#include<fstream.h>

#include<conio.h>

#include<stdio.h>

#include<process.h>

#include<string.h>

#include<iomanip.h>

class book

{

char bookname[50];

char bno[6];

char authname[20];

public:

void createbook()

{

cout<<"New book entry \n\n";

cout<<"Enter book number ";

cin>>bno;

cout<<endl<<"Enter book name ";

gets(bookname);

cout<<"Enter author name ";

gets(authname);

cout<<"Book created \n";

}

void showbook()

{

cout<<"Book number "<<bno<<endl;

cout<<"Book name "<<bookname<<endl;

cout<<"Author name "<<authname<<endl;

}

void modifybook()

{

cout<<"Book number is "<<bno;

cout<<"Book name ";

gets(bookname);

cout<<"Author name ";

gets(authname);

}

char\* retbno()

{ return bno; }

void report()

{

cout<<bno<<setw(20)<<bookname<<setw(20);

cout<<authname<<endl;

}

};

class student

{

char admno[6];

char name[20];

char stbno[6];

int token;

public:

void createstudent()

{

clrscr();

cout<<"New student entry \n\n";

cout<<"Enter admission no ";

cin>>admno;

cout<<endl<<"Enter name ";

gets(name);

token = 0;

stbno[0] = '/0';

}

void showstudent()

{

cout<<"Student's admission no is "<<admno<<endl;

cout<<"Student's name ";

puts(name);

cout<<"No. of books issued "<<token;

if (token==1)

cout<<endl<<"Book no "<<stbno;

}

void modifystudent()

{

cout<<"Admission no "<<admno<<endl;

cout<<"Enter name ";

gets(name);

}

char\* retadmno()

{ return admno; }

char\* retstbno()

{ return stbno; }

int retoken()

{ return token; }

void addtoken()

{ token=1; }

void resetoken()

{ token=0; }

void getstbno(char t[])

{ strcpy(stbno,t); }

void report()

{

cout<<admno<<setw(20);

cout<<name<<setw(13)<<token<<endl;

}

};

fstream f,f1;

book b;

student s;

void writebook()

{

char ch;

f.open("book.dat",ios::out|ios::app);

do

{

clrscr();

b.createbook();

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

cout<<"Add more book ";

cin>>ch;

}while (ch == 'Y' || ch == 'y');

f.close();

}

void writestudent()

{

char ch;

f.open("student.dat",ios::out|ios::app);

do

{

clrscr();

s.createstudent();

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

cout<<"Add more student ";

cin>>ch;

}while (ch == 'Y' || ch == 'y');

f.close();

}

void displayspb(char n[])

{

cout<<"Book details \n";

int flag=0;

f.open("book.dat",ios::in);

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

if(strcmp(b.retbno(),n)==0)

{

b.showbook();

flag=1;

}

f.close();

if (flag==0)

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

getch();

}

void displaysps(char n[])

{

cout<<"Student details \n\n";

int flag=0;

f.open("student.dat",ios::in);

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

if(strcmp(s.retadmno(),n)==0)

{

s.showstudent();

flag=1;

}

f.close();

if (flag==0)

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

getch();

}

void modifybook()

{

char n[6];

int found=0;

clrscr();

cout<<"Modify book \n";

cout<<"Enter book no ";

gets(n);

f.open("book.dat",ios::in|ios::out);

while(f.read((char\*)&b, sizeof(b)) && found==0)

{

if(strcmp(b.retbno(),n)==0)

{

b.showbook();

cout<<"Enter new details \n";

b.modifybook();

int pos = -1\*sizeof(b);

f.seekp(pos,ios::cur);

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

found=1;

}

}

f.close();

if (found==0)

cout<<"Book not found";

getch();

}

void modifystudent()

{

char n[6];

int found=0;

clrscr();

cout<<"Modify student \n\n";

cout<<"Enter admission no ";

gets(n);

f.open("student.dat",ios::in|ios::out);

while(f.read((char\*)&s, sizeof(s)) && found==0)

{

if(strcmp(s.retadmno(),n)==0)

{

s.showstudent();

cout<<"\n Enter new details \n";

s.modifystudent();

int pos = -1\*sizeof(s);

f.seekp(pos,ios::cur);

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

found=1;

}

}

f.close();

if (found==0)

cout<<"Student not found";

getch();

}

void deletebook()

{

char n[6];

clrscr();

cout<<"Delete book \n";

cout<<"enter book no ";

cin>>n;

f.open("book.dat",ios::in|ios::out);

fstream f2;

f2.open("temp.dat",ios::in|ios::out);

f.seekg(0,ios::beg);

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

if(strcmp(b.retbno(),n)!=0)

f2.write((char\*)&b, sizeof(b));

f2.close();

f.close();

remove("book.dat");

rename("temp.dat","book.dat");

getch();

}

void deletestudent()

{

char n[6];

clrscr();

cout<<"Delete student \n";

cout<<"enter admission no ";

cin>>n;

f.open("student.dat",ios::in|ios::out);

fstream f2;

f2.open("temp.dat",ios::in|ios::out);

f.seekg(0,ios::beg);

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

if(strcmp(s.retadmno(),n)!=0)

f2.write((char\*)&s, sizeof(s));

f2.close();

f.close();

remove("student.dat");

rename("temp.dat","student.dat");

getch();

}

void displayalls()

{

clrscr();

f.open("student.dat",ios::in|ios::out);

cout<<"Student list \n";

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

cout<<"Admn no."<<setw(10)<<"Name"<<setw(20)<<"Book \n";

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

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

s.report();

f.close();

getch();

}

void displayallb()

{

clrscr();

f.open("book.dat",ios::in|ios::out);

cout<<"Books list \n";

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

cout<<"Book no."<<setw(10)<<"Name"<<setw(20)<<"Author \n";

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

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

b.report();

f.close();

getch();

}

void bookissue()

{

char sn[6], bn[6];

int found=0;

int flag=0;

clrscr();

cout<<"Book issue \n\n";

cout<<"Enter admission no ";

cin>>sn;

f.open("student.dat",ios::in|ios::out);

f1.open("book.dat",ios::in|ios::out);

while(f.read((char\*)&s, sizeof(s)) && found==0)

{

if(strcmp(s.retadmno(),sn)==0)

{

found=1;

if(s.retoken()==0)

{

cout<<"Enter book no ";

cin>>bn;

while(f1.read((char\*)&b, sizeof(b)) && flag==0)

{

if(strcmp(b.retbno(),bn)==0)

{

b.showbook();

flag=1;

s.addtoken();

s.getstbno(b.retbno());

int pos= -1\*sizeof(s);

f.seekp(pos,ios::cur);

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

cout<<"Book issued for 7 days \n";

}

}

if (flag==0)

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

}

else

cout<<"You have not returned the book";

}

}

if(found==0)

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

getch();

f.close();

f1.close();

}

void deposit()

{

char sn[6],bn[6];

int found=0;

int day,fine,flag=0;

clrscr();

cout<<"Book deposit \n";

cout<<"Enter admission no ";

cin>>sn;

f.open("student.dat",ios::in|ios::out);

f1.open("book.dat",ios::in|ios::out);

while(f.read((char\*)&s, sizeof(s)) && found==0)

{

if(strcmp(s.retadmno(),sn)==0)

{

found=1;

if(s.retoken()==1)

{

while(f1.read((char\*)&b, sizeof(b)) && flag==0)

{

if(strcmp(b.retbno(),s.retstbno())==0)

{

b.showbook();

flag=1;

cout<<"Enter no. of days kept ";

cin>>day;

if (day>7)

{

fine=(day-7)\*1;

cout<<"fine "<<fine;

}

s.resetoken();

int pos=-1\*sizeof(s);

f.seekp(pos,ios::cur);

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

cout<<"\n Book deposited \n";

}

}

if(flag==0)

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

}

else

cout<<"No book issued \n";

}

}

if (found==0)

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

f.close();

f1.close();

getch();

}

void adminmenu()

{

XY: clrscr();

char pass[10] = "ankur";

char pasw[20] , cd;

cout<<"You need to enter the password \n\n";

cout<<"enter the password: ";

gets(pasw);

if(strcmp(pass,pasw)==0)

{

ZX: clrscr();

int opt;

cout<<"Admin menu \n"<<endl;

cout<<"1. Create Student"<<endl;

cout<<"2. Display all student"<<endl;

cout<<"3. Display specific student info"<<endl;

cout<<"4. Modify student info"<<endl;

cout<<"5. Delete student info"<<endl;

cout<<"6. Create book"<<endl;

cout<<"7. Display all books"<<endl;

cout<<"8. Display specific book info"<<endl;

cout<<"9. Modify book info"<<endl;

cout<<"10. Delete book "<<endl;

cout<<"11. Main menu"<<endl;

cout<<"Enter your choice ";

cin>>opt;

switch(opt)

{

case 1: clrscr();

writestudent();

break;

case 2: displayalls();

break;

case 3: char num[6];

clrscr();

cout<<"Enter admn no. ";

gets(num);

cout<<endl<<endl;

displaysps(num);

break;

case 4: modifystudent();

break;

case 5: deletestudent();

break;

case 6: clrscr();

writebook();

break;

case 7: displayallb();

break;

case 8: char num1[6];

clrscr();

cout<<"enter book no. ";

cin>>num1;

cout<<endl<<endl;

displayspb(num1);

break;

case 9: modifybook();

break;

case 10: deletebook();

break;

}

if (opt<11)

goto ZX;

getch();

}

else

{

cout<<"Password is wrong\n";

cout<<"Try more... ";

cin>>cd;

if (cd=='Y' || cd=='y')

goto XY;

}

}

void main()

{

int opt;

ABC: clrscr();

gotoxy(25,2);

cout<<"Library Management System \n\n";

cout<<"Main Menu \n\n";

cout<<"1. Book issue"<<endl;

cout<<"2. Book deposit"<<endl;

cout<<"3. Administrator menu"<<endl;

cout<<"4. EXIT"<<endl;

cout<<"Enter your choice ";

cin>>opt;

switch(opt)

{

case 1: clrscr();

bookissue();

break;

case 2: deposit();

break;

case 3: adminmenu();

break;

}

if (opt<4)

{

goto ABC;

}

getch();

}