ФЕДЕРАЛЬНОЕ АГЕНТСТВО ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА

Федеральное государственное бюджетное образовательное учреждение

высшего профессионального образования Российской Федерации

«МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ПУТЕЙ СООБЩЕНИЯ императора Николая II (МИИТ)»

ИНСТИТУТ УПРАВЛЕНИЯ ИНФОРМАЦИОННЫМИ ТЕХНОЛОГИЯМИ

Кафедра «Вычислительные системы и сети»

КУРСОВАЯ РАБОТА ПО ДИСЦИПЛИНЕ

ЯЗЫКИ ПРОГРАММИРОВАНИЯ

студента 2 курса очной формы обучения

Свиридова Дениса Сергеевича

Выполнил:

студент группы УИБ-211

Свиридов Д. С._____

Принял:

Никольская М.Н._____

Москва – 2016

Данные

fio[20]-массив с ФИО студентов.

math-оценка по математике

fiz-оценка по физике.

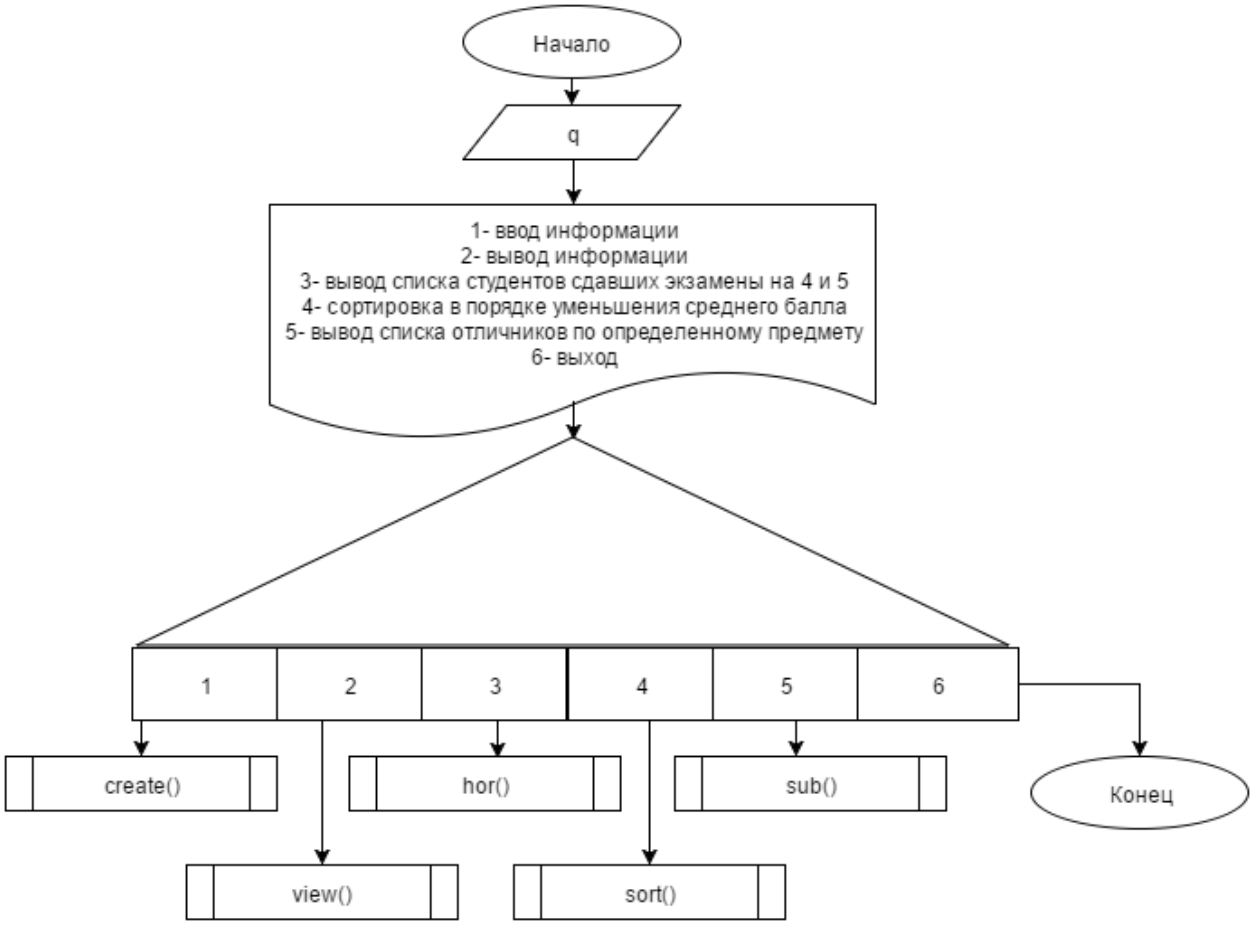
prog-оценка по программированию.

eltech-оценка по электротехнике.

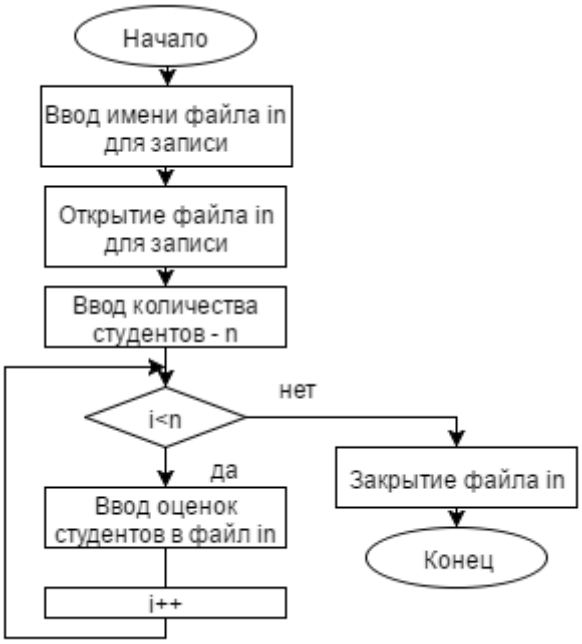
students-структура содержащая fio[20], math, fiz, prog, eltech.

kn-структурная переменная students.

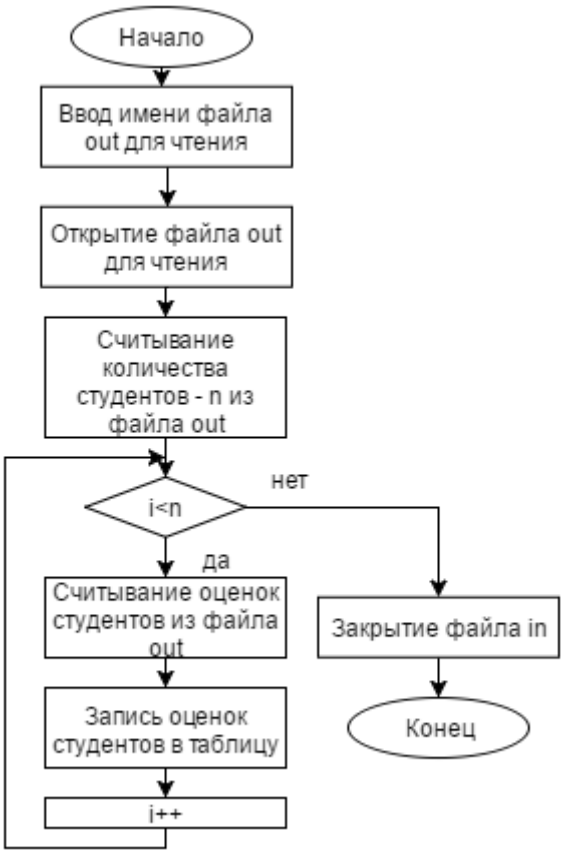
Блок-схема



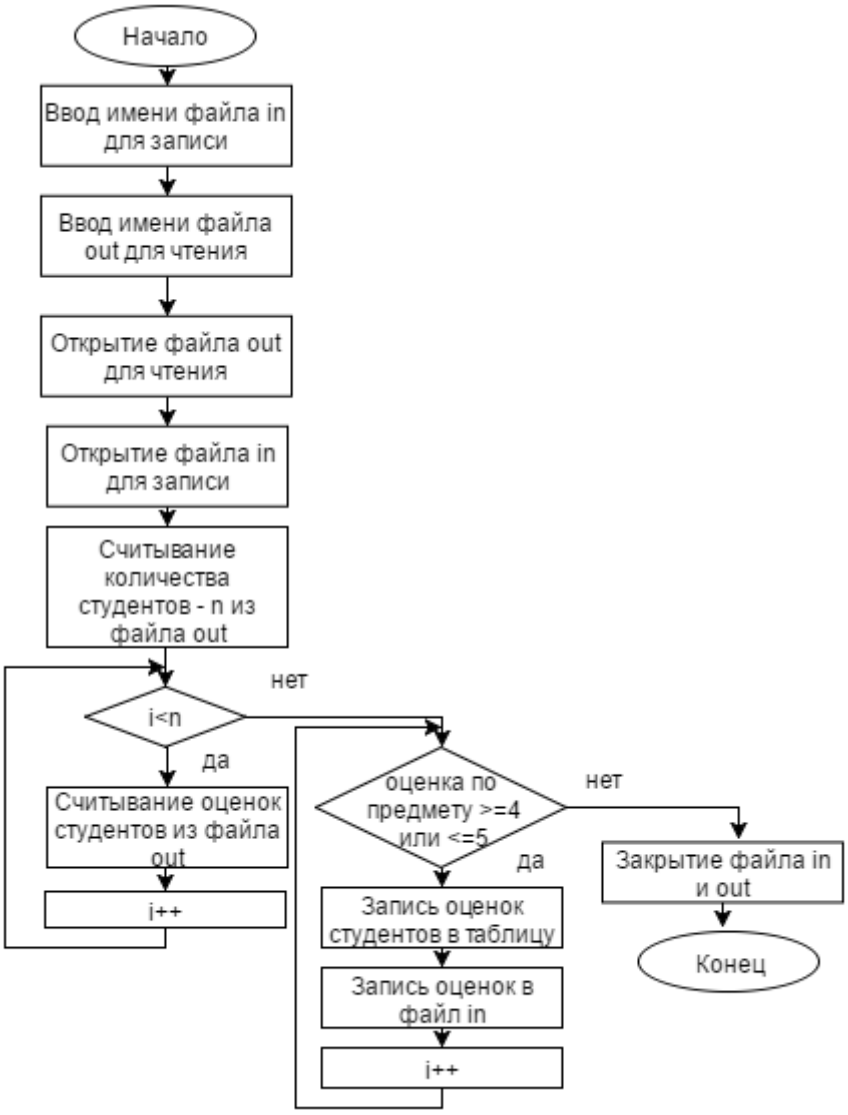
create()-функция ввода и записи в файл.



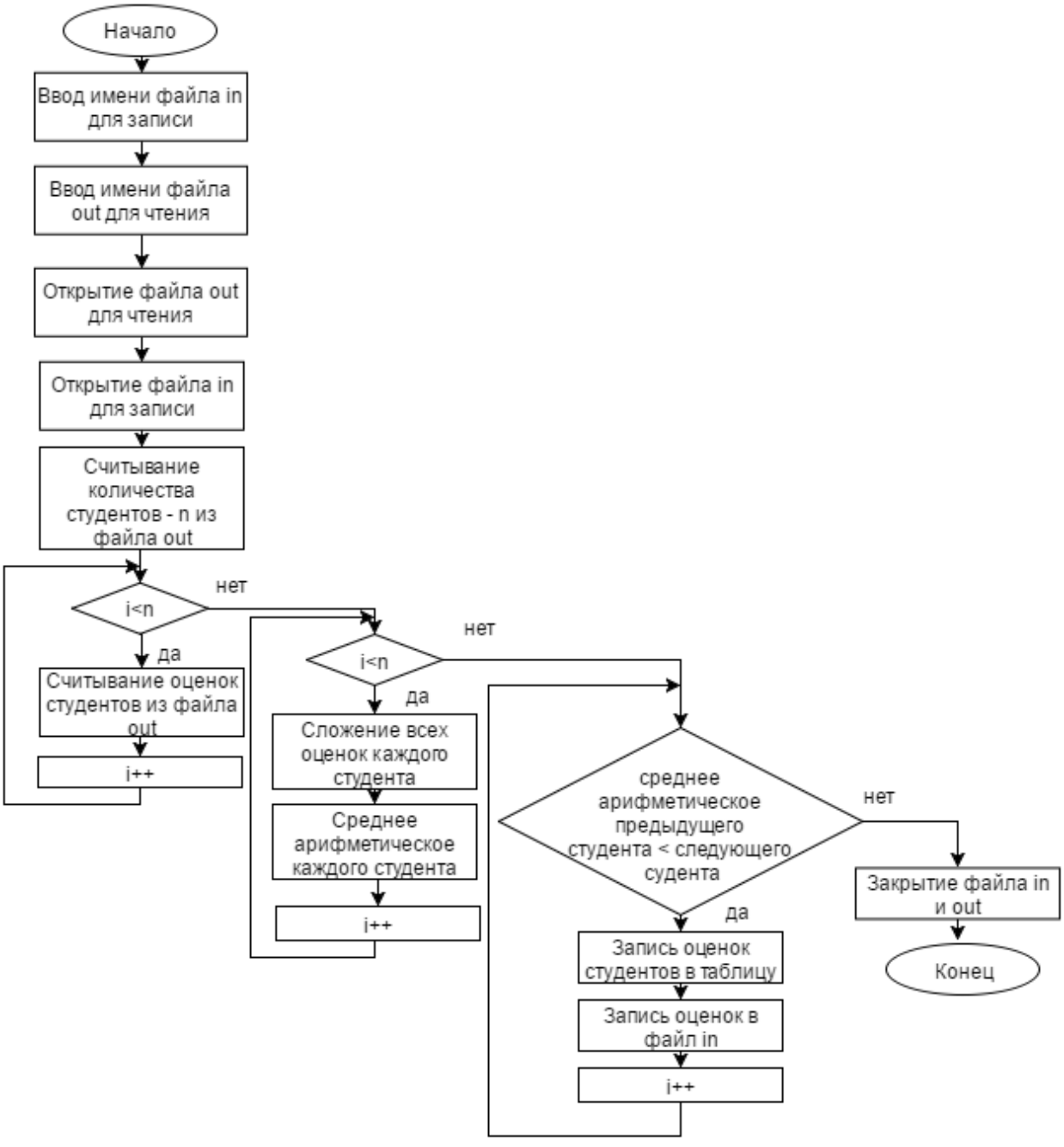
view()-функция вывода на экран файла.



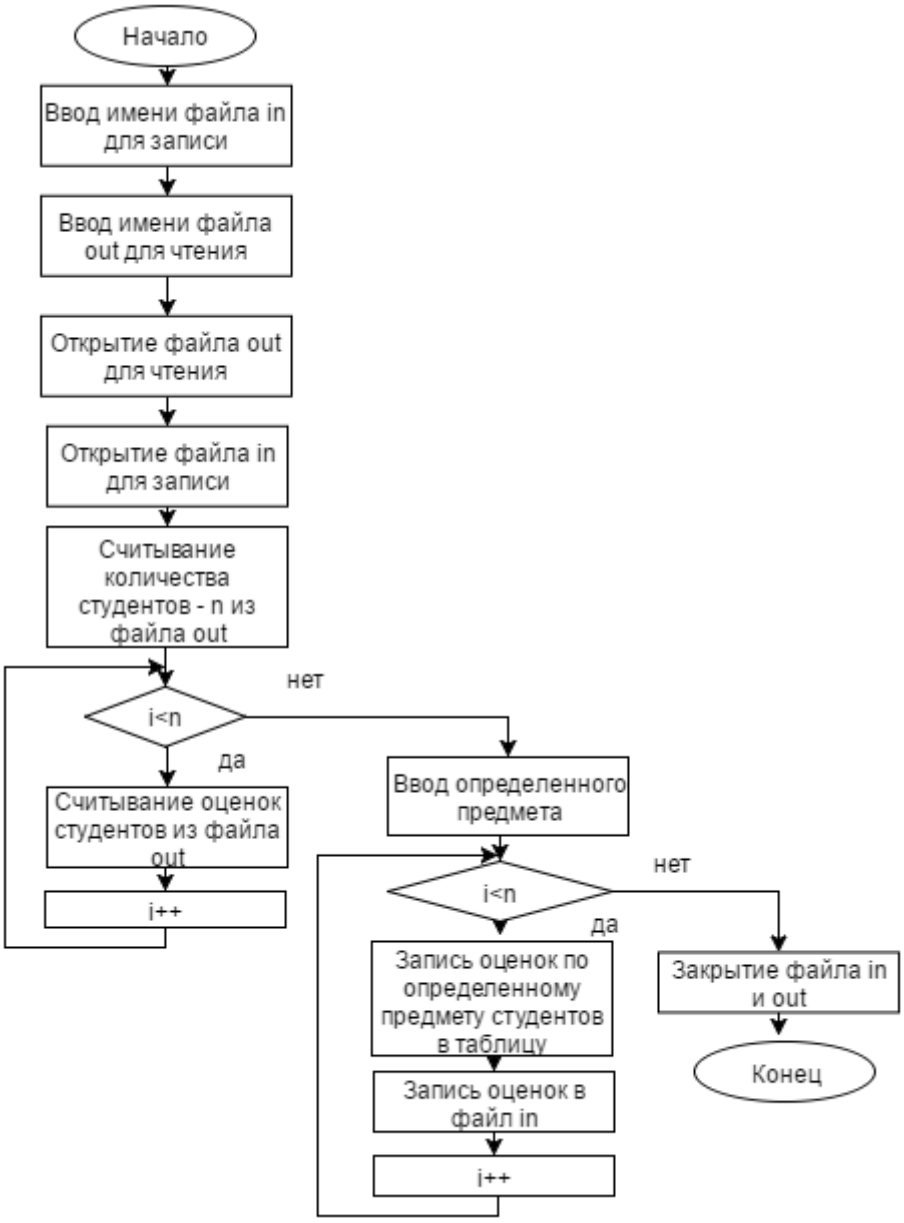
hor()-функция для вывода списка книг изданных в годы диапазон которых вводится с клавиатуры.



sort()-функция сортировки в порядке уменьшения тиража.



sub()-функция вывода книг написанных автором вводимом с клавиатуры и сортировка его в порядке увеличения года издания.



Текст программы

Первый вариант: не форматированный ввод/вывод

```
/**
group: УИБ-211
author: Денис Свиридов
version: 1.0;
vvod: fwrite();
**/
#include<conio.h>
#include<iostream>
#include<windows.h>

using namespace std;

void gotoxy(int xpos, int ypos)
{
	COORD scrn;
	HANDLE hOuput = GetStdHandle(STD_OUTPUT_HANDLE);
	scrn.X = xpos; scrn.Y = ypos;
	SetConsoleCursorPosition(hOuput, scrn);
}
struct students
{
	char fio[20];
	int math;
	int prog;
	int fiz;
	int eltech;
	double sred;
```

```
};
int main()
{
	SetConsoleCP(1251);
   SetConsoleOutputCP(1251);
	system("color FC");
	int q;
	void create();
	void view();
	void hor();
	void sort();
	void sub();
	system("cls");
	do
	{
		cout << " --------------  МЕНЮ  --------------------------\n";
		cout << "=============================================\n";
		cout << "      1- ввод в файл" << endl;
		cout << "      2- вывод из файла" << endl;
		cout << "      3- вывод студентов имеющих 4 и 5 " << endl;
		cout << "      4- сортировка по среднему баллу" << endl;
		cout << "      5- вывод по определенному предмету" << endl;
		cout << "      6- выход" << endl;
		cin >> q;
		switch (q)
		{
		case 1: create(); break;
		case 2: view(); break;
```

```
                case 3: hor(); break;
                case 4: sort(); break;
                case 5: sub(); break;
                }
        } while (q != 6);
        return 0;
}
//ñîçäàíèå ôàéëà
void create()
{
        system("cls");
        FILE *in;
        int n, i = 0;
        char name[20];
        cout << "ââåäèòå èìÿ FILE: ";
        cin >> name;
        in = fopen(name, "w");
        cout << "\nââåäèòå èíôîðìàöèþ:\n";
        cout << "\nââåäèòå êîë-âî ñòóäåíòîâ: ";
        cin >> n;


        //çàïèñûâàì êîë-âî ñòóäåíòîâ â ôàéë
        fwrite(&n, sizeof(n), 1, in);
        students *kn;
        //âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
        kn = new students[n];
        system("cls");
```

```
//ïîñòðîåíèå òàáëèöû
int y = 2, x = 0;
while (i<n + 2)
{
	gotoxy(0, y); cout << "------------------------------";
	y = y + 2;
	i++;
}
int j = 0;
y = 3;
while (j<2 * (n + 1))
{
	gotoxy(3, y); cout << "|";//! 2
	y = y + 1;
	j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
	gotoxy(20, y); cout << "|";
	y = y + 1;
	j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
	gotoxy(22, y); cout << "|";
	y = y + 1;
```

```
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
cout << "\nì - ìàòàí\n";
cout << "\nï - ïðîãðàììèðîâàíèå\n";
cout << "\nô - ôèçèêà\n";
cout << "\ný - ýëåêòðîòåõíèêà\n";
i = 0;
```

```
x = 0;
y = 3;
int k = 0;
//ââîä äàííûõ â òàáëèöó
while (i<n)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "Ì";
        gotoxy(23, 3); cout << "Ï";
        gotoxy(25, 3); cout << "Ô";
        gotoxy(27, 3); cout << "Ý";
        gotoxy(4, y + 2); scanf("%f%*ñ", &kn[i].fio); gets(kn[i].fio);//!3
        gotoxy(21, y + 2); cin >> kn[i].math;
        gotoxy(23, y + 2); cin >> kn[i].prog;
        gotoxy(25, y + 2); cin >> kn[i].fiz;
        gotoxy(27, y + 2); cin >> kn[i].eltech;
        y = y + 2;
        fwrite(&kn[i], sizeof(kn[i]), 1, in);//çàïèñü èíôîðìàöèè â ôàéë
        i++;
        k++;
}

fclose(in);
delete kn;
cout << "\n\n\n\n\n\n\n\n\näàííûå óñïåøíî çàïèñàíû FILE\n" << endl;
```

```
	_getche();
	system("cls");
}
//ïðîñìîòð ôàéëà
void view()
{
	system("cls");
	FILE *in;
	char name[20];
	int i, n;
	cout << "\nââåäèòå âûõîäíîé FILE: \n";
	cin >> name;
	system("cls");
	in = fopen(name, "rw");
	//ñ÷èòûâàåì êîë-âî ñòðîê èç ôàéëà
	fread(&n, sizeof(n), 1, in);
	students *kn;
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	kn = new students[n];
	//ñ÷èòûâàíèå èíôîðìàöèè èç ôàéëà
	for (i = 0; i<n; i++)
	{
		fread(&kn[i], sizeof(kn[i]), 1, in);
	}
	//ïîñòðîåíèå òàáëèöû
		int y = 2, x = 0;
	while (i<n + 2)
	{
```

```
        gotoxy(0, y); cout << "----------------------------";
        y = y + 2;
        i++;
}
int j = 0;
y = 3;
while (j<2 * (n + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
```

```
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<n)
{

        gotoxy(1, 3); cout << "¹";
```

```
            gotoxy(x + 1, y + 2); cout << k +1;
            gotoxy(4, 3); cout << "ÔÈÎ";
            gotoxy(21, 3); cout << "Ì";
            gotoxy(23, 3); cout << "Ï";
            gotoxy(25, 3); cout << "Ô";
            gotoxy(27, 3); cout << "Ý";
            gotoxy(4, y + 2); cout << kn[i].fio;
            gotoxy(21, y + 2); cout << kn[i].math;
            gotoxy(23, y + 2); cout << kn[i].prog;
            gotoxy(25, y + 2); cout << kn[i].fiz;
            gotoxy(27, y + 2); cout << kn[i].eltech;
            y = y + 2;
            i++;
            k++;
}
i = 0; y = 2;
while (i<n + 2)
{
            gotoxy(0, y);cout << "----------------------------";
            y = y + 2;
            i++;
}
cout << "\nì - ìàòàí\n";
cout << "\nï - ïðîãðàììèðîâàíèå\n";
cout << "\nô - ôèçèêà\n";
cout << "\ný - ýëåêòðîòåõíèêà\n";
delete kn;
_getche();
```

```
	fclose(in);
	system("cls");
}

void hor()
{
	system("cls");
	FILE *in, *out;
	char name_in[20], name_out[20];
	char book[20];
	int i, n;
	int k = 0, j;
	int y1, y2;
	cout << "\nââåäèòå âõîäíîé FILE: \n";
	cin >> name_in;
	cout << "ââåäèòå âûõîäíîé FILE: \n";
	cin >> name_out;
	system("cls");
	in = fopen(name_in, "r");
	out = fopen(name_out, "w");
	//ñ÷èòûâàåì êîë-âî ñòóäåíòîâ
	fread(&n, sizeof(n), 1, in);
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	students *kn;
	kn = new students[n];
	//ñ÷èòûâàíèå èíôîðìàöèè èç ôàéëà
	for (i = 0; i<n; i++)
	{
```

```
        fread(&kn[i], sizeof(kn[i]), 1, in);
}
int m=0;
j = 0;
for (i = 0; i < n; i++)
{

        if ((kn[i].math>=4)&&(kn[i].prog>=4)&&(kn[i].fiz>=4)&&(kn[i].eltech>=4))
                        {
                                strcpy(kn[j].fio, kn[i].fio);
                                kn[j].math=kn[i].math;
                                kn[j].prog=kn[i].prog;
                                kn[j].fiz=kn[i].fiz;
                                kn[j].eltech=kn[i].eltech;
                                j++;
                                m++;
                        }
}
k = m;
fwrite(&k, sizeof(k), 1, out);
system("cls");
//ïîñòðîåíèå òàáëèöû
        int y = 2, x = 0;
while (i<m + 2)
{
        gotoxy(0, y); cout << "------------------------------";
        y = y + 2;
        i++;
```

```
}
j = 0;
y = 3;
while (j<2 * (m + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
```

```
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<m)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "Ì";
```

```
            gotoxy(23, 3); cout << "Ï";
            gotoxy(25, 3); cout << "Ô";
            gotoxy(27, 3); cout << "Ý";
            gotoxy(4, y + 2); cout << kn[i].fio;
            gotoxy(21, y + 2); cout << kn[i].math;
            gotoxy(23, y + 2); cout << kn[i].prog;
            gotoxy(25, y + 2); cout << kn[i].fiz;
            gotoxy(27, y + 2); cout << kn[i].eltech;
            fwrite(&kn[i], sizeof(kn[i]), 1, out);
            y = y + 2;
            i++;
            k++;
}
i = 0; y = 2;
while (i<m + 2)
{
            gotoxy(0, y);cout << "------------------------------";
            y = y + 2;
            i++;
}
cout << "\nì - ìàòàí\n";
cout << "\nï - ïðîãðàììèðîâàíèå\n";
cout << "\nô - ôèçèêà\n";
cout << "\ný - ýëåêòðîòåõíèêà\n";
delete kn;
fclose(in);
fclose(out);
cout << "\n\nàäíûå óñïåøíî çàïèñàíû â FILE\n" << endl;
```

```
	_getche();
	system("cls");
}

void sort()
{
	system("cls");
	FILE *in, *out;
	char name_in[20], name_out[20];
	char book[20];
	int i, n;
	int k = 0, j;
	int y1, y2;
	cout << "\nââåäèòå âõîäíîé FILE: \n";
	cin >> name_in;
	cout << "ââåäèòå âûõîäíîé FILE: \n";
	cin >> name_out;
	system("cls");
	in = fopen(name_in, "r");
	out = fopen(name_out, "w");
	//ñ÷èòûâàåì êîë-âî êíèã èç ôàéëà
	fread(&n, sizeof(n), 1, in);
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	students *kn;
	kn = new students[n];
	//ñîçäàíèå âòîðîé ñòðóêòóðû
	students swap;
	//ñ÷èòûâàíèå èíôîðìàöèè èç ôàéëà
```

```
for (i = 0; i<n; i++)
{
	fread(&kn[i], sizeof(kn[i]), 1, in);
}
double ar[20],sr[50];
for (i = 0; i < n; i++){
	ar[i]=kn[i].math+kn[i].prog+kn[i].fiz+kn[i].eltech;
	sr[i]=ar[i]/4;
	kn[i].sred=sr[i];
	}
int m = 0;
j = 0;
for (i = 0; i < n; i++)
{
	for (j = 0; j < n;j++)
	{
	if (kn[i].sred>kn[j].sred)
	{
		strcpy(swap.fio, kn[i].fio);
		swap.math = kn[i].math;
		swap.prog = kn[i].prog;
		swap.fiz = kn[i].fiz;
		swap.eltech = kn[i].eltech;
		swap.sred = kn[i].sred;

		strcpy(kn[i].fio, kn[j].fio);
		kn[i].math = kn[j].math;
		kn[i].prog = kn[j].prog;
```

```
                kn[i].fiz = kn[j].fiz;
                kn[i].eltech = kn[j].eltech;
                kn[i].sred = kn[j].sred;

                strcpy(kn[j].fio, swap.fio);
                kn[j].math = swap.math;
                kn[j].prog = swap.prog;
                kn[j].fiz = swap.fiz;
                kn[j].eltech = swap.eltech;
                kn[j].sred = swap.sred;
        }
        }
}
//ïîñòðîåíèå òàáëèöû
        int y = 2, x = 0;
while (i<n + 2)
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
}
j = 0;
y = 3;
while (j<2 * (n + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
```

```
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
```

```
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
while (j<2 * (n + 1))
{
        gotoxy(41, y); cout << "/";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<n)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "Ì";
        gotoxy(23, 3); cout << "Ï";
        gotoxy(25, 3); cout << "Ô";
```

```
            gotoxy(27, 3); cout << "Ý";
            gotoxy(29, 3); cout << "Ñðåäíèé áàëë";
            gotoxy(4, y + 2); cout << kn[i].fio;
            gotoxy(21, y + 2); cout << kn[i].math;
            gotoxy(23, y + 2); cout << kn[i].prog;
            gotoxy(25, y + 2); cout << kn[i].fiz;
            gotoxy(27, y + 2); cout << kn[i].eltech;
            gotoxy(29, y + 2); cout << kn[i].sred;
            fwrite(&kn[i], sizeof(kn[i]), 1, out);
            y = y + 2;
            i++;
            k++;
}
i = 0; y = 2;
while (i<n + 2)
{
            gotoxy(0, y);cout << "----------------------------------------";
            y = y + 2;
            i++;
}
cout << "\nì - ìàòàí\n";
cout << "\nï - ïðîãðàììèðîâàíèå\n";
cout << "\nô - ôèçèêà\n";
cout << "\ný - ýëåêòðîòåõíèêà\n";
delete kn;
_getche();
fclose(in);
fclose(out);
```

```
        system("cls");
}
void sub()
{
        system("cls");
        int q1;
        do{
                cout << "\n   âûáåðèòå ïðåäìåò ïî êòîðîìó õîòèòå ñîðòèðîâàòü   \n";
                cout << "\n 1 - ìàòåì \n";
                cout << "\n 2 - ïðîãðàììèðîâàíèå \n";
                cout << "\n 3 - ôèçèêà \n";
                cout << "\n 4 - ýëåêòðîòåõíèêà\n ";
                cout << "\n 5 - âûõîä â ãëàâíîå ìåíþ\n ";

                cin >> q1;
                switch(q1){
                        case 1:{
                                system("cls");
                                FILE *in, *out;
                                char name[50], name2[50];
                                int g=0, n;
                                cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
                                cin >> name;
                                cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
                                cin >> name2;
                                system("cls");
                                in = fopen(name,"r");
                                out = fopen(name2,"w");
```

```
fscanf(in,"%d\n",&n);
students *kn, *st;
kn = new students[n];
st = new students[n];
for (int i=0; i<n; i++){
        fread(&kn[i], sizeof(kn[i]), 1, in);
}
int j1=0;
for(int i=0;i<n;i++){
        if(kn[i].math==5){
                strcpy(st[j1].fio,kn[i].fio);
                st[j1].math=kn[i].math;
                j1++;
                g++;
        }
}
cout << g;
fwrite(&g, sizeof(g), 1, out);
        //ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
}
int j = 0;
y = 3;
```

```
while (j<2 * (g + 1))
{
	gotoxy(3, y); cout << "|";//! 2
	y = y + 1;
	j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
	gotoxy(20, y); cout << "|";
	y = y + 1;
	j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
	gotoxy(22, y); cout << "|";
	y = y + 1;
	j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{
```

```
                gotoxy(1, 3); cout << "¹";
                gotoxy(x + 1, y + 2); cout << k +1;
                gotoxy(4, 3); cout << "ÔÈÎ";
                gotoxy(21, 3); cout << "Ì";
                gotoxy(4, y + 2); cout << st[i].fio;
                gotoxy(21, y + 2); cout << st[i].math;
                fwrite(&kn[i], sizeof(kn[i]), 1, out);
                y = y + 2;
                i++;
                k++;
        }
        i = 0; y = 2;
        while (i<g + 2)
        {
                gotoxy(0, y);cout << "----------------------------------------";
                y = y + 2;
                i++;
        }
        delete kn, st;
        fclose(in);
        fclose(out);
        break;
}
case 2:{
        system("cls");
        FILE *in, *out;
        char name[50], name2[50];
        int g=0, n;
```

```
cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
cin >> name;
cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
cin >> name2;
system("cls");
in = fopen(name,"r");
out = fopen(name2,"w");
fscanf(in,"%d\n",&n);
students *kn, *st;
kn = new students[n];
st = new students[n];
for (int i=0; i<n; i++){
        fread(&kn[i], sizeof(kn[i]), 1, in);
}
int j1=0;
for(int i=0;i<n;i++){
        if(kn[i].prog==5){
                strcpy(st[j1].fio,kn[i].fio);
                st[j1].prog=kn[i].prog;
                j1++;
                g++;
        }
}
cout << g;
fprintf(out,"%d\n",g);
        //ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
```

```
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
}
int j = 0;
y = 3;
while (j<2 * (g + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
```

```
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{

	gotoxy(1, 3); cout << "¹";
	gotoxy(x + 1, y + 2); cout << k +1;
	gotoxy(4, 3); cout << "ÔÈÎ";
	gotoxy(21, 3); cout << "P";
	gotoxy(4, y + 2); cout << st[i].fio;
	gotoxy(21, y + 2); cout << st[i].prog;
	fwrite(&kn[i], sizeof(kn[i]), 1, out);
	y = y + 2;
	i++;
	k++;
}
i = 0; y = 2;
while (i<g + 2)
{
	gotoxy(0, y);cout << "----------------------------------------";
	y = y + 2;
	i++;
}
delete kn, st;
fclose(in);
fclose(out);
```

```
        break;
};
case 3:{
        system("cls");
        FILE *in, *out;
        char name[50], name2[50];
        int g=0, n;
        cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
        cin >> name;
        cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
        cin >> name2;
        system("cls");
        in = fopen(name,"r");
        out = fopen(name2,"w");
        fscanf(in,"%d\n",&n);
        students *kn, *st;
        kn = new students[n];
        st = new students[n];
        for (int i=0; i<n; i++){
                fread(&kn[i], sizeof(kn[i]), 1, in);
        }
        int j1=0;
        for(int i=0;i<n;i++){
                if(kn[i].fiz==5){
                        strcpy(st[j1].fio,kn[i].fio);
                        st[j1].fiz=kn[i].fiz;
                        j1++;
                        g++;
```

```
		}
}
cout << g;
fprintf(out,"%d\n",g);
		//ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
		gotoxy(0, y); cout << "----------------------------------------";
		y = y + 2;
		i++;
}
int j = 0;
y = 3;
while (j<2 * (g + 1))
{
		gotoxy(3, y); cout << "|";//! 2
		y = y + 1;
		j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
		gotoxy(20, y); cout << "|";
		y = y + 1;
		j++;
}
j = 0; y = 3;
```

```
while (j<2 * (g + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "F";
        gotoxy(4, y + 2); cout << st[i].fio;
        gotoxy(21, y + 2); cout << st[i].fiz;
        fwrite(&kn[i], sizeof(kn[i]), 1, out);
        y = y + 2;
        i++;
        k++;
}
i = 0; y = 2;
while (i<g + 2)
{
```

```
                gotoxy(0, y);cout << "----------------------------------------";
                y = y + 2;
                i++;
        }
        cout << "\nì - ìàòàí  \n";
        delete kn, st;
        fclose(in);
        fclose(out);
        break;
};
case 4:{
        system("cls");
        FILE *in, *out;
        char name[50], name2[50];
        int g=0, n;
        cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
        cin >> name;
        cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
        cin >> name2;
        system("cls");
        in = fopen(name,"r");
        out = fopen(name2,"w");
        fscanf(in,"%d\n",&n);
        students *kn, *st;
        kn = new students[n];
        st = new students[n];
        for (int i=0; i<n; i++){
                fread(&kn[i], sizeof(kn[i]), 1, in);
```

```
}
int j1=0;
for(int i=0;i<n;i++){
	if(kn[i].eltech==5){
		strcpy(st[j1].fio,kn[i].fio);
		st[j1].eltech=kn[i].eltech;
		j1++;
		g++;
	}
}
cout << g;
fprintf(out,"%d\n",g);
	//ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
	gotoxy(0, y); cout << "----------------------------------------";
	y = y + 2;
	i++;
}
int j = 0;
y = 3;
while (j<2 * (g + 1))
{
	gotoxy(3, y); cout << "|";//! 2
	y = y + 1;
	j++;
}
```

```
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "E";
        gotoxy(4, y + 2); cout << st[i].fio;
        gotoxy(21, y + 2); cout << st[i].eltech;
```

```
                        fwrite(&kn[i], sizeof(kn[i]), 1, out);
                        y = y + 2;
                        i++;
                        k++;
                }
                i = 0; y = 2;
                while (i<g + 2)
                {
                        gotoxy(0, y);cout << "----------------------------------------";
                        y = y + 2;
                        i++;
                }
                delete kn, st;
                fclose(in);
                fclose(out);
                break;
                        };
                }
        }while( q1!=5 );
        _getche();
        system("cls");
}
```

Второй вариант: форматированный ввод/вывод

```
/**
group: UIB-211
author: Denis Sviridov
version: 2.0;
vvod: fprintf();
```

```
**/
#include<conio.h>
#include<iostream>
#include<windows.h>

using namespace std;

void gotoxy(int xpos, int ypos)
{
	COORD scrn;
	HANDLE hOuput = GetStdHandle(STD_OUTPUT_HANDLE);
	scrn.X = xpos; scrn.Y = ypos;
	SetConsoleCursorPosition(hOuput, scrn);
}
struct students
{
	char fio[20];
	int math;
	int prog;
	int fiz;
	int eltech;
	double sred;
};
int main()
{
	SetConsoleCP(1251);
   SetConsoleOutputCP(1251);
	system("color FC");
```

```
int q;
void create();
void view();
void hor();
void sort();
void sub();
system("cls");
do
{
	cout << " --------------  Меню  --------------------------\n";
	cout << "================================================\n";
	cout << "      1- ввод в файл" << endl;
	cout << "      2- вывод из файла " << endl;
	cout << "      3- вывод студентов имеющих 4 и 5" << endl;
	cout << "      4- сортировка по среднему баллу" << endl;
	cout << "      5- вывод по определенному предмету" << endl;
	cout << "      6- выход" << endl;
	cin >> q;
	switch (q)
	{
	case 1: create(); break;
	case 2: view(); break;
	case 3: hor(); break;
	case 4: sort(); break;
	case 5: sub(); break;
	}
} while (q != 6);
return 0;
```

```
}
//ñîçäàíèå ôàéëà
void create()
{
	system("cls");
	FILE *in;
	int n, i = 0;
	char name[20];
	cout << "ââåäèòå èìÿ FILE: ";
	cin >> name;
	in = fopen(name, "w");
	cout << "\nââåäèòå èíôîðìàöèþ:\n";
	cout << "\nââåäèòå êîë-âî ñòóäåíòîâ: ";
	cin >> n;


	//çàïèñûâàåì êîë-âî ñòóäåíòîâ â ôàéë
	fprintf(in,"%d\n",n);
	students *kn;
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	kn = new students[n];
	system("cls");
	//ïîñòðîåíèå òàáëèöû
	int y = 2, x = 0;
	while (i<n + 2)
	{
		gotoxy(0, y); cout << "------------------------------";
		y = y + 2;
```

```
        i++;
}
int j = 0;
y = 3;
while (j<2 * (n + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(24, y); cout << "|";
```

```
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
cout << "\nì - ìàòàí\n";
cout << "\nï - ïðîãðàììèðîâàíèå\n";
cout << "\nô - ôèçèêà\n";
cout << "\ný - ýëåêòðîòåõíèêà\n";
i = 0;
x = 0;
y = 3;
int k = 0;
//ââîä äàííûõ â òàáëèöó
while (i<n)
{
```

```
                gotoxy(1, 3); cout << "¹";
                gotoxy(x + 1, y + 2); cout << k +1;
                gotoxy(4, 3); cout << "ÔÈÎ";
                gotoxy(21, 3); cout << "Ì";
                gotoxy(23, 3); cout << "Ï";
                gotoxy(25, 3); cout << "Ô";
                gotoxy(27, 3); cout << "Ý";
                gotoxy(4, y + 2); scanf("%f%*ñ", &kn[i].fio); gets(kn[i].fio);//!3
                gotoxy(21, y + 2); cin >> kn[i].math;
                gotoxy(23, y + 2); cin >> kn[i].prog;
                gotoxy(25, y + 2); cin >> kn[i].fiz;
                gotoxy(27, y + 2); cin >> kn[i].eltech;
                y = y + 2;
                //fwrite(&kn[i], sizeof(kn[i]), 1, in);//çàïèñü èíôîðìàöèè â ôàéë
                fprintf(in,"%s %d %d %d
%d\n",kn[i].fio,kn[i].math,kn[i].prog,kn[i].fiz,kn[i].eltech);
                i++;
                k++;
        }

        fclose(in);
        delete kn;
        cout << "\n\n\n\n\n\n\n\n\n\näàííûå óñïåøíî çàïèñàíû FILE\n" << endl;
        _getche();
        system("cls");
}
//ïðîñìîòð ôàéëà
```

```
void view()
{
	system("cls");
	FILE *in;
	char name[20];
	int i, n;
	cout << "\nââåäèòå âûõîäíîé FILE: \n";
	cin >> name;
	system("cls");
	in = fopen(name, "rw");
	//ñ÷èòûâàåì êîë-âî ñòðîê èç ôàéëà
	fscanf(in, "%d\n", &n);
	students *kn;
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	kn = new students[n];
	//ñ÷èòûâàíèå èíôîðìàöèè èç ôàéëà
	for (i = 0; i<n; i++)
	{
		fscanf(in,"%s %d %d %d %d\n", &kn[i].fio, &kn[i].math, &kn[i].prog,
&kn[i].fiz, &kn[i].eltech);
	}
	//ïîñòðîåíèå òàáëèöû
		int y = 2, x = 0;
	while (i<n + 2)
	{
		gotoxy(0, y); cout << "-----------------------------";
		y = y + 2;
		i++;
```

```
}
int j = 0;
y = 3;
while (j<2 * (n + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
```

```
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<n)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "Ì";
```

```
            gotoxy(23, 3); cout << "Ï";
            gotoxy(25, 3); cout << "Ô";
            gotoxy(27, 3); cout << "Ý";
            gotoxy(4, y + 2); cout << kn[i].fio;
            gotoxy(21, y + 2); cout << kn[i].math;
            gotoxy(23, y + 2); cout << kn[i].prog;
            gotoxy(25, y + 2); cout << kn[i].fiz;
            gotoxy(27, y + 2); cout << kn[i].eltech;
            y = y + 2;
            i++;
            k++;
        }
        i = 0; y = 2;
        while (i<n + 2)
        {
            gotoxy(0, y);cout << "----------------------------";
            y = y + 2;
            i++;
        }
        cout << "\nì - ìàòàí\n";
        cout << "\nï - ïðîãðàììèðîâàíèå\n";
        cout << "\nô - ôèçèêà\n";
        cout << "\ný - ýëåêòðîòåõíèêà\n";
        delete kn;
        _getche();
        fclose(in);
        system("cls");
}
```

```
void hor()
{
	system("cls");
	FILE *in, *out;
	char name_in[20], name_out[20];
	char book[20];
	int i, n;
	int k = 0, j;
	int y1, y2;
	cout << "\nââåäèòå âõîäíîé FILE: \n";
	cin >> name_in;
	cout << "ââåäèòå âûõîäíîé FILE: \n";
	cin >> name_out;
	system("cls");
	in = fopen(name_in, "r");
	out = fopen(name_out, "w");
	//ñ÷èòûâàåì êîë-âî ñòóäåíòîâ
	fscanf(in,"%d\n", &n);
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	students *kn;
	kn = new students[n];
	//ñ÷èòûâàíèå èíôîðìàöèè èç ôàéëà
	for (i = 0; i<n; i++)
	{
		fscanf(in,"%s %d %d %d
%d\n",&kn[i].fio,&kn[i].math,&kn[i].prog,&kn[i].fiz,&kn[i].eltech);
	}
```

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

        if ((kn[i].math>=4)&&(kn[i].prog>=4)&&(kn[i].fiz>=4)&&(kn[i].eltech>=4))
                        {
                                strcpy(kn[j].fio, kn[i].fio);
                                kn[j].math=kn[i].math;
                                kn[j].prog=kn[i].prog;
                                kn[j].fiz=kn[i].fiz;
                                kn[j].eltech=kn[i].eltech;
                                j++;
                                m++;
                        }
}
k = m;
fprintf(out,"%d\n",k);
system("cls");
//ïîñòðîåíèå òàáëèöû
        int y = 2, x = 0;
while (i<m + 2)
{
        gotoxy(0, y); cout << "------------------------------";
        y = y + 2;
        i++;
}
j = 0;
```

```
y = 3;
while (j<2 * (m + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
        j++;
}
```

```
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (m + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<m)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "Ì";
        gotoxy(23, 3); cout << "Ï";
        gotoxy(25, 3); cout << "Ô";
```

```
                gotoxy(27, 3); cout << "Ý";
                gotoxy(4, y + 2); cout << kn[i].fio;
                gotoxy(21, y + 2); cout << kn[i].math;
                gotoxy(23, y + 2); cout << kn[i].prog;
                gotoxy(25, y + 2); cout << kn[i].fiz;
                gotoxy(27, y + 2); cout << kn[i].eltech;
                fprintf(out,"%s %d %d %d
%d\n",kn[i].fio,kn[i].math,kn[i].prog,kn[i].fiz,kn[i].eltech);
                y = y + 2;
                i++;
                k++;
        }
        i = 0; y = 2;
        while (i<m + 2)
        {
                gotoxy(0, y);cout << "------------------------------";
                y = y + 2;
                i++;
        }
        cout << "\nì - ìàòàí\n";
        cout << "\nï - ïðîãðàììèðîâàíèå\n";
        cout << "\nô - ôèçèêà\n";
        cout << "\ný - ýëåêòðîòåõíèêà\n";
        delete kn;
        fclose(in);
        fclose(out);
        cout << "\n\näàííûå óñïåøíî çàïèñàíû â FILE\n" << endl;
        _getche();
```

```
	system("cls");
}

void sort()
{
	system("cls");
	FILE *in, *out;
	char name_in[20], name_out[20];
	char book[20];
	int i, n;
	int k = 0, j;
	int y1, y2;
	cout << "\nââåäèòå âõîäíîé FILE: \n";
	cin >> name_in;
	cout << "ââåäèòå âûõîäíîé FILE: \n";
	cin >> name_out;
	system("cls");
	in = fopen(name_in, "r");
	out = fopen(name_out, "w");
	//ñ÷èòûâàåì êîë-âî ñòóäåíòîâ
	fscanf(in,"%d\n", &n);
	//âûäåëÿåì ïàìÿòü ïîä ñòðóêòóðó
	students *kn;
	kn = new students[n];
	students swap;
	//ñ÷èòûâàíèå èíôîðìàöèè èç ôàéëà
	for (i = 0; i<n; i++)
	{
```

```
		fscanf(in,"%s %d %d %d
%d\n",&kn[i].fio,&kn[i].math,&kn[i].prog,&kn[i].fiz,&kn[i].eltech);
	}
	fprintf(out,"%d\n", n);
	double ar[20],sr[50];
	for (i = 0; i < n; i++){
		ar[i]=kn[i].math+kn[i].prog+kn[i].fiz+kn[i].eltech;
		sr[i]=ar[i]/4;
		kn[i].sred=sr[i];
		}
	int m = 0;
	j = 0;
	for (i = 0; i < n; i++)
	{
		for (j = 0; j < n;j++)
		{
		if (kn[i].sred>kn[j].sred)
		{
			strcpy(swap.fio, kn[i].fio);
			swap.math = kn[i].math;
			swap.prog = kn[i].prog;
			swap.fiz = kn[i].fiz;
			swap.eltech = kn[i].eltech;
			swap.sred = kn[i].sred;

			strcpy(kn[i].fio, kn[j].fio);
			kn[i].math = kn[j].math;
			kn[i].prog = kn[j].prog;
```

```
                kn[i].fiz = kn[j].fiz;
                kn[i].eltech = kn[j].eltech;
                kn[i].sred = kn[j].sred;

                strcpy(kn[j].fio, swap.fio);
                kn[j].math = swap.math;
                kn[j].prog = swap.prog;
                kn[j].fiz = swap.fiz;
                kn[j].eltech = swap.eltech;
                kn[j].sred = swap.sred;
        }
        }
}
//ïîñòðîåíèå òàáëèöû
        int y = 2, x = 0;
while (i<n + 2)
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
}
j = 0;
y = 3;
while (j<2 * (n + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
```

```
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(24, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(26, y); cout << "|";
        y = y + 1;
        j++;
```

```
}
j = 0; y = 3;
while (j<2 * (n + 1))
{
        gotoxy(28, y); cout << "|";
        y = y + 1;
        j++;
}
while (j<2 * (n + 1))
{
        gotoxy(41, y); cout << "/";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<n)
{

        gotoxy(1, 3); cout << "¹";
        gotoxy(x + 1, y + 2); cout << k +1;
        gotoxy(4, 3); cout << "ÔÈÎ";
        gotoxy(21, 3); cout << "Ì";
        gotoxy(23, 3); cout << "Ï";
        gotoxy(25, 3); cout << "Ô";
```

```
                gotoxy(27, 3); cout << "Ý";
                gotoxy(29, 3); cout << "Ñðåäíèé áàëë";
                gotoxy(4, y + 2); cout << kn[i].fio;
                gotoxy(21, y + 2); cout << kn[i].math;
                gotoxy(23, y + 2); cout << kn[i].prog;
                gotoxy(25, y + 2); cout << kn[i].fiz;
                gotoxy(27, y + 2); cout << kn[i].eltech;
                gotoxy(29, y + 2); cout << kn[i].sred;
                fprintf(out,"%s %d %d %d
%d\n",kn[i].fio,kn[i].math,kn[i].prog,kn[i].fiz,kn[i].eltech);
                y = y + 2;
                i++;
                k++;
        }
        i = 0; y = 2;
        while (i<n + 2)
        {
                gotoxy(0, y);cout << "----------------------------------------";
                y = y + 2;
                i++;
        }
        cout << "\nì - ìàòàí\n";
        cout << "\nï - ïðîãðàììèðîâàíèå\n";
        cout << "\nô - ôèçèêà\n";
        cout << "\ný - ýëåêòðîòåõíèêà\n";
        delete kn;
        _getche();
        fclose(in);
```

```
        fclose(out);
        system("cls");
}

void sub()
{
        system("cls");
        int q1;
        do{
                cout << "\n   âûáåðèòå ïðåäìåò ïî êòîðîìó õîòèòå ñîðòèðîâàòü   \n";
                cout << "\n 1 - ìàòåì \n";
                cout << "\n 2 - ïðîãðàììèðîâàíèå \n";
                cout << "\n 3 - ôèçèêà \n";
                cout << "\n 4 - ýëåêòðîòåõíèêà\n ";
                cout << "\n 5 - âûõîä â ãëàâíîå ìåíþ\n ";

                cin >> q1;
                switch(q1){
                        case 1:{
                                system("cls");
                                FILE *in, *out;
                                char name[50], name2[50];
                                int g=0, n;
                                cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
                                cin >> name;
                                cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
                                cin >> name2;
                                system("cls");
```

```
in = fopen(name,"r");
out = fopen(name2,"w");
fscanf(in,"%d\n",&n);
students *kn, *st;
kn = new students[n];
st = new students[n];
for (int i=0; i<n; i++){
        fscanf(in,"%s %d %d %d
%d\n",&kn[i].fio,&kn[i].math,&kn[i].prog,&kn[i].fiz,&kn[i].eltech);
}
int j1=0;
for(int i=0;i<n;i++){
        if(kn[i].math==5){
                strcpy(st[j1].fio,kn[i].fio);
                st[j1].math=kn[i].math;
                j1++;
                g++;
        }
}
cout << g;
fprintf(out,"%d\n",g);
        //ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
```

```
}
int j = 0;
y = 3;
while (j<2 * (g + 1))
{
	gotoxy(3, y); cout << "|";//! 2
	y = y + 1;
	j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
	gotoxy(20, y); cout << "|";
	y = y + 1;
	j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
	gotoxy(22, y); cout << "|";
	y = y + 1;
	j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
```

```
        while (i<g + 2)
        {

                gotoxy(1, 3); cout << "¹";
                gotoxy(x + 1, y + 2); cout << k +1;
                gotoxy(4, 3); cout << "ÔÈÎ";
                gotoxy(21, 3); cout << "Ì";
                gotoxy(4, y + 2); cout << st[i].fio;
                gotoxy(21, y + 2); cout << st[i].math;
                fprintf(out,"%s %d\n",st[i].fio,st[i].math);
                y = y + 2;
                i++;
                k++;
        }
        i = 0; y = 2;
        while (i<g + 2)
        {
                gotoxy(0, y);cout << "----------------------------------------";
                y = y + 2;
                i++;
        }
        delete kn, st;
        fclose(in);
        fclose(out);
        break;
}
case 2:{
        system("cls");
```

```
FILE *in, *out;
char name[50], name2[50];
int g=0, n;
cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
cin >> name;
cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
cin >> name2;
system("cls");
in = fopen(name,"r");
out = fopen(name2,"w");
fscanf(in,"%d\n",&n);
students *kn, *st;
kn = new students[n];
st = new students[n];
for (int i=0; i<n; i++){
        fscanf(in,"%s %d %d %d %d\n",&kn[i].fio,&kn[i].math,&kn[i].prog,&kn[i].fiz,&kn[i].eltech);
}
int j1=0;
for(int i=0;i<n;i++){
        if(kn[i].prog==5){
                strcpy(st[j1].fio,kn[i].fio);
                st[j1].prog=kn[i].prog;
                j1++;
                g++;
        }
}
cout << g;
```

```
fprintf(out,"%d\n",g);
        //ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
}
int j = 0;
y = 3;
while (j<2 * (g + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(22, y); cout << "|";
```

```
            y = y + 1;
            j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{

            gotoxy(1, 3); cout << "¹";
            gotoxy(x + 1, y + 2); cout << k +1;
            gotoxy(4, 3); cout << "ÔÈÎ";
            gotoxy(21, 3); cout << "P";
            gotoxy(4, y + 2); cout << st[i].fio;
            gotoxy(21, y + 2); cout << st[i].prog;
            fprintf(out,"%s %d\n",st[i].fio,st[i].prog);
            y = y + 2;
            i++;
            k++;
}
i = 0; y = 2;
while (i<g + 2)
{
            gotoxy(0, y);cout << "----------------------------------------";
            y = y + 2;
            i++;
```

```
                }
                delete kn, st;
                fclose(in);
                fclose(out);
                break;
        };
        case 3:{
                system("cls");
                FILE *in, *out;
                char name[50], name2[50];
                int g=0, n;
                cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
                cin >> name;
                cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
                cin >> name2;
                system("cls");
                in = fopen(name,"r");
                out = fopen(name2,"w");
                fscanf(in,"%d\n",&n);
                students *kn, *st;
                kn = new students[n];
                st = new students[n];
                for (int i=0; i<n; i++){
                        fscanf(in,"%s %d %d %d
%d\n",&kn[i].fio,&kn[i].math,&kn[i].prog,&kn[i].fiz,&kn[i].eltech);
                }
                int j1=0;
                for(int i=0;i<n;i++){
```

```
            if(kn[i].fiz==5){
                        strcpy(st[j1].fio,kn[i].fio);
                        st[j1].fiz=kn[i].fiz;
                        j1++;
                        g++;
            }
}
cout << g;
fprintf(out,"%d\n",g);
            //ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
            gotoxy(0, y); cout << "----------------------------------------";
            y = y + 2;
            i++;
}
int j = 0;
y = 3;
while (j<2 * (g + 1))
{
            gotoxy(3, y); cout << "|";//! 2
            y = y + 1;
            j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
```

```
            gotoxy(20, y); cout << "|";
            y = y + 1;
            j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
            gotoxy(22, y); cout << "|";
            y = y + 1;
            j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{

            gotoxy(1, 3); cout << "¹";
            gotoxy(x + 1, y + 2); cout << k +1;
            gotoxy(4, 3); cout << "ÔÈÎ";
            gotoxy(21, 3); cout << "F";
            gotoxy(4, y + 2); cout << st[i].fio;
            gotoxy(21, y + 2); cout << st[i].fiz;
            fprintf(out,"%s %d\n",st[i].fio,st[i].fiz);
            y = y + 2;
            i++;
```

```
                k++;
        }
        i = 0; y = 2;
        while (i<g + 2)
        {
                gotoxy(0, y);cout << "----------------------------------------";
                y = y + 2;
                i++;
        }
        cout << "\nì - ìàòàí  \n";
        delete kn, st;
        fclose(in);
        fclose(out);
        break;
};
case 4:{
        system("cls");
        FILE *in, *out;
        char name[50], name2[50];
        int g=0, n;
        cout << "\n Ââåäèòå âõîäíîé ôàéë \n";
        cin >> name;
        cout << "\n Ââåäèòå âûõîäíîé ôàéë \n";
        cin >> name2;
        system("cls");
        in = fopen(name,"r");
        out = fopen(name2,"w");
        fscanf(in,"%d\n",&n);
```

```
students *kn, *st;
kn = new students[n];
st = new students[n];
for (int i=0; i<n; i++){
        fscanf(in,"%s %d %d %d %d\n",&kn[i].fio,&kn[i].math,&kn[i].prog,&kn[i].fiz,&kn[i].eltech);
}
int j1=0;
for(int i=0;i<n;i++){
        if(kn[i].eltech==5){
                strcpy(st[j1].fio,kn[i].fio);
                st[j1].eltech=kn[i].eltech;
                j1++;
                g++;
        }
}
cout << g;
fprintf(out,"%d\n",g);
        //ïîñòðîåíèå òàáëèöû
int i,y = 2, x = 0;
while (i<g + 2)
{
        gotoxy(0, y); cout << "----------------------------------------";
        y = y + 2;
        i++;
}
int j = 0;
y = 3;
```

```
while (j<2 * (g + 1))
{
        gotoxy(3, y); cout << "|";//! 2
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(20, y); cout << "|";
        y = y + 1;
        j++;
}
j = 0; y = 3;
while (j<2 * (g + 1))
{
        gotoxy(22, y); cout << "|";
        y = y + 1;
        j++;
}
i = 0;
x = 0;
y = 3;
int k = 0;
//âûâîä äàííûõ â âèäå òàáëèöû
while (i<g + 2)
{
```

```
                    gotoxy(1, 3); cout << "¹";
                    gotoxy(x + 1, y + 2); cout << k +1;
                    gotoxy(4, 3); cout << "ÔÈÎ";
                    gotoxy(21, 3); cout << "E";
                    gotoxy(4, y + 2); cout << st[i].fio;
                    gotoxy(21, y + 2); cout << st[i].eltech;
                    fprintf(out,"%s %d\n",st[i].fio,st[i].eltech);
                    y = y + 2;
                    i++;
                    k++;
                }
                i = 0; y = 2;
                while (i<g + 2)
                {
                    gotoxy(0, y);cout << "----------------------------------------";
                    y = y + 2;
                    i++;
                }
                delete kn, st;
                fclose(in);
                fclose(out);
                break;
            };
        }
    }while( q1!=5 );
    _getche();
    system("cls");
}
```

Отладочный пример

```
 --------------  МЕНЮ  --------------------------
================================================
      1- ввод информации
      2- вывод информации
      3- вывод списка студентов сдавших экзамены на 4 и 5
      4- сорт. по среднему баллу
      5- вывод списка отличников по определенному предмету
      6- выход
      введите пункт меню и нажмите enter
```

1 ввод в файл

```
-----------------------------
 № |ФИО              |М|П|Ф|Э|
---------------------------|
 1 |fffffffffff      |5|5|5|5|
---------------------------|
 2 |hhhhhhhhhhh      |5|5|5|5|
---------------------------|
 3 |ggggggggggg      |5|5|5|5|
---------------------------|
 4 |gggggghhhhhhh    |4|4|4|4|
---------------------------|
 5 |yyyyyyyyyyyyy    |4|4|4|4|
---------------------------|
 6 |yytrytyryrtyr    |3|4|3|4|
---------------------------|
 7 |klnmkmlk         |3|3|3|3|
---------------------------|
 8 |gddfgdgfd3       |3|3|3|3|
---------------------------|
 9 |fgdg             |3|5|3|3|
---------------------------|
 10|gfgdfgdfgdf      |3|3|3|3|
---------------------------|
```

2 вывод из файла

№	ФИО	М	П	Ф	Э
1	fffffffffff	5	5	5	5
2	hhhhhhhhhhh	5	5	5	5
3	gggggggggggg	5	5	5	5
4	gggggghhhhhh	4	4	4	4
5	yyyyyyyyyyyy	4	4	4	4
6	yytrytyryrtyr	3	4	3	4
7	nnklnmkmlk	3	3	3	3
8	gddfgdgfd3	3	3	3	3
9	fgdg	3	5	3	3
10	gfgdfgdfgdf	3	3	3	3

3 хорошисты и отличники

№	ФИО	М	П	Ф	Э
1	fffffffffff	5	5	5	5
2	hhhhhhhhhhh	5	5	5	5
3	gggggggggggg	5	5	5	5
4	gggggghhhhhh	4	4	4	4
5	yyyyyyyyyyyy	4	4	4	4

4 сортировка по определенному предмету

№	ФИО	М	П	Ф	Э	Средний балл
1	hhhhhhhhhhh	5	5	5	5	5
2	ggggggggggg	5	5	5	5	5
3	fffffffffff	5	5	5	5	5
4	yyyyyyyyyyyyy	4	4	4	4	4
5	gggggghhhhhhh	4	4	4	4	4
6	yytrytyryrtyr	3	4	3	4	3.5
7	fgdg	3	5	3	3	3.5
8	gddfgdgfd3	3	3	3	3	3
9	klnmkmlk	3	3	3	3	3
10	gfgdfgdfgdf	3	3	3	3	3

5 отличники по определенному предмету

№	ФИО	М
1	fffffffffff	5
2	hhhhhhhhhhh	5
3	ggggggggggg	5