Library Management System

Program-

```
#include<fstream.h>
#include<conio.h>
#include<stdio.h>
#include<string.h>
#include<iomanip.h>
#include<process.h>
class book
{    char bno[6];
     char bname[50];
     char aname[20];
     public:
     void create_book()
     {    cout<<"\nNEW BOOK ENTRY...\n";
          cout<<"\nEnter The book no.";
          cin>>bno;
          cout<<"\n\nEnter The Name of The Book ";
          gets(bname);
          cout<<"\n\nEnter The Author's Name ";
          gets(aname);
          cout<<"\n\n\nBook Created..";
     }
     void show_book()
     {    cout<<"\nBook no. : "<<bno;
          cout<<"\nBook Name : ";
          puts(bname);
          cout<<"Author Name : ";
          puts(aname);
     }
     void modify_book()
     {    cout<<"\nBook no. : "<<bno;
          cout<<"\nModify Book Name : ";
          gets(bname);
          cout<<"\nModify Author's Name of Book : ";
          gets(aname);
     }
     char* retbno()
     {    return bno;   }
```

```
    void report()
    {      cout<<bno<<setw(30)<<bname<<setw(30)<<aname<<endl;
    }
};                                          //class ends here

class student
{    char admno[6];
     char name[20];
     char stbno[6];
     int token;
     public:
     void create_student()
     {    clrscr();
          cout<<"\nNEW STUDENT ENTRY...\n";
          cout<<"\nEnter The admission no. ";
          cin>>admno;
          cout<<"\n\nEnter The Name of The Student ";
          gets(name);
          token=0;
          stbno[0]='/0';
          cout<<"\n\nStudent Record Created..";
     }
     void show_student()
     {    cout<<"\nAdmission no. : "<<admno;
          cout<<"\nStudent Name : ";
          puts(name);
          cout<<"\nNo of Book issued : "<<token;
          if(token==1)
          cout<<"\nBook No "<<stbno;
     }
     void modify_student()
     {    cout<<"\nAdmission no. : "<<admno;
          cout<<"\nModify Student Name : ";
          gets(name);
     }
     char* retadmno()
     {    return admno;}
     char* retstbno()
     {    return stbno;}
     int rettoken()
     {    return token;}
```

```
     void addtoken()
     {      token=1;}
     void resettoken()
     {      token=0;}
     void getstbno(char t[])
     {    strcpy(stbno,t);
     }
     void report()
     {
cout<<"\t"<<admno<<setw(20)<<name<<setw(10)<<token<<endl;}
};         //class ends here

fstream fp,fp1;
book bk;
student st;
void write_book()
{    char ch;
     fp.open("book.dat",ios::out|ios::app);
     do
     {    clrscr();
          bk.create_book();
          fp.write((char*)&bk,sizeof(book));
          cout<<"\n\nDo you want to add more record..(y/n?)";
          cin>>ch;
     }while(ch=='y'||ch=='Y');
     fp.close();
}
void write_student()
{    char ch;
     fp.open("student.dat",ios::out|ios::app);
     do
     {    st.create_student();
          fp.write((char*)&st,sizeof(student));
          cout<<"\n\ndo you want to add more record..(y/n?)";
          cin>>ch;
     }while(ch=='y'||ch=='Y');
     fp.close();
}

void display_spb(char n[])
```

```
{    cout<<"\nBOOK DETAILS\n";
     int flag=0;
     fp.open("book.dat",ios::in);
     while(fp.read((char*)&bk,sizeof(book)))
     {    if(strcmpi(bk.retbno(),n)==0)
          {    bk.show_book();
               flag=1;
          }
     }
     fp.close();
     if(flag==0)
          cout<<"\n\nBook does not exist";
     getch();
}
void display_sps(char n[])
{    cout<<"\nSTUDENT DETAILS\n";
     int flag=0;
     fp.open("student.dat",ios::in);
     while(fp.read((char*)&st,sizeof(student)))
     {    if((strcmpi(st.retadmno(),n)==0))
          {    st.show_student();
               flag=1;
          }
     }
     fp.close();
     if(flag==0)
     cout<<"\n\nStudent does not exist";
     getch();
}

void modify_book()
{    char n[6];
     int found=0;
     clrscr();
     cout<<"\n\n\tMODIFY BOOK REOCORD.... ";
     cout<<"\n\n\tEnter The book no. of The book";
     cin>>n;
     fp.open("book.dat",ios::in|ios::out);
     while(fp.read((char*)&bk,sizeof(book)) && found==0)
     {    if(strcmpi(bk.retbno(),n)==0)
          {    bk.show_book();
```

```
                cout<<"\nEnter the New Details of book"<<endl;
                bk.modify_book();
                int pos=-1*sizeof(bk);
                fp.seekp(pos,ios::cur);
                fp.write((char*)&bk,sizeof(book));
                cout<<"\n\n\t Record Updated";
                found=1;
           }
     }
     fp.close();
     if(found==0)
          cout<<"\n\n Record Not Found ";
     getch();
}
void modify_student()
{    char n[6];
     int found=0;
     clrscr();
     cout<<"\n\n\tMODIFY STUDENT RECORD... ";
     cout<<"\n\n\tEnter The admission no. of The student";
     cin>>n;
     fp.open("student.dat",ios::in|ios::out);
     while(fp.read((char*)&st,sizeof(student)) && found==0)
     {    if(strcmpi(st.retadmno(),n)==0)
          {    st.show_student();
               cout<<"\nEnter The New Details of
student"<<endl;
               st.modify_student();
               int pos=-1*sizeof(st);
               fp.seekp(pos,ios::cur);
               fp.write((char*)&st,sizeof(student));
               cout<<"\n\n\t Record Updated";
               found=1;
          }
     }
     fp.close();
     if(found==0)
          cout<<"\n\n Record Not Found ";
     getch();
}
```

```
void delete_student()
{    char n[6];
     int flag=0;
     clrscr();
     cout<<"\n\n\n\tDELETE STUDENT...";
     cout<<"\n\nEnter The admission no. of the Student You Want
To Delete :";
     cin>>n;
     fp.open("student.dat",ios::in|ios::out);
     fstream fp2;
     fp2.open("Temp.dat",ios::out);
     fp.seekg(0,ios::beg);
     while(fp.read((char*)&st,sizeof(student)))
     {    if(strcmpi(st.retadmno(),n)!=0)
               fp2.write((char*)&st,sizeof(student));
          else
               flag=1;
     }
     fp2.close();
     fp.close();
     remove("student.dat");
     rename("Temp.dat","student.dat");
     if(flag==1)
          cout<<"\n\n\tRecord Deleted ..";
     else
          cout<<"\n\nRecord not found";
     getch();
}
void delete_book()
{    char n[6];
     clrscr();
     cout<<"\n\n\n\tDELETE BOOK ...";
     cout<<"\n\nEnter The Book no. of the Book You Want To
Delete : ";
     cin>>n;
     fp.open("book.dat",ios::in|ios::out);
     fstream fp2;
     fp2.open("Temp.dat",ios::out);
     fp.seekg(0,ios::beg);
     while(fp.read((char*)&bk,sizeof(book)))
     {    if(strcmpi(bk.retbno(),n)!=0)
```

```
          {    fp2.write((char*)&bk,sizeof(book));
          }
     }
     fp2.close();
     fp.close();
     remove("book.dat");
     rename("Temp.dat","book.dat");
     cout<<"\n\n\tRecord Deleted ..";
     getch();
}

void display_alls()
{    clrscr();
     fp.open("student.dat",ios::in);
     if(!fp)
     {    cout<<"ERROR!!! FILE COULD NOT BE OPEN ";
          getch();
          return;
     }
     cout<<"\n\n\t\tSTUDENT LIST\n\n";
     cout<<"==========================================================
======\n";
     cout<<"\tAdmission No."<<setw(10)<<"Name"<<setw(20)<<"Book
Issued\n";
     cout<<"==========================================================
======\n";
     while(fp.read((char*)&st,sizeof(student)))
     {    st.report();
     }
     fp.close();
     getch();
}
void display_allb()
{    clrscr();
     fp.open("book.dat",ios::in);
     if(!fp)
     {    cout<<"ERROR!!! FILE COULD NOT BE OPEN ";
          getch();
          return;
     }
```

```
     cout<<"\n\n\t\tBook LIST\n\n";
     cout<<"==========================================================
======\n";
     cout<<"Book Number"<<setw(20)<<"Book
Name"<<setw(25)<<"Author\n";
     cout<<"==========================================================
======\n";
     while(fp.read((char*)&bk,sizeof(book)))
     {    bk.report();
     }
     fp.close();
     getch();
}

void book_issue()
{    char sn[6],bn[6];
     int found=0,flag=0;
     clrscr();
     cout<<"\n\nBOOK ISSUE ...";
     cout<<"\n\n\tEnter The student's admission no.";
     cin>>sn;
     fp.open("student.dat",ios::in|ios::out);
     fp1.open("book.dat",ios::in|ios::out);
     while(fp.read((char*)&st,sizeof(student)) && found==0)
     {    if(strcmpi(st.retadmno(),sn)==0)
          {    found=1;
               if(st.rettoken()==0)
               {    cout<<"\n\n\tEnter the book no. ";
                    cin>>bn;
                    while(fp1.read((char*)&bk,sizeof(book))&&
flag==0)
                    {    if(strcmpi(bk.retbno(),bn)==0)
                         {    bk.show_book();
                              flag=1;
                              st.addtoken();
                              st.getstbno(bk.retbno());
                              int pos=-1*sizeof(st);
                              fp.seekp(pos,ios::cur);

     fp.write((char*)&st,sizeof(student));
                              cout<<"\n\n\t Book issued
successfully\n\nPlease Note:Write the current date in backside
of your book and submit within 15 days fine Rs. 1 for each day
after15 days period";}

                    }
```

```
                    if(flag==0)
                         cout<<"Book no does not exist";
               }
               else
               cout<<"You have not returned the last book ";
          }
     }
     if(found==0)
     cout<<"Student record not exist...";
     getch();
     fp.close();
     fp1.close();
}

void book_deposit()
{    char sn[6],bn[6];
     int found=0,flag=0,day,fine;
     clrscr();
     cout<<"\n\nBOOK DEPOSIT ...";
     cout<<"\n\n\tEnter The student's admission no.";
     cin>>sn;
     fp.open("student.dat",ios::in|ios::out);
     fp1.open("book.dat",ios::in|ios::out);
     while(fp.read((char*)&st,sizeof(student)) && found==0)
     {    if(strcmpi(st.retadmno(),sn)==0)
          {    found=1;
               if(st.rettoken()==1)
               {    while(fp1.read((char*)&bk,sizeof(book))&&
flag==0)
                    {
     if(strcmpi(bk.retbno(),st.retstbno())==0)
                         {    bk.show_book();
                              flag=1;
                              cout<<"\n\nBook deposited in no.
of days";
                              cin>>day;
                              if(day>15)
                              {    fine=(day-15)*1;


                                   cout<<"\n\nFine has to
deposited Rs. "<<fine;
                              }
```

```
                              st.resettoken();
                              int pos=-1*sizeof(st);
                              fp.seekp(pos,ios::cur);

     fp.write((char*)&st,sizeof(student));
                              cout<<"\n\n\t Book deposited
successfully";
                         }
                    }
                    if(flag==0)
                         cout<<"Book no does not exist";
               }
               else
                    cout<<"No book is issued..please check!!";
          }
     }
     if(found==0)
     cout<<"Student record not exist...";
     getch();
     fp.close();
     fp1.close();
}

void intro()
{    clrscr();
     cout<<"\n\nLIBRARY";
     cout<<"\nMANAGEMENT";
     cout<<"\nSYSTEM";
     cout<<"\nENROLLMENT NO: FCOG21727 & FCOG21744";
     cout<<"\n\nMADE BY : Vidhi and Akshit";
     cout<<"\nCOLLEGE: K.J Somaiya Polytechnic";
     getch();
}

void admin_menu()
{    clrscr();
     int ch2;
     cout<<"\n\n\n\tADMINISTRATOR MENU";



     cout<<"\n\n\t1.CREATE STUDENT RECORD";
     cout<<"\n\n\t2.DISPLAY ALL STUDENTS RECORD";
     cout<<"\n\n\t3.DISPLAY SPECIFIC STUDENT RECORD ";
```

```
    cout<<"\n\n\t4.MODIFY STUDENT RECORD";
    cout<<"\n\n\t5.DELETE STUDENT RECORD";
    cout<<"\n\n\t6.CREATE BOOK ";
    cout<<"\n\n\t7.DISPLAY ALL BOOKS ";
    cout<<"\n\n\t8.DISPLAY SPECIFIC BOOK ";
    cout<<"\n\n\t9.MODIFY BOOK ";
    cout<<"\n\n\t10.DELETE BOOK ";
    cout<<"\n\n\t11.BACK TO MAIN MENU";
    cout<<"\n\n\tPlease Enter Your Choice (1-11) ";
    cin>>ch2;
    switch(ch2)
    {    case 1: clrscr();
             write_student();
             break;
         case 2: display_alls();
             break;
         case 3:  char num[6];
             clrscr();
             cout<<"\n\n\tPlease Enter The Admission No. ";
             cin>>num;
             display_sps(num);
             break;
         case 4: modify_student();
             break;
         case 5: delete_student();
             break;
         case 6: clrscr();
             write_book();
             break;
         case 7: display_allb();
             break;
         case 8: {char num[6];
             clrscr();
             cout<<"\n\n\tPlease Enter The book No. ";
             cin>>num;
             display_spb(num);
             break;
             }


         case 9: modify_book();
             break;
         case 10: delete_book();
             break;
```

```
          case 11: return;
          default: return;
     }
     admin_menu();
}
void main()
{    char ch;
     intro();
     do
     {    clrscr();
          cout<<"\n\n\n\tMAIN MENU";
          cout<<"\n\n\t01. BOOK ISSUE";
          cout<<"\n\n\t02. BOOK DEPOSIT";
          cout<<"\n\n\t03. ADMINISTRATOR MENU";
          cout<<"\n\n\t04. EXIT";
          cout<<"\n\n\tPlease Select Your Option (1-4) ";
          ch=getche();
          switch(ch)
          {    case '1':clrscr();
                    book_issue();
                    break;
               case '2':book_deposit();
                    break;
               case '3':admin_menu();
                    break;
               case '4':exit(0);
               default :exit(0);
          }
     }while(ch!='4');
}
```