#include<iomanip.h>

#include<stdio.h>

#include<conio.h>

class student

{

int roll;

char name[20];

int em, mm, pm, cm, csm;

char eg[3], mg[3], pg[3], cg[3], csg[3];

int tot;

void calc(int marks, char grade[])

{

if(marks>=90)

strcpy(grade,"A1");

else

if(marks>=80)

strcpy(grade,"A2");

else

if(marks>=70)

strcpy(grade,"B1");

else

if(marks>=60)

strcpy(grade,"B2");

else

if(marks>=50)

strcpy(grade,"C1");

else

if(marks>=45)

strcpy(grade,"C2");

else

if(marks>=40)

strcpy(grade,"D1");

else

if(marks>=33)

strcpy(grade,"D2");

else

strcpy(grade,"F");

}

public:

void input()

{

cout<<"Roll? ";cin>>roll;

cout<<"Name? "; gets(name);

strupr(name);

cout<<"English Marks [0-100]? ";cin>>em;

cout<<"Mathematics Marks [0-100]? ";cin>>mm;

cout<<"Physics Marks [0-100]? ";cin>>pm;

cout<<"Chemistry Marks [0-100]? ";cin>>cm;

cout<<"Comp Sc Marks [0-100]? ";cin>>csm;

tot=em+mm+pm+cm+csm;

calc(em, eg);

calc(mm, mg);

calc(pm, pg);

calc(cm, cg);

calc(csm, csg);

}

void show()

{

cout<<"Roll ="<<roll<<endl;

cout<<"Name ="<<name<<endl;

cout<<"English Marks ="<<em<<" Grade="<<mg<<endl;

cout<<"Mathematics Marks="<<mm<<" Grade="<<mg<<endl;

cout<<"Physics Marks ="<<pm<<" Grade="<<pg<<endl;

cout<<"Chemistry Marks ="<<cm<<" Grade="<<cg<<endl;

cout<<"Computer Sc Marks="<<csm<<" Grade="<<mg<<endl;

cout<<"Total Marks ="<<tot<<endl;

}

void showtab()

{

printf("%4i %-20s %3i %2s %3i %2s %3i %2s %3i %2s %3i %2s %6i\n",roll, name, em, eg, mm, mg, pm, pg, cm, cg, csm, csg, tot);

}

int retroll(){return roll;}

char \*retname(){return name;}

int retem(){return em;}

int retmm(){return mm;}

int retpm(){return pm;}

int retcm(){return cm;}

int retcsm(){return csm;}

int rettot(){return tot;}

void upem(int eng)

{

em=eng;

calc(em, eg);

}

void upmm(int mat)

{

mm=mat;

calc(mm, mg);

}

void uppm(int ph)

{

pm=ph;

calc(pm, pg);

}

void upcm (int ch)

{

cm=ch;

calc(cm, cg);

}

void upcsm(int cs)

{

csm=cs;

calc(csm, csg);

}

};

void addrec()

{

ofstream fout("STUDENT.DAT",ios::binary|ios::app);

student s ; int n;

clrscr();

cout<<"No. of records ?";cin>>n;

for(int k=0;k<n;k++)

{

s.input();

fout.write((char \*)&s, sizeof(s));

cout<<endl<<endl;

}

fout.close();

cout<<"Student record added in the file!";

cout<<"\n\nStrike any key to return...";

getch();

}

void disall()

{

student s;

ifstream fin("STUDENT.DAT",ios::binary);

int x=1;

clrscr();

while(fin.read((char \*)&s, sizeof(s)))

{

s.show();

cout<<"\n----------------------------------------------\n\n\n";

if (x%2==0)

{

cout<<"Strike any key to return...";

getch();

clrscr();

}

x++;

}

fin.close();

if (x%2==0)

{

cout<<"\n\nStrike any key to return...";

getch();

}

}

void dispec()

{

ifstream fin("STUDENT.DAT",ios::binary);

student s; int found=0; int roll;

clrscr();

cout<<"Roll number to Search? "; cin>>roll;

while(fin.read((char \*)&s, sizeof(s)))

if(s.retroll()==roll)

{

s.show();

found=1;

}

fin.close();

if(found==0)

cout<<"\n\n\nRecord does not exist\n";

cout<<"\n\nStrike any key to return...";

getch();

}

void modifyr()

{

fstream fio("STUDENT.DAT",ios::binary|ios::in|ios::out);

student a;

int r, found=0;

clrscr();

cout<<"Input roll number to be updated?";

cin>>r;

while(fio.read((char\*)&a,sizeof(a)))

{

if(a.retroll()==r)

{

a.show();

cout<<"\nenter new details of student"<<endl;

a.input();

fio.seekp(-sizeof(a),ios::cur);

fio.write((char\*)&a,sizeof(a));

cout<<"Record updated"<<endl;

found=1;

}

}

fio.close();

if(found==0)

cout<<"Roll number not found\n";

cout<<"\n\nStrike any key to return...";

getch();

}

void editpm()

{

fstream f("STUDENT.DAT", ios::binary|ios::out|ios::in);

student a;

int found=0,m;

clrscr();

cout<<"roll no. to edit? "; cin>>m;

while (f.read((char\*)&a, sizeof(a)))

if (m==a.retroll())

{

a.show();

int p;

cout<<"Input new physics marks? "; cin>>p;

a.uppm(p);

f.seekg(-sizeof(a), ios::cur);

f.write((char\*)&a, sizeof(a));

cout<<"Record updated ...\n";

found=1;

}

if (found==0)

cout<<" not found in the file\n";

f.close();

cout<<"\n\nStrike any key to return ...";

getch();

}

void editcm()

{

fstream f("STUDENT.DAT", ios::binary|ios::out|ios::in);

student a;

int found=0,m;

clrscr();

cout<<"roll no. to edit? "; cin>>m;

while (f.read((char\*)&a, sizeof(a)))

if (m==a.retroll())

{

a.show();

int p;

cout<<"Input new chemistry marks? "; cin>>p;

a.upcm(p);

f.seekg(-sizeof(a), ios::cur);

f.write((char\*)&a, sizeof(a));

cout<<"Record updated ...\n";

found=1;

}

if (found==0)

cout<<" not found in the file\n";

f.close();

cout<<"\n\nStrike any key to return ...";

getch();

}

void editmm()

{

fstream f("STUDENT.DAT", ios::binary|ios::out|ios::in);

student a;

int found=0,m;

clrscr();

cout<<"roll no. to edit? "; cin>>m;

while (f.read((char\*)&a, sizeof(a)))

if (m==a.retroll())

{

a.show();

int p;

cout<<"Input new math marks? "; cin>>p;

a.upmm(p);

f.seekg(-sizeof(a), ios::cur);

f.write((char\*)&a, sizeof(a));

cout<<"Record updated ...\n";

found=1;

}

if (found==0)

cout<<" not found in the file\n";

f.close();

cout<<"\n\nStrike any key to return ...";

getch();

}

void editem()

{

fstream f("STUDENT.DAT", ios::binary|ios::out|ios::in);

student a;

int found=0,m;

clrscr();

cout<<"roll no. to edit? "; cin>>m;

while (f.read((char\*)&a, sizeof(a)))

if (m==a.retroll())

{

a.show();

int p;

cout<<"Input new english marks? "; cin>>p;

a.upem(p);

f.seekg(-sizeof(a), ios::cur);

f.write((char\*)&a, sizeof(a));

cout<<"Record updated ...\n";

found=1;

}

if (found==0)

cout<<" not found in the file\n";

f.close();

cout<<"\n\nStrike any key to return ...";

getch();

}

void editcsm()

{

fstream f("STUDENT.DAT", ios::binary|ios::out|ios::in);

student a;

int found=0,m;

clrscr();

cout<<"roll no. to edit? "; cin>>m;

while (f.read((char\*)&a, sizeof(a)))

if (m==a.retroll())

{

a.show();

int p;

cout<<"Input new computer science marks? "; cin>>p;

a.upcsm(p);

f.seekg(-sizeof(a), ios::cur);

f.write((char\*)&a, sizeof(a));

cout<<"Record updated ...\n";

found=1;

}

if (found==0)

cout<<" not found in the file\n";

f.close();

cout<<"\n\nStrike any key to return ...";

getch();

}

void delr()

{

ifstream fin("STUDENT.DAT",ios::binary);

ofstream fout("TEMP.DAT",ios::binary);

student a;int r,found=0;

clrscr();

cout<<"roll no. to be deleted"<<endl;cin>>r;

while (fin.read((char\*)&a,sizeof(a)))

if(r==a.retroll())

{

cout<<"record deleted\n";

found=1;

}

else

fout.write((char\*)&a,sizeof(a));

if(found==0)

cout<<" Roll no. not found"<<endl;

fin.close();

fout.close();

remove("STUDENT.DAT");

rename("TEMP.DAT","STUDENT.DAT");

cout<<"\n\n strike any key to return .....";

getch();

}

void allresult()

{

ifstream fin("STUDENT.DAT",ios::binary);

student a;

cout<<"CLASS RESULT\n";

cout<<"=======================================================================\n";

cout<<"ROLl NAME ENG MATH PHYS CHEM CSC TOTAL\n";

cout<<"=======================================================================\n";

while(fin.read((char\*)&a,sizeof(a)))

a.showtab();

fin.close();

cout<<"\n\nstrike any key to return .....";

getch();

}

void resultmenu()

{

int ch;

clrscr();

cout<<"RESULT MENU \n\n";

cout<<"1. CLASS RESULT\n\n";

cout<<"2. STUDENT REPORT CARD\n\n";

cout<<"3. BACK TO MAIN MENU\n\n";

cout<<"0. EXIT\n\n";

cout<<"Enter a choice[0-3]?";cin>>ch;

clrscr();

switch(ch)

{

case 1:allresult();break;

case 2:dispec();break;

}

}

void entrymenu()

{

int ch;

clrscr();

do

{

clrscr();

cout<<"ENTRY MENU"<<endl;

cout<<"1. CREATE STUDENT RECORD\n\n";

cout<<"2. DISPLAY ALL STUDENT RECORDS\n\n";

cout<<"3. SEARCH STUDENT RECORD\n\n";

cout<<"4. DELETE STUDENT RECORD \n\n";

cout<<"0. BACK TO THE MAIN MENU \n\n";

cout<<"INPUT A CHOICE[0-4] ?";cin>>ch;

switch(ch)

{

case 1:addrec();break;

case 2:disall();break;

case 3:dispec();break;

case 4:delr();break;

}

}

while(ch);

}

void editmenu()

{

int ch;

do

{

clrscr();

cout<<"EDIT MENU"<<endl;

cout<<"1. MODIFY PHYSICS MARKS\n\n";

cout<<"2. MODIFY CHEMISTRY MARKS\n\n";

cout<<"3. MODIFY MATHS MARKS\n\n";

cout<<"4. MODIFY ENGLISH MARKS\n\n";

cout<<"5. MODIFY COMPUTER SCIENCE MARKS\n\n";

cout<<"6. TO MODIFY ALL\n\n";

cout<<"0. BACK TO THE MAIN MENU \n\n";

cout<<"INPUT A CHOICE[0-6] ?";cin>>ch;

switch(ch)

{

case 1:editpm();break;

case 2:editcm();break;

case 3:editmm();break;

case 4:editem();break;

case 5:editcsm();break;

case 6:modifyr();break;

}

}

while(ch);

}

void main()

{

int ch;

do

{

clrscr();

cout<<"MAIN MENU \n\n";

cout<<"1. RESULT MENU\n\n";

cout<<"2. ENTRY MENU\n\n";

cout<<"3. EDIT MENU\n\n";

cout<<"0. EXIT\n\n";

cout<<"SELECT CHOICE[0-3]?";cin>>ch;

switch(ch)

{

case 1:resultmenu();break;

case 2:entrymenu();break;

case 3:editmenu();break;

}

}

while(ch);

}