "查找成功！" << endl;

cout << "本学生的性别为：" << array[i]->s\_sex << endl;

system("pause");

system("cls");

}

else if (choice2 == 4) {

cout << "查找成功！" << endl;

cout << "本学生的年龄为：" << array[i]->s\_age << endl;

system("pause");

system("cls");

}

else if (choice2 == 5) {

cout << "查找成功！" << endl;

cout << "本学生的专业为：" << array[i]->s\_profession << endl;

system("pause");

system("cls");

}

else {

cout << "操作失败，请重新输入！" << endl;

goto head3;

}

}

else if (choice1 == 3) {

cout << "输入你要查询的信息：" << endl;

head4:

cout << "【高等数学—1，大学英语—2，专业科目—3，总绩点—4】" << endl;

cin >> choice2;

if (choice2 == 1) {

cout << "查找成功！" << endl;

cout << "本学生的高数绩点为：" << array[i]->a\_math << endl;

system("pause");

system("cls");

}

else if (choice2 == 2) {

cout << "查找成功！" << endl;

cout << "本学生的大英绩点为：" << array[i]->a\_english << endl;

system("pause");

system("cls");

}

else if (choice2 == 3) {

cout << "查找成功！" << endl;

if (array[i]->s\_id / 1000 % 100000 == 11701) {

cout << "本学生的数据结构与算法绩点为：" << array[i]->b\_dsa << endl;

}

else if (array[i]->s\_id / 1000 % 100000 == 11602) {

cout << "本学生的java程序设计绩点为：" << array[i]->b\_java << endl;

}

system("pause");

system("cls");

}

else if (choice2 == 4) {

cout << "查找成功！" << endl;

cout << "本学生的总绩点为：" << array[i]->g\_grade << endl;

system("pause");

system("cls");

}

else {

cout << "操作失败，请重新输入！" << endl;

goto head4;

}

}

else {

cout << "查找失败，退出该功能！";

system("pause");

system("cls");

}

}

//6、排序学生成绩(总绩点 or 各科成绩)

void Student::sortStudent(int num) {

/\*Btree b;

b.CreateBtree(array[big]->s\_id);\*/

int choice;

cout << "选择你要排序的对象：" << endl;

head:

cout << "【总绩点——1 || 高等数学——2 || 大学英语——3】"<<endl;

cin >> choice;

if (choice == 1) {

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

array[i]->f\_grade = array[i]->g\_grade; //绩点

array[i]->f\_id = array[i]->s\_id; //学号

array[i]->f\_name = array[i]->s\_name; //姓名

}

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

//

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

if (array[j]->g\_grade < array[j + 1]->g\_grade) {

double temp1 = array[j]->g\_grade;

double temp2 = array[j]->s\_id;

string temp3 = array[j]->s\_name;

array[j]->g\_grade = array[j + 1]->g\_grade;

array[j]->s\_id = array[j + 1]->s\_id;

array[j]->s\_name = array[j + 1]->s\_name;

array[j + 1]->g\_grade = temp1;

array[j + 1]->s\_id = temp2;

array[j + 1]->s\_name = temp3;

}

}

}

cout << "成绩从大到小排序为：" << endl;

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

cout << "姓名：" << array[i]->s\_name << " "

<< "学号：" << array[i]->s\_id << " "

<< "总绩点为：" << array[i]->g\_grade << endl;

}

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

array[i]->g\_grade = array[i]->f\_grade;

array[i]->s\_id = array[i]->f\_id;

array[i]->s\_name = array[i]->f\_name;

}

}

else if (choice == 2) {

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

array[i]->f\_math = array[i]->a\_math; //绩点

array[i]->f\_id = array[i]->s\_id; //学号

array[i]->f\_name = array[i]->s\_name; //姓名

}

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

//

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

if (array[j]->a\_math < array[j + 1]->a\_math) {

double temp1 = array[j]->a\_math;

double temp2 = array[j]->s\_id;

string temp3 = array[j]->s\_name;

array[j]->a\_math = array[j + 1]->a\_math;

array[j]->s\_id = array[j + 1]->s\_id;

array[j]->s\_name = array[j + 1]->s\_name;

array[j + 1]->a\_math = temp1;

array[j + 1]->s\_id = temp2;

array[j + 1]->s\_name = temp3;

}

}

}

cout << "成绩从大到小排序为：" << endl;

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

cout << "姓名：" << array[i]->s\_name << " "

<< "学号：" << array[i]->s\_id << " "

<< "高数绩点为：" << array[i]->a\_math << endl;

}

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

array[i]->a\_math = array[i]->f\_math;

array[i]->s\_id = array[i]->f\_id;

array[i]->s\_name = array[i]->f\_name;

}

}

else if (choice == 3) {

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

array[i]->f\_english = array[i]->a\_english; //绩点

array[i]->f\_id = array[i]->s\_id; //学号

array[i]->f\_name = array[i]->s\_name; //姓名

}

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

//

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

if (array[j]->a\_english < array[j + 1]->a\_english) {

double temp1 = array[j]->a\_english;

double temp2 = array[j]->s\_id;

string temp3 = array[j]->s\_name;

array[j]->a\_english = array[j + 1]->a\_english;

array[j]->s\_id = array[j + 1]->s\_id;

array[j]->s\_name = array[j + 1]->s\_name;

array[j + 1]->a\_english = temp1;

array[j + 1]->s\_id = temp2;

array[j + 1]->s\_name = temp3;

}

}

}

cout << "成绩从大到小排序为：" << endl;

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

cout << "姓名：" << array[i]->s\_name << " "

<< "学号：" << array[i]->s\_id << " "

<< "大英绩点为：" << array[i]->a\_english << endl;

}

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

array[i]->a\_english = array[i]->f\_english;

array[i]->s\_id = array[i]->f\_id;

array[i]->s\_name = array[i]->f\_name;

}

}

else {

cout << "输入错误！请重新输入！" << endl;

goto head;

}

system("pause");

system("cls");

}

//7、读取TXT文件

int Student::readtxt(){

array[max] = new Student[max];

ifstream infile("E:\\专业资料\\c++项目文件\\大一（下）\\SIM系统\\SIM系统\\学生信息.txt", ios::in );

if (!infile.is\_open())

{

cout << "文件打开失败！" << endl;

exit(1);

}

/\*int i = 1;

string line;

while (getline(infile, line)) {

cout << "第" << i << "行数据： "<<endl;

cout << line<<endl;

i++;

}\*/

string arr1[big][big];

int arr2[big][big];

double arr3[big][big];

long long arr4[big][big];

long long id; //学号

string name; //姓名

int klass; //班级

string sex; //性别

int age; //年龄

string profession; //专业

//成绩信息

double math; //高等数学

double english; //大学英语

double dsa; //数据结构与算法

double java; //java程序设计

double grade; //总绩点

int i = 0;

int num = 0;

while (infile >> id && infile >> name && infile>>klass &&infile>>sex

&&infile>>age && infile >> profession && infile >> math &&

infile >> english && infile >> grade)

{

arr4[i][0] = id; arr1[i][1] = name;

arr2[i][2] = klass;arr1[i][3] = sex;

arr2[i][4] = age;arr1[i][5] = profession;

arr3[i][6] = math;arr3[i][7] = english;

arr3[i][8] = grade;

i++;

num++;

}

cout << "读取成功！" << endl;

cout << "学生表信息：" << endl;

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

cout << arr4[j][0] << " "<< arr1[j][1] << " "

<< arr2[j][2] << " "<< arr1[j][3] << " "

<< arr2[j][4] << " "<< arr1[j][5] << " "

<< arr3[j][6] << " "<< arr3[j][7] << " "

<< arr3[j][8] << " " << endl;

}

infile.close();

//array[i]->s\_id = id;

//array[i]->s\_name = name;

//array[i]->s\_klass = klass;

//array[i]->s\_sex = sex;

//array[i]->s\_age = age;

//array[i]->s\_profession = profession;

//array[i]->a\_math = math;

//array[i]->a\_english = english;

//array[i]->g\_grade = grade;

system("pause");

system("cls");

return num;

}

//8、写入TXT文件

void Student::writetxt(int num) {

ofstream outfile("E:\\专业资料\\c++项目文件\\大一（下）\\SIM系统\\SIM系统\\学生信息.txt", ios::in | ios::out | ios::binary);

if (!outfile.is\_open())

{

cout << "文件打开失败！" << endl;

exit(1);

}

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

outfile << array[i]->s\_id << " " << array[i]->s\_name << " ";

if (array[i]->s\_id / 1000 % 100000 == 11701) {

outfile << "软件" << "1" << array[i]->s\_id / 100000000 % 100 << array[i]->s\_klass << " ";

}

else if (array[i]->s\_id / 1000 % 100000 == 11602) {

outfile << "计科" << "1" << array[i]->s\_id / 100000000 % 100 << array[i]->s\_klass << " ";

}

outfile << array[i]->s\_klass << " ";

outfile << array[i]->s\_sex << " " << array[i]->s\_age << " " << array[i]->s\_profession << " "

<< array[i]->a\_math << " " << array[i]->a\_english<<" ";

if (array[i]->s\_id / 1000 % 100000 == 11701) {

outfile << array[i]->b\_dsa << " ";

}

else if (array[i]->s\_id / 1000 % 100000 == 11602) {

outfile << array[i]->b\_java << " ";

}

outfile << setprecision(3) << array[i]->g\_grade << " ";

outfile << "\r\n";

}

outfile.close();

cout << "录入学生信息完成！" << endl;

system("pause");

system("cls");

}

int Student::ss(string s) {

int l = s.length();

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

string j = s.substr(i, 1) + "1";

if (atoi(j.c\_str() ) ==0){

return 0;

}

}

return atoi(s.c\_str()) + 1;

}

//创建排序二叉树并进行中序遍历

void Btree::CreateBtree(int x)

{

node\* newnode = new node;

newnode->data = x;

newnode->left = NULL;

newnode->right = NULL;

if (NULL == root)

{

root = newnode;

}

else

{

node\* back=nullptr;

node\* current = root;

while (current != NULL) //找到要插入newnode的节点指针

{

back = current;

if (current->data > x)

{

current = current->left;

}

else

{

current = current->right;

}

}

if (back->data > x)

{

back->left = newnode;

}

else

{

back->right = newnode;

}

}

}

void Btree::Inorder(node\* root) //中序遍历排序二叉树

{

if (root)

{

Inorder(root->left);

cout << root->data << " ";

Inorder(root->right);

}

}

//附：

//1-1、录入各科成绩，计算绩点

void Student::math(double math, int num) {

while (true) {

if (math >= 0 && math < 60) {

array[num]->a\_math = 0;

cout << "该科目不及格！绩点为 0 " << endl << endl;

break;

}

else if (math >= 60 && math <= 100) {

array[num]->a\_math = (math - 50) / 10;

cout << "该科目及格！绩点为："<< setprecision(3) << array[num]->a\_math << endl << endl;

break;

}

else {

array[num]->a\_math = 0;

cout << "成绩不合法！绩点为0 " << endl << endl;

break;

}

}

}

void Student::english(double english, int num) {

while (true) {

if (english >= 0 && english < 60) {

array[num]->a\_english = 0;

cout << "该科目不及格！绩点为 0 " << endl << endl;

break;

}

else if (english >= 60 && english <= 100) {

array[num]->a\_english = (english - 50) / 10;

cout << "该科目及格！绩点为：" << setprecision(3) << array[num]->a\_english << endl << endl;

break;

}

else {

array[num]->a\_english = 0;

cout << "成绩不合法！绩点为0 " << endl << endl;

break;

}

}

}

void Student::dsa(double dsa, int num) {

while (true) {

if (dsa >= 0 && dsa < 60) {

array[num]->b\_dsa = 0;

cout << "该科目不及格！绩点为 0 " << endl << endl;

break;

}

else if (dsa >= 60 && dsa <= 100) {

array[num]->b\_dsa = (dsa - 50) / 10;

cout << "该科目及格！绩点为：" << setprecision(3) << array[num]->b\_dsa << endl << endl;

break;

}

else {

array[num]->a\_math = 0;

cout << "成绩不合法！绩点为0 " << endl << endl;

break;

}

}

}

void Student::java(double java, int num) {

while (true) {

if (java >= 0 && java < 60) {

array[num]->b\_java = 0;

cout << "该科目不及格！绩点为 0 " << endl << endl;

break;

}

else if (java >= 60 && java <= 100) {

array[num]->b\_java = (java - 50) / 10;

cout << "该科目及格！绩点为：" << setprecision(3) << array[num]->b\_java << endl << endl;

break;

}

else {

array[num]->b\_java = 0;

cout << "成绩不合法！绩点为0 " << endl << endl;

break;

}

}

}

//1-2、推断信息

void Student::se(int num, long long id) {

array[num]->s\_id = id;

array[num]->s\_profession = "软件工程";

array[num]->s\_klass = id / 100 % 10;

cout << "通过学号得知该学生：" << endl << endl;

cout << " 入学年份为：";

cout << id / 100000000 << endl;;

cout << " 专业为：";

cout << array[num]->s\_profession << endl;

cout << " 班级为：";

cout << "软件" << "1" << id / 100000000 % 100 << array[num]->s\_klass << endl << endl;

}

void Student::cst(int num, long long id) {

array[num]->s\_id = id;

array[num]->s\_profession = "计算机科学与技术";

array[num]->s\_klass = id / 100 % 10;

cout << "通过学号得知该学生：" << endl << endl;

cout << "入学年份为：";

cout << id / 100000000 << endl;;

cout << "专业为：";

cout << array[num]->s\_profession << endl;

cout << "班级为：";

cout << "计科" << "1" << id / 100000000 % 100 << array[num]->s\_klass << endl << endl;

}