#include<stdio.h>

#include<string.h>

typedef struct book

{

char bookname[50];

int bno;

int issue;

char authname[20];

int edition;

}book;

typedef struct student

{

int admno;

char name[20];

int stbno[3][6];

int token;

int fine;

}student;

void createbook(book \*t)

{

printf("\n\nNew book entry \n\n");

printf("Enter book number ");

scanf("%d",&t->bno);

printf("Enter book name ");

scanf("%s",t->bookname);

printf("Enter author name ");

scanf("%s",t->authname);

printf("Enter the book edition");

scanf("%d",&t->edition);

t->issue = 0;

printf("\nBook created \n\n");

}

void showbook(book t)

{

printf("\n\nBook number %d \n",t.bno);

printf("Book name %s\n",t.bookname);

printf("Author name %s\n",t.authname);

printf("Edition %d\n\n",t.edition);

}

void modifybook(book \*t)

{

printf("\n\nBook number is %d\n",t->bno);

printf("Book name ");

scanf("%s",t->bookname);

printf("Author name ");

scanf("%s",t->authname);

printf("Enter the edition");

scanf("%d\n",&t->edition);

}

void createstudent(student \*s)

{

printf("\n\nNew student entry \n\n");

printf("Enter admission no ");

scanf("%d",&s->admno);

printf("Enter name ");

scanf("%s",s->name);

s->token = 0;

s->fine = 0;

int i,j;

for(i=0;i<3;i++)

for(j=0;j<6;j++)

s->stbno[i][j]=-1;

}

void showstudent(student s)

{

printf("\n\nStudent's admission no is %d\n",s.admno);

printf("Student's name ");

printf("%s",s.name);

printf("\nNo. of books issued %d\n",s.token);

int i,j;

for(i=0;i<s.token;i++)

{

printf("\nBook No. :");

for(j=0;j<6;j++)

{

if(s.stbno[i][j]!=-1)

printf("%d",s.stbno[i][j]);

}

}

printf("\nFine is :%d\n\n",s.fine);

}

void modifystudent(student \*s)

{

printf("\n\nAdmission no %d\n",s->admno);

printf("Enter name ");

scanf("%s",s->name);

}

void writebook()

{

char ch;

FILE \*fp;

fp = fopen("book.dat","a+");

do

{

book bo;

createbook(&bo);

fwrite(&bo, sizeof(book), 1, fp);

printf("Add more book ");

scanf(" %c",&ch);

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

fclose(fp);

}

void writestudent()

{

char ch;

FILE \*fp;

fp = fopen("student.dat","a+");

do

{

student stu;

createstudent(&stu);

fwrite(&stu, sizeof(student), 1, fp);

printf("Add more student ");

scanf(" %c",&ch);

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

fclose(fp);

}

void displayspb(int n)

{

printf("\n\nBook details \n");

int flag=0;

FILE \*fp;

fp = fopen("book.dat","r");

book b;

while(fread(&b, sizeof(book), 1, fp))

{

if(b.bno == n)

{

showbook(b);

flag=1;

}

}

fclose(fp);

if (flag==0)

printf("\nBook does not exist \n\n\n");

}

void displaysps(int n)

{

printf("\n\nStudent details \n\n");

int flag=0;

FILE \*fp;

fp = fopen("student.dat","r");

student s;

while(fread(&s, sizeof(student), 1, fp))

{

if(s.admno == n)

{

showstudent(s);

flag=1;

}

}

fclose(fp);

if (flag==0)

printf("\nStudent does not exist \n\n");

}

void modibook()

{

int n;

int found=0;

printf("\n\nModify book \n");

printf("Enter book no ");

scanf("%d",&n);

book b;

FILE \*fp;

fp = fopen("book.dat","r+");

while(fread(&b, sizeof(book), 1, fp) && found==0)

{

if(b.bno == n)

{

showbook(b);

printf("Enter new details \n");

modifybook(&b);

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

fseek(fp,pos,1);

fwrite(&b,sizeof(book),1,fp);

found=1;

}

}

fclose(fp);

if (found==0)

printf("\nBook not found\n\n");

}

void modistudent()

{

int n;

int found=0;

printf("\n\nModify student \n\n");

printf("Enter admission no ");

scanf("%d",&n);

FILE \*fp;

student s;

fp = fopen("student.dat","r+");

while(fread(&s, sizeof(student), 1, fp) && found==0)

{

if(s.admno == n)

{

showstudent(s);

printf("\n Enter new details \n");

modifystudent(&s);

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

fseek(fp,pos,1);

fwrite(&s,sizeof(student),1,fp);

found=1;

}

}

fclose(fp);

if (found==0)

printf("\nStudent not found\n\n");

}

void deletebook()

{

int n;

printf("\n\nDelete book \n");

printf("Enter book no ");

scanf("%d",&n);

FILE \*f1;

book b;

f1 = fopen("book.dat","r+");

FILE \*f2;

f2 = fopen("temp.dat","r+");

while(fread(&b, sizeof(book), 1, f1))

if(b.bno != n)

fwrite(&b,sizeof(book),1,f2);

fclose(f2);

fclose(f1);

remove("book.dat");

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

}

void deletestudent()

{

int n[6];

printf("\n\nDelete student \n");

printf("Enter admission no ");

scanf("%d",&n);

FILE \*f1,\*f2;

student s;

f1 = fopen("student.dat","r+");

f2= fopen("temp.dat","r+");

while(fread(&s, sizeof(student), 1, f1))

if(s.admno != n)

fwrite(&s,sizeof(student),1,f2);

fclose(f2);

fclose(f1);

remove("student.dat");

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

}

void displayalls()

{

FILE \*fp;

student s;

fp = fopen("student.dat","r");

printf("\n\nStudent list \n");

printf("==================================================================== \n");

printf("Admn no.\t\t\tName\t\t\tBook \n");

printf("==================================================================== \n");

while(fread(&s, sizeof(student), 1, fp))

{

printf("\n");

printf("%d\t\t\t",s.admno);

printf("%s\t\t\t\t\t%d",s.name,s.token);

}

fclose(fp);

}

void displayallb()

{

FILE \*fp;

book b;

fp = fopen("book.dat","r+");

printf("\n\nBooks list \n");

printf("==================================================================== \n");

printf("Book no.\t\t\tName\t\t\tAuthor \n");

printf("==================================================================== \n");

while(fread(&b, sizeof(book), 1, fp))

{

printf("%d\t\t\t\t%s\t\t\t\t%s",b.bno,b.bookname,b.authname);

}

fclose(fp);

}

void bookissue()

{

int sn,bn;

int found=0;

int flag=0,ff=0;

student s;

book b;

printf("\n\nBook issue \n\n");

printf("Enter admission no :");

scanf("%d",&sn);

FILE \*f,\*f1;

f = fopen("student.dat","r+");

f1 = fopen("book.dat","r+");

while(fread(&s, sizeof(student), 1, f) && found==0)

{

if(s.admno == sn)

{

found=1;

if(s.fine == 0)

{

ff = 1;

if(s.token <=3)

{

printf("Enter book no :");

scanf("%d",&bn);

while(fread(&b, sizeof(book), 1, f1) && flag==0)

{

if(b.bno == bn && b.issue == 0)

{

int bh;

bh = b.bno;

showbook(b);

flag=1;

int i,j;

int t[6];

for(j=0;j<6;j++)

{

t[j] = bh%10;

bh = bh/10;

}

j = 6;

for(i=0;i<6;i++)

{

s.stbno[s.token][j] = t[j--];

}

s.token = s.token + 1;

b.issue = 1;

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

fseek(f,pos,1);

fwrite(&s,sizeof(student),1,f);

printf("Book issued for 15 days \n");

}

}

if (flag==0)

printf("\nBook does not exist \n");

}

else

printf("\nYou have not returned the previously issued book");

}

else if(ff==0)

printf("\nYou have not paid the fine");

}

}

if(found==0)

printf("\nStudent does not exist \n");

fclose(f);

fclose(f1);

}

void deposit()

{

int sn,bn;

int found=0;

student s;

book b;

int day,fne=0,flag=0;

printf("\n\nBook deposit \n");

printf("Enter admission no ");

scanf("%d",&sn);

FILE \*f,\*f1;

f = fopen("student.dat","r+");

f1 = fopen("book.dat","r+");

while(fread(&s, sizeof(student), 1, f) && found==0)

{

if(s.admno == sn)

{

int ste,i;

for(i=0;i<6;i++)

ste = (ste\*10) + s.stbno[s.token][i];

found=1;

if(s.token > 0)

{

while(fread(&b, sizeof(book), 1, f1) && flag==0)

{

if(b.bno == ste && b.issue == 1)

{

showbook(b);

flag=1;

b.issue = 0;

printf("Enter no. of days kept ");

scanf("%d",&day);

if (day>15)

{

fne=(day-15)\*10;

printf("Fine is %d ",&s.fine);

s.fine = fne;

}

s.token = s.token - 1;

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

fseek(f,pos,1);

fwrite(&s,sizeof(student),1,f);

printf("\n Book deposited \n");

}

}

if(flag==0)

printf("\nBook does not exist \n\n");

}

else

printf("\nNo book issued \n\n");

}

}

if (found==0)

printf("\nStudent does not exist \n\n");

fclose(f);

fclose(f1);

}

void finecollect(int n)

{

printf("\n\nStudent details \n\n");

int flag=0;

FILE \*fp;

fp = fopen("student.dat","r");

student s;

while(fread(&s, sizeof(student), 1, fp))

{

if(s.admno == n)

{

showstudent(s);

s.fine = 0;

flag=1;

}

}

fclose(fp);

if (flag==0)

printf("\nStudent does not exist \n\n");

}

void adminmenu()

{

char pass[10];

A: printf("\n");

strcpy(pass,"ankur");

char pasw[20],cd;

printf("You need to enter the password \n\n");

printf("enter the password: ");

scanf("%s",pasw);

int num;

int opt,num1;

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

{

B: printf("\n");

printf("Admin menu \n");

printf("1. Create Student\n");

printf("2. Display all student\n");

printf("3. Display specific student info\n");

printf("4. Modify student info\n");

printf("5. Delete student info\n");

printf("6. Create book\n");

printf("7. Display all books\n");

printf("8. Display specific book info\n");

printf("9. Modify book info\n");

printf("10. Delete book \n");

printf("11. Collect Fine \n");

printf("12. Main menu\n");

printf("Enter your choice \n");

scanf("%d",&opt);

switch(opt)

{

case 1: writestudent();

break;

case 2: displayalls();

break;

case 3: printf("\n\nEnter admn no. ");

scanf("%d",&num);

printf("\n");

displaysps(num);

break;

case 4: modistudent();

break;

case 5: deletestudent();

break;

case 6: writebook();

break;

case 7: displayallb();

break;

case 8: printf("\n\nenter book no. ");

scanf("%d",&num1);

printf("\n");

displayspb(num1);

break;

case 9: modibook();

break;

case 10: deletebook();

break;

case 11: printf("\n\nEnter admn no. ");

scanf("%d",&num);

printf("\n");

finecollect(num);

break;

}

if (opt<12)

goto B;

}

else

{

printf("Password is wrong\n");

printf("Try more... \nEnter y or n :");

scanf(" %c",&cd);

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

goto A;

}

}

void main()

{

int opt;

ABC:printf("\n");

printf("Library Management System \n\n");

printf("Main Menu \n\n");

printf("1. Book issue\n");

printf("2. Book deposit\n");

printf("3. Administrator menu\n");

printf("4. Display all books\n");

printf("5. EXIT\n");

printf("Enter your choice ");

scanf("%d",&opt);

switch(opt)

{

case 1: bookissue();

break;

case 2: deposit();

break;

case 3: adminmenu();

break;

case 4: displayallb();

break;

}

if (opt<5)

{

goto ABC;

}

}