A C++ Project

Library Management System!

Project By
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XII - D

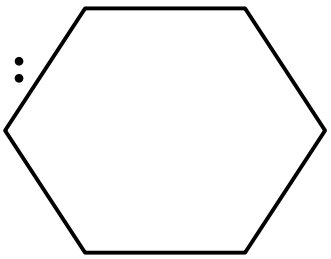
Bonafied Certificate

This is to certify that Mater **FAHIM IMADUDDIN DALVI** of class **XII – D** has completed his *COMPUTER SCIENCE* Project during the year 2009 – 2010 at **M.E.S. INDIAN SCHOOL, DOHA – QATAR** and his Project Report is certified and bonafied.

Signature of Teacher in Charge : _____

Name : _____

Dated : _____ **School Stamp :**



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Acknowledgement

I thank My teachers, school and the Computer Department for giving me an Opportunity to Harness my skills, and learn more about C++.

I also thank my friends for helping me in time of need. During the process of creating this project, I learned many new things about C++ which I thought were not possible!

Introduction

Aim :
This program, as the title suggests, is used for a Library. The Aim of this program is to automate the functions in a library. It also aims to have a centralized database for Books and Members, which makes processing much easier and faster for a Library.

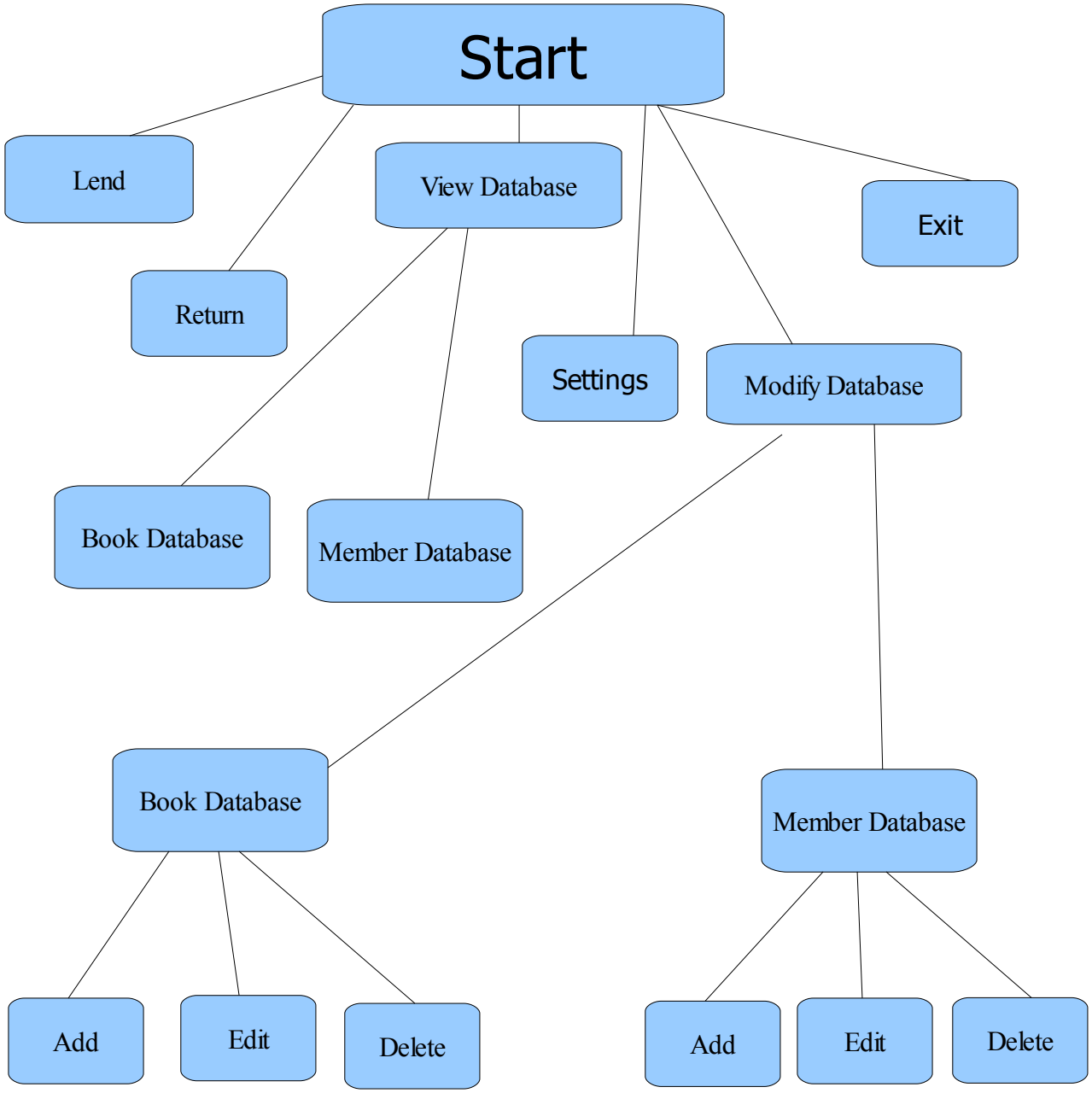
This Program is very User-friendly, simple yet effective. It is completely graphical, and is written in Turbo C++ 3.0.

Program Description :
This Program starts with a loading screen, after which a login screen appears. After Logging in, a Main Menu appears, which contains Options like Lend, Return, Book/Member Database, Modify Database, Settings and Exit.

The Modify database has further being divided into Book and Member which in turn are divided into Add/Edit/Delete. Although the Options are self-explanatory, The complete instructions for the usage of this program are provided in the user manual.

The Main Screen also contains a Calendar/Clock for the easy reference of a Librarian.

Flow Chart :


Start
Lend
View Database
Exit
Return
Settings
Modify Database
Book Database
Member Database
Book Database
Member Database
Add
Edit
Delete
Add
Edit
Delete

Source Code

```
#include<fstream.h>
#include<conio.h>
#include<graphics.h>
#include<dos.h>
#include<string.h>
#include<stdio.h>

unsigned int mouse_x, mouse_y, mouse_b;   //Variables for Mouse
int choice,quit=1,readb,readm;

/* Structures And Classes*\
\* ====================== */
struct LOGS
{
        char date[9];
        char action[50];
}log;

class SETTINGS
{
public:
        char username[20];
        char password[20];
        int total_books, total_members, loaned_books;
        int loan_days, min_copies, fine_per_day;
        void addbook();
        void delbook();
        void addmember();
        void delmember();
        void addloan();
        void delloan();
}sdb;

class BOOK_DB
{
private:
        char bcode[6], title[20], author[20], category[20];
        int status;
        char member[10],duedate[9],mcode[6];
```

```
        int noc;
public:
        void add();
        void showtable(int mode);
        void show(char code[],int mode);
        void rtitle(char str[],int &stat);
        int loan(char due[]);
        float ret();
}bdb;

class MEMBER_DB
{
private:
        char mcode[6], first[10], last[10], phone[10], email[25],
address1[15], address2[15], address3[15];
        int status,nlog;
        char book[20],bcode[6];
public:
        void add();
        void showtable(int mode);
        void show(char code[],int mode);
        void rname(char str[],int &stat);
        void loan(char str[],char code[],char Bname[],char Bcode[]);
        void ret(char Bcode[]);
        void rcode(char str[]);
}mdb;

/* Functions *\
\* ========= */
//Mouse Functions
int detect_mouse();                          //Checks Availability of Mouse
void show_mouse();                           //Shows Mouse Cursor
void hide_mouse();                           //Hides Mouse Cursor
void test_mouse();                           //Checks if a button is pressed
void set_mouse_speed(int sx,int sy);         //Sets Mouse Speed
void move_mouse(int x,int y);                //Moves Mouse Cursor

//Program Modules
void loading();                                    //Loading Screen
void login();                                      //Login Screen
void logindraw(char username[],char password[]);//To Draw the Login Screen
int mainpage();                                    //Main Screen
```

```
void mainpagedraw();                                    //To Draw the Main Page
void lend();                                            //Lending Screen
void returns();                                         //Return Screen
void settings();                                        //Settings Screen
int tablebutton(int);                                   //Buttons for Tables
int modify();                                           //Modify Database Page
void help();                                            //Help/About Pop-Up
int exit();                                             //Exit Screen

//Calendar and Info Bars
void calendar();                                         //Calender Box
void infobox();                                         //Info Box
void utime(int color=7);                                 //Time Updater

//Input/Output Functions
void inputstr(int x,int y,char str[]);                    //To Input a String
void inputpass(int x,int y,char str[]);                   //To Input a Password
void outpassxy(int x,int y,char pass[]);                  //To Print Password
void numtostr(int number,char num[],int l=6);             //To Convert Number to String
int strtonum(char num[]);                                //To Convert String to Number
void outnum(int x,int y,int num,int spacing=8);          //To Print Numbers

//Date Conversion Functions
float gdtojd(char date[]);                               //To Convert from Gregorian to
Julian
void jdtogd(char date[],float jd);                  //To Convert from Julian to Gregorian

int main()
{
//Changing to Graphics Mode
int gdriver=DETECT,gmode;
initgraph(&gdriver,&gmode,"C:\\TC\\BGI");
setbkcolor(7);
loading();
login();
if(::quit==0)
        return 0;
do
{
        choice=mainpage();
        switch(choice)
        {
        case 1:
```

```
            lend();
            break;
    case 2:
            returns();
            break;
    case 3:
            bdb.showtable(0);
            break;
    case 4:
            mdb.showtable(0);
            break;
    case 5:
            int ch;
            do
            {
                    ch=modify();
                    switch(ch)
                    {
                    case 1:
                            bdb.add();
                            break;
                    case 2:
                            bdb.showtable(2);
                            break;
                    case 3:
                            bdb.showtable(1);
                            break;
                    case 4:
                            mdb.add();
                            break;
                    case 5:
                            mdb.showtable(2);
                            break;
                    case 6:
                            mdb.showtable(1);
                            break;
                    }
            }while(ch!=0);
            break;
    case 6:
            settings();
```

```
                break;
        case 7:
                break;
        }
}
while(::quit!=0);
return 0;
}

/* Class Definitions *\
\* ================= */
//SETTINGS
void SETTINGS::addbook()
{
        ifstream abook("CONFIG.DAT");
        abook.read((char*)&sdb,sizeof(&sdb));
        abook.close();
        ofstream abook1("CONFIG.DAT");
        sdb.total_books++;
        abook1.write((char*)&sdb,sizeof(sdb));
        abook1.close();
}

void SETTINGS::delbook()
{
        ifstream dbook("CONFIG.DAT");
        dbook.read((char*)&sdb,sizeof(&sdb));
        dbook.close();
        ofstream dbook1("CONFIG.DAT");
        sdb.total_books--;
        dbook1.write((char*)&sdb,sizeof(sdb));
        dbook1.close();
}

void SETTINGS::addmember()
{
        ifstream amem("CONFIG.DAT");
        amem.read((char*)&sdb,sizeof(&sdb));
        amem.close();
        ofstream amem1("CONFIG.DAT");
        sdb.total_members++;
        amem1.write((char*)&sdb,sizeof(sdb));
```

```
        amem1.close();
}

void SETTINGS::delmember()
{
        ifstream dmem("CONFIG.DAT");
        dmem.read((char*)&sdb,sizeof(&sdb));
        dmem.close();
        ofstream dmem1("CONFIG.DAT");
        sdb.total_members--;
        dmem1.write((char*)&sdb,sizeof(sdb));
        dmem1.close();
}

void SETTINGS::addloan()
{
        ifstream aloan("CONFIG.DAT");
        aloan.read((char*)&sdb,sizeof(&sdb));
        aloan.close();
        ofstream aloan1("CONFIG.DAT");
        sdb.loaned_books++;
        aloan1.write((char*)&sdb,sizeof(sdb));
        aloan1.close();
}

void SETTINGS::delloan()
{
        ifstream dloan("CONFIG.DAT");
        dloan.read((char*)&sdb,sizeof(&sdb));
        dloan.close();
        ofstream dloan1("CONFIG.DAT");
        sdb.loaned_books--;
        dloan1.write((char*)&sdb,sizeof(sdb));
        dloan1.close();
}

//BOOK_DB
void BOOK_DB::add()
{
        cleardevice();
        setcolor(6);
        settextstyle(3,0,4);
```

```
        outtextxy(220,5,"Add Book");
        rectangle(3,3,636,476);
        rectangle(4,4,635,475);
        settextstyle(3,0,2);
        outtextxy(50,440,"< Back");
        rectangle(40,444,130,465);
        outtextxy(520,440,"Add >");
        rectangle(510,444,600,465);
        setcolor(1);
        outtextxy(50,100,"Book Code  ");
        outtextxy(50,140,"Book Name  ");
        outtextxy(50,180,"Author     ");
        outtextxy(50,220,"Category   ");
        outtextxy(50,260,"Copies     ");
        rectangle(250,100,550,130);
        rectangle(250,140,550,170);
        rectangle(250,180,550,210);
        rectangle(250,220,550,250);
        rectangle(250,260,550,290);
        //Initialising Variables to Null
        char tnoc[6];
        tnoc[0]='\0';
        bcode[0]='\0';
        title[0]='\0';
        author[0]='\0';
        category[0]='\0';
        delay(150);
        if (detect_mouse())
                show_mouse();
        while (::quit==1)
        {
                test_mouse();
                if((mouse_x>40)&&(mouse_x<130)&&(mouse_y>444)&&(mouse_y<465
))
                {
                        setcolor(6);
                        rectangle(39,443,131,466);
                }
                else
                if((mouse_x>510)&&(mouse_x<600)&&(mouse_y>444)&&(mouse_y<46
5))
```

```
                {
                        setcolor(6);
                        rectangle(509,443,601,466);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>100)&&(mouse_y<13
0))
                {
                        setcolor(1);
                        rectangle(249,99,551,131);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>140)&&(mouse_y<17
0))
                {
                        setcolor(1);
                        rectangle(249,139,551,171);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>180)&&(mouse_y<21
0))
                {
                        setcolor(1);
                        rectangle(249,179,551,209);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>220)&&(mouse_y<25
0))
                {
                        setcolor(1);
                        rectangle(249,219,551,251);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>260)&&(mouse_y<29
0))
                {
                        setcolor(1);
                        rectangle(249,259,551,291);
                }
                else
                {
                        setcolor(7);
```

```
                        rectangle(39,443,131,466);
                        rectangle(509,443,601,466);
                        rectangle(249,99,551,131);
                        rectangle(249,139,551,171);
                        rectangle(249,179,551,209);
                        rectangle(249,219,551,251);
                        rectangle(249,259,551,291);
                }
                if (mouse_b & 1)
                {
                        hide_mouse();
                        setcolor(1);
                        if((mouse_x>40)&&(mouse_x<130)&&(mouse_y>444)&&(mou
se_y<465))
                                break;
                        else
                        if((mouse_x>510)&&(mouse_x<600)&&(mouse_y>444)&&(mo
use_y<465))
                        {
                                int f=0;
                                char *f1;
                                BOOK_DB temp;
                                ifstream check("BOOKS.DAT");
                                while(check.read((char*)&temp,sizeof(temp)))
                                {
                                        f1=strstr(bdb.bcode,temp.bcode);
                                        if(f1)
                                                f=1;
                                }
                                if(f==0)
                                {
                                        ofstream of("BOOKS.DAT",ios::app);
                                        of.seekp(0,ios::end);
                                        status=0;
                                        strcpy(member,"     -");
                                        strcpy(duedate,"--/--/--");
                                        strcpy(mcode,"00000");
                                        of.write((char*)&bdb,sizeof(bdb));
                                        of.close();
                                        setcolor(7);
                                        outtextxy(250,300,"Book Number Already
```

```
Exists!");
                                        setcolor(1);
                                        outtextxy(270,300,"Record Added!");
                                        sdb.addbook();
                                        delay(500);
                                        break;
                                }
                                else
                                {
                                        setcolor(4);
                                        outtextxy(250,300,"Book Number Already
Exists!");
                                        delay(500);
                                }
                        }
                        else
                        if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>100)&&(mo
use_y<130))
                                inputstr(254,101,bcode);
                        else
                        if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>140)&&(mo
use_y<170))
                                inputstr(254,141,title);
                        else
                        if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>180)&&(mo
use_y<210))
                                inputstr(254,181,author);
                        else
                        if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>220)&&(mo
use_y<250))
                                inputstr(254,221,category);
                        else
                        if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>260)&&(mo
use_y<290))
                        {
                                inputstr(254,261,tnoc);
                                noc=strtonum(tnoc);
                        }
                        show_mouse();
                }
        }
}
```

```
void BOOK_DB::showtable(int mode)
{
        int rec=0,cho=101,page,spage1,spage2,spage3,spage4,sflag;
        page=spage1=spage2=spage3=spage4=0;
        sflag=0;
        char *p;
        char search[20];
        search[0]='\0';
        do
        {
                if(cho>50)
                {
                        cleardevice();
                        rec=0;
                        setcolor(6);
                        settextstyle(3,0,4);
                        outtextxy(220,5,"Book Details");
                        rectangle(3,3,636,476);
                        rectangle(4,4,635,475);
                        //Main View
                        rectangle(20,100,620,430);
                        setcolor(1);
                        rectangle(20,50,620,70);
                        setcolor(6);
                        line(20,120,620,120);
                        settextstyle(2,0,5);
                        outtextxy(25,100,"Code       Title                Author
Category           Loaned To");
                        line(65,100,65,430);
                        line(215,100,215,430);
                        line(365,100,365,430);
                        line(515,100,515,430);
                        //Top Buttons
                        setcolor(1);
                        settextstyle(3,0,1);
                        outtextxy(50,74,"Search By :   Book No.     Title
Author     Loaned To ");
                        rectangle(172,78,255,97);
                        rectangle(280,78,353,97);
                        rectangle(373,78,445,97);
```

```
                        rectangle(473,78,575,97);
                        setcolor(6);
                        //Bottom Buttons
                        outtextxy(50,440,"Back to Main Menu
< Prev    Next >");
                        rectangle(40,444,230,463);
                        rectangle(455,444,533,463);
                        rectangle(537,444,615,463);
                        //Reading
                        ifstream ifile("BOOKS.DAT");
                        ifile.seekg((page*13*sizeof(bdb)),ios::beg);
                        while(ifile.read((char*)&bdb,sizeof(bdb))&&rec<=304
)
                        {
                                rec+=24;
                                settextstyle(2,0,5);
                                outtextxy(25,100+rec,bcode);
                                outtextxy(70,100+rec,title);
                                outtextxy(220,100+rec,author);
                                outtextxy(370,100+rec,category);
                                outtextxy(520,100+rec,member);
                        }
                        ifile.close();
                }
                delay(100);
                cho=tablebutton((sdb.total_books)-(page*13));
                setcolor(6);
                settextstyle(3,0,1);
                switch(cho)
                {
                case 1:
                        setcolor(1);
                        rectangle(19,49,621,71);
                        inputstr(23,46,search);
                        setcolor(7);
                        rectangle(19,49,621,71);
                        setcolor(6);
                        break;
                case 11:
                        setfillstyle(SOLID_FILL,7);
                        bar(21,101,619,429);
```

```
                    settextstyle(2,0,5);
                    outtextxy(25,100,"Code       Title                Author
Category          Loaned To");
                    line(20,120,620,120);
                    line(65,100,65,430);
                    line(215,100,215,430);
                    line(365,100,365,430);
                    line(515,100,515,430);
                    ifstream ifile("BOOKS.DAT");
                    rec=0;
                    while(ifile.read((char*)&bdb,sizeof(bdb))&&rec<=240
)
                    {
                            p=strstr(bdb.bcode,search);
                            if(p)
                            {
                                    rec+=24;
                                    settextstyle(2,0,5);
                                    outtextxy(25,100+rec,bcode);
                                    outtextxy(70,100+rec,title);
                                    outtextxy(220,100+rec,author);
                                    outtextxy(370,100+rec,category);
                                    outtextxy(520,100+rec,member);
                            }
                    }
                    ifile.close();
                    sflag=1;
                    break;
            case 12:
                    setfillstyle(SOLID_FILL,7);
                    bar(21,101,619,429);
                    settextstyle(2,0,5);
                    outtextxy(25,100,"Code       Title                Author
Category          Loaned To");
                    line(20,120,620,120);
                    line(65,100,65,430);
                    line(215,100,215,430);
                    line(365,100,365,430);
                    line(515,100,515,430);
                    ifstream ifile1("BOOKS.DAT");
```

```
                        rec=0;
                        while(ifile1.read((char*)&bdb,sizeof(bdb))&&rec<=240
)
                        {
                                p=strstr(title,search);
                                if(p)
                                {
                                        rec+=24;
                                        settextstyle(2,0,5);
                                        outtextxy(25,100+rec,bcode);
                                        outtextxy(70,100+rec,title);
                                        outtextxy(220,100+rec,author);
                                        outtextxy(370,100+rec,category);
                                        outtextxy(520,100+rec,member);
                                }
                        }
                        ifile1.close();
                        sflag=2;
                        break;
                case 13:
                        setfillstyle(SOLID_FILL,7);
                        bar(21,101,619,429);
                        settextstyle(2,0,5);
                        outtextxy(25,100,"Code       Title                Author
Category          Loaned To");
                        line(20,120,620,120);
                        line(65,100,65,430);
                        line(215,100,215,430);
                        line(365,100,365,430);
                        line(515,100,515,430);
                        ifstream ifile2("BOOKS.DAT");
                        rec=0;
                        while(ifile2.read((char*)&bdb,sizeof(bdb))&&rec<=240
)
                        {
                                p=strstr(author,search);
                                if(p)
                                {
                                        rec+=24;
                                        settextstyle(2,0,5);
```

```
                                outtextxy(25,100+rec,bcode);
                                outtextxy(70,100+rec,title);
                                outtextxy(220,100+rec,author);
                                outtextxy(370,100+rec,category);
                                outtextxy(520,100+rec,member);
                        }
                }
                ifile2.close();
                sflag=3;
                break;
        case 14:
                setfillstyle(SOLID_FILL,7);
                bar(21,101,619,429);
                settextstyle(2,0,5);
                outtextxy(25,100,"Code       Title                Author
Category          Loaned To");
                line(20,120,620,120);
                line(65,100,65,430);
                line(215,100,215,430);
                line(365,100,365,430);
                line(515,100,515,430);
                ifstream ifile3("BOOKS.DAT");
                rec=0;
                while(ifile3.read((char*)&bdb,sizeof(bdb))&&rec<=240
)
                {
                        p=strstr(member,search);
                        if(p)
                        {
                                rec+=24;
                                settextstyle(2,0,5);
                                outtextxy(25,100+rec,bcode);
                                outtextxy(70,100+rec,title);
                                outtextxy(220,100+rec,author);
                                outtextxy(370,100+rec,category);
                                outtextxy(520,100+rec,member);
                        }
                }
                ifile3.close();
                sflag=4;
```

```
                break;
        case 51:
                if(sflag==0&&page!=0)
                        page--;
                else
                if(sflag==1&&spage1!=0)
                        spage1--;
                else
                if(sflag==2&&spage2!=0)
                        spage2--;
                else
                if(sflag==3&&spage3!=0)
                        spage3--;
                else
                if(sflag==4&&spage4!=0)
                        spage4--;
                break;
        case 52:
                if(sdb.total_books>(page+1)*13)
                {
                        if(sflag==0)
                                page++;
                        else
                        if(sflag==1)
                                spage1++;
                        else
                        if(sflag==2)
                                spage2++;
                        else
                        if(sflag==3)
                                spage3++;
                        else
                        if(sflag==4)
                                spage4++;
                }
                break;
        case 101:
                ifstream ifile101("BOOKS.DAT");
                if(sflag==0)
                        ifile101.seekg((page*13)*sizeof(bdb),ios::beg
);
                else
                if(sflag==1)
```

```
                        ifile101.seekg((spage1*13)*sizeof(bdb),ios::beg);
                else
                if(sflag==2)
                        ifile101.seekg((spage2*13)*sizeof(bdb),ios::beg);
                else
                if(sflag==3)
                        ifile101.seekg((spage3*13)*sizeof(bdb),ios::beg);
                else
                if(sflag==4)
                        ifile101.seekg((spage4*13)*sizeof(bdb),ios::beg);
                ifile101.read((char*)&bdb,sizeof(bdb));
                ifile101.close();
                show(bcode,mode);
                break;
        case 102:
                ifstream ifile102("BOOKS.DAT");
                if(sflag==0)
                        ifile102.seekg((page*13+1)*sizeof(bdb),ios::beg);
                else
                if(sflag==1)
                        ifile102.seekg((spage1*13+1)*sizeof(bdb),ios::beg);
                else
                if(sflag==2)
                        ifile102.seekg((spage2*13+1)*sizeof(bdb),ios::beg);
                else
                if(sflag==3)
                        ifile102.seekg((spage3*13+1)*sizeof(bdb),ios::beg);
                else
                if(sflag==4)
                        ifile102.seekg((spage4*13+1)*sizeof(bdb),ios::beg);
                ifile102.read((char*)&bdb,sizeof(bdb));
                ifile102.close();
                show(bcode,mode);
```

```
                        break;
                case 103:
                        ifstream ifile103("BOOKS.DAT");
                        if(sflag==0)
                                ifile103.seekg((page*13+2)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile103.seekg((spage1*13+2)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile103.seekg((spage2*13+2)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile103.seekg((spage3*13+2)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile103.seekg((spage4*13+2)*sizeof(bdb),ios:
:beg);
                        ifile103.read((char*)&bdb,sizeof(bdb));
                        ifile103.close();
                        show(bcode,mode);
                        break;
                case 104:
                        ifstream ifile104("BOOKS.DAT");
                        if(sflag==0)
                                ifile104.seekg((page*13+3)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile104.seekg((spage1*13+3)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile104.seekg((spage2*13+3)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile104.seekg((spage3*13+3)*sizeof(bdb),ios:
```

```
:beg);
                        else
                        if(sflag==4)
                                ifile104.seekg((spage4*13+3)*sizeof(bdb),ios:
:beg);
                        ifile104.read((char*)&bdb,sizeof(bdb));
                        ifile104.close();
                        show(bcode,mode);
                        break;
                case 105:
                        ifstream ifile105("BOOKS.DAT");
                        if(sflag==0)
                                ifile105.seekg((page*13+4)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile105.seekg((spage1*13+4)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile105.seekg((spage2*13+4)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile105.seekg((spage3*13+4)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile105.seekg((spage4*13+4)*sizeof(bdb),ios:
:beg);
                        ifile105.read((char*)&bdb,sizeof(bdb));
                        ifile105.close();
                        show(bcode,mode);
                        break;
                case 106:
                        ifstream ifile106("BOOKS.DAT");
                        if(sflag==0)
                                ifile106.seekg((page*13+5)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile106.seekg((spage1*13+5)*sizeof(bdb),ios:
```

```
:beg);
                        else
                        if(sflag==2)
                                ifile106.seekg((spage2*13+5)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile106.seekg((spage3*13+5)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile106.seekg((spage4*13+5)*sizeof(bdb),ios:
:beg);
                        ifile106.read((char*)&bdb,sizeof(bdb));
                        ifile106.close();
                        show(bcode,mode);
                        break;
                case 107:
                        ifstream ifile107("BOOKS.DAT");
                        if(sflag==0)
                                ifile107.seekg((page*13+6)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile107.seekg((spage1*13+6)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile107.seekg((spage2*13+6)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile107.seekg((spage3*13+6)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile107.seekg((spage4*13+6)*sizeof(bdb),ios:
:beg);
                        ifile107.read((char*)&bdb,sizeof(bdb));
                        ifile107.close();
                        show(bcode,mode);
                        break;
```

```
                case 108:
                        ifstream ifile108("BOOKS.DAT");
                        if(sflag==0)
                                ifile108.seekg((page*13+7)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile108.seekg((spage1*13+7)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile108.seekg((spage2*13+7)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile108.seekg((spage3*13+7)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile108.seekg((spage4*13+7)*sizeof(bdb),ios:
:beg);
                        ifile108.read((char*)&bdb,sizeof(bdb));
                        ifile108.close();
                        show(bcode,mode);
                        break;
                case 109:
                        ifstream ifile109("BOOKS.DAT");
                        if(sflag==0)
                                ifile109.seekg((page*13+8)*sizeof(bdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile109.seekg((spage1*13+8)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile109.seekg((spage2*13+8)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile109.seekg((spage3*13+8)*sizeof(bdb),ios:
:beg);
```

```
                        else
                        if(sflag==4)
                                ifile109.seekg((spage4*13+8)*sizeof(bdb),ios::beg);
                        ifile109.read((char*)&bdb,sizeof(bdb));
                        ifile109.close();
                        show(bcode,mode);
                        break;
                case 110:
                        ifstream ifile110("BOOKS.DAT");
                        if(sflag==0)
                                ifile110.seekg((page*13+9)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==1)
                                ifile110.seekg((spage1*13+9)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==2)
                                ifile110.seekg((spage2*13+9)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==3)
                                ifile110.seekg((spage3*13+9)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==4)
                                ifile110.seekg((spage4*13+9)*sizeof(bdb),ios::beg);
                        ifile110.read((char*)&bdb,sizeof(bdb));
                        ifile110.close();
                        show(bcode,mode);
                        break;
                case 111:
                        ifstream ifile111("BOOKS.DAT");
                        if(sflag==0)
                                ifile111.seekg((page*13+10)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==1)
                                ifile111.seekg((spage1*13+10)*sizeof(bdb),ios::beg);
```

```
                        else
                        if(sflag==2)
                                ifile111.seekg((spage2*13+10)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==3)
                                ifile111.seekg((spage3*13+10)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==4)
                                ifile111.seekg((spage4*13+10)*sizeof(bdb),ios::beg);
                        ifile111.read((char*)&bdb,sizeof(bdb));
                        ifile111.close();
                        show(bcode,mode);
                        break;
                case 112:
                        ifstream ifile112("BOOKS.DAT");
                        if(sflag==0)
                                ifile112.seekg((page*13+11)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==1)
                                ifile112.seekg((spage1*13+11)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==2)
                                ifile112.seekg((spage2*13+11)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==3)
                                ifile112.seekg((spage3*13+11)*sizeof(bdb),ios::beg);
                        else
                        if(sflag==4)
                                ifile112.seekg((spage4*13+11)*sizeof(bdb),ios::beg);
                        ifile112.read((char*)&bdb,sizeof(bdb));
                        ifile112.close();
                        show(bcode,mode);
                        break;
                case 113:
```

```
                        ifstream ifile113("BOOKS.DAT");
                        if(sflag==0)
                                ifile113.seekg((page*13+12)*sizeof(bdb),ios::
beg);
                        else
                        if(sflag==1)
                                ifile113.seekg((spage1*13+12)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile113.seekg((spage2*13+12)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile113.seekg((spage3*13+12)*sizeof(bdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile113.seekg((spage4*13+12)*sizeof(bdb),ios:
:beg);
                        ifile113.read((char*)&bdb,sizeof(bdb));
                        ifile113.close();
                        show(bcode,mode);
                        break;
                case 0:
                        break;
                }
                if(cho>100)
                        readb=1;
                else
                        readb=0;
        }
        while(cho!=0&&mode!=3);
}

void BOOK_DB::show(char code[],int mode)
{
if(mode!=3)
{
        cleardevice();
        setcolor(6);
        settextstyle(3,0,4);
```

```
outtextxy(220,5,"Book Details");
rectangle(3,3,636,476);
rectangle(4,4,635,475);
settextstyle(3,0,2);
outtextxy(50,100,"Book Code ");
outtextxy(50,130,"Book Title ");
outtextxy(50,160,"Author ");
outtextxy(50,190,"Category ");
outtextxy(50,220,"Status ");
outtextxy(50,250,"Loaned To ");
outtextxy(50,280,"Due Date ");
outtextxy(50,310,"Count ");
outtextxy(40,350,"< Back");
rectangle(38,350,130,380);
if(mode==1)
{
        outtextxy(200,350," Delete");
        rectangle(198,350,290,380);
}
else
if(mode==2)
{
        outtextxy(200,350," Update");
        rectangle(198,350,290,380);
        setcolor(1);
        rectangle(215,104,415,130);
        rectangle(215,134,415,160);
        rectangle(215,164,415,190);
        rectangle(215,194,415,220);
        rectangle(215,314,415,340);
        setcolor(6);
}
fstream file("BOOKS.DAT",ios::in|ios::out|ios::binary);
int flag=0,count=0;
char t[10];
strcpy(t,code);
while(file.read((char*)&bdb,sizeof(bdb))&&flag==0)
{
        if(strcmpi(t,bcode)==0)
        {
                if(mode==2)
```

```
                        setcolor(1);
                outtextxy(220,100,bcode);
                outtextxy(220,130,title);
                outtextxy(220,160,author);
                outtextxy(220,190,category);
                if(status==0)
                        outtextxy(220,220,"Available");
                else
                        outtextxy(220,220,"Loaned");
                outtextxy(220,250,member);
                outtextxy(220,280,duedate);
                char tnoc[6];
                numtostr(noc,tnoc,4);
                outtextxy(220,310,tnoc);
                setcolor(6);
                strcpy(t,bcode);
                delay(150);
                if(detect_mouse)
                        show_mouse();
                while(flag==0)
                {
                        test_mouse();
                        if((mouse_x>38)&&(mouse_x<130)&&(mouse_y>350
)&&(mouse_y<380))
                        {
                                setcolor(6);
                                rectangle(37,349,131,381);
                        }
                        else
                        if((mouse_x>198)&&(mouse_x<290)&&(mouse_y>350
)&&(mouse_y<380)&&(mode==1||mode==2))
                        {
                                setcolor(6);
                                rectangle(197,349,291,381);
                        }
                        else
                        if((mouse_x>215)&&(mouse_x<415)&&(mouse_y>104
)&&(mouse_y<130)&&mode==2)
                        {
                                setcolor(1);
                                rectangle(214,103,416,131);
```

```
                        }
                        else
                        if((mouse_x>215)&&(mouse_x<415)&&(mouse_y>134
)&&(mouse_y<160)&&mode==2)
                        {
                                setcolor(1);
                                rectangle(214,133,416,161);
                        }
                        else
                        if((mouse_x>215)&&(mouse_x<415)&&(mouse_y>164
)&&(mouse_y<190)&&mode==2)
                        {
                                setcolor(1);
                                rectangle(214,163,416,191);
                        }
                        else
                        if((mouse_x>215)&&(mouse_x<415)&&(mouse_y>194
)&&(mouse_y<220)&&mode==2)
                        {
                                setcolor(1);
                                rectangle(214,193,416,221);
                        }
                        else
                        if((mouse_x>215)&&(mouse_x<415)&&(mouse_y>314
)&&(mouse_y<340)&&mode==2)
                        {
                                setcolor(1);
                                rectangle(214,313,416,341);
                        }
                        else
                        {
                                setcolor(7);
                                rectangle(37,349,131,381);
                                rectangle(197,349,291,381);
                                rectangle(214,103,416,131);
                                rectangle(214,133,416,161);
                                rectangle(214,163,416,191);
                                rectangle(214,193,416,221);
                                rectangle(214,313,416,341);
                        }
                        if (mouse_b & 1)
                        {
```

```
                                        hide_mouse();
                                        if((mouse_x>38)&&(mouse_x<130)&&(mous
e_y>350)&&(mouse_y<380))
                                        {
                                                flag=1;
                                                break;
                                        }
                                        else
                                        if((mouse_x>198)&&(mouse_x<290)&&(mou
se_y>350)&&(mouse_y<380)&&mode==2)
                                        {
                                                file.seekp((count)*(sizeof(bdb)
),ios::beg);
                                                file.write((char*)&bdb,sizeof(b
db));
                                                flag=1;
                                                break;
                                        }
                                        if((mouse_x>198)&&(mouse_x<290)&&(mou
se_y>350)&&(mouse_y<380)&&mode==1)
                                        {
                                                file.seekg(0,ios::beg);
                                                ofstream ofile("TEMP.DAT");
                                                while(file.read((char*)&bdb,siz
eof(bdb)))
                                                {
                                                        if(strcmpi(t,bcode)!=0)
                                                                ofile.write((char
*)&bdb,sizeof(bdb));
                                                }
                                                ofile.close();
                                                remove("BOOKS.DAT");
                                                rename("TEMP.DAT","BOOKS.DAT");
                                                sdb.delbook();
                                                break;
                                        }
                                        else
                                        if((mouse_x>215)&&(mouse_x<415)&&(mou
se_y>104)&&(mouse_y<130)&&mode==2)
                                                inputstr(220,100,bcode);
                                        else
```

```
                                        if((mouse_x>215)&&(mouse_x<415)&&(mou
se_y>134)&&(mouse_y<160)&&mode==2)
                                                inputstr(220,130,title);
                                        else
                                        if((mouse_x>215)&&(mouse_x<415)&&(mou
se_y>164)&&(mouse_y<190)&&mode==2)
                                                inputstr(220,160,author);
                                        else
                                        if((mouse_x>215)&&(mouse_x<415)&&(mou
se_y>194)&&(mouse_y<220)&&mode==2)
                                                inputstr(220,190,category);
                                        else
                                        if((mouse_x>215)&&(mouse_x<415)&&(mou
se_y>314)&&(mouse_y<340)&&mode==2)
                                        {
                                                inputstr(220,310,tnoc);
                                                noc=strtonum(tnoc);
                                        }
                                        show_mouse();
                                }
                        }
                }
                count++;
        }
        file.close();
}
}

void BOOK_DB::rtitle(char str[],int &stat)
{
        strcpy(str,title);
        stat=status;
}

int BOOK_DB::loan(char due[])
{
        if(noc<sdb.min_copies)
        {
                outtextxy(10,350,"This Book cannot be loaned due to insufficient
Copies");
                return 0;
        }
```

```
        else
        {
                char tcode[10];
                int fl=0,c=0;
                strcpy(tcode,bcode);
                fstream l("BOOKS.DAT",ios::in|ios::out|ios::binary);
                l.seekg(0,ios::beg);
                while(l.read((char*)&bdb,sizeof(bdb))&&fl==0)
                {
                        if(strcmpi(tcode,bcode)==0)
                        {
                                fl=1;
                                l.seekp((c)*sizeof(bdb),ios::beg);
                                strcpy(duedate,due);
                                status=1;
                                mdb.loan(member,mcode,title,bcode);
                                noc--;
                                l.write((char*)&bdb,sizeof(bdb));
                                sdb.addloan();
                        }
                        c++;
                }
                l.close();
                delay(150);
                return 1;
        }
}

float BOOK_DB::ret()
{
        char tcode[10];
        float j;
        strcpy(tcode,bcode);
        int fl=0,c=0;
        fstream l("BOOKS.DAT",ios::in|ios::out|ios::binary);
        l.seekg(0,ios::beg);
        while(l.read((char*)&bdb,sizeof(bdb))&&fl==0)
        {
                if(strcmpi(tcode,bcode)==0)
                {
                        fl=1;
```

```
                        l.seekp((c)*sizeof(bdb),ios::beg);
                        j=gdtojd(duedate);
                        status=0;
                        strcpy(member,"     -");
                        strcpy(duedate,"--/--/--");
                        mdb.ret(tcode);
                        bdb.noc++;
                        l.write((char*)&bdb,sizeof(bdb));
                        sdb.delloan();
                }
                c++;
        }
        return j;
}

//MEMBER_DB
void MEMBER_DB::add()
{
        cleardevice();
        setcolor(6);
        settextstyle(3,0,4);
        outtextxy(220,5,"Add Member");
        rectangle(3,3,636,476);
        rectangle(4,4,635,475);
        settextstyle(3,0,2);
        outtextxy(50,440,"< Back");
        rectangle(40,444,130,465);
        outtextxy(520,440,"Add >");
        rectangle(510,444,600,465);
        setcolor(1);
        outtextxy(50,100,"Member Code  ");
        outtextxy(50,140,"Member Name  ");
        outtextxy(50,180,"Phone        ");
        outtextxy(50,220,"E-Mail      ");
        outtextxy(50,260,"Address     ");
        rectangle(250,100,550,130);
        rectangle(250,140,400,170);
        rectangle(403,140,550,170);
        rectangle(250,180,550,210);
        rectangle(250,220,550,250);
        rectangle(250,260,550,290);
```

```
        rectangle(250,300,550,330);
        rectangle(250,340,550,370);
        //Initialising Variables to Null
        char tnoc[6];
        tnoc[0]='\0';
        mcode[0]='\0';
        first[0]='\0';
        last[0]='\0';
        phone[0]='\0';
        email[0]='\0';
        address1[0]='\0';
        address2[0]='\0';
        address3[0]='\0';
        delay(150);
        if (detect_mouse())
                show_mouse();
        while (::quit==1)
        {
                test_mouse();
                if((mouse_x>40)&&(mouse_x<130)&&(mouse_y>444)&&(mouse_y<465
))
                {
                        setcolor(6);
                        rectangle(39,443,131,466);
                }
                else
                if((mouse_x>510)&&(mouse_x<600)&&(mouse_y>444)&&(mouse_y<46
5))
                {
                        setcolor(6);
                        rectangle(509,443,601,466);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>100)&&(mouse_y<13
0))
                {
                        setcolor(1);
                        rectangle(249,99,551,131);
                }
                else
                if((mouse_x>250)&&(mouse_x<400)&&(mouse_y>140)&&(mouse_y<17
```

```
0))
                {
                        setcolor(1);
                        rectangle(249,139,401,171);
                }
                else
                if((mouse_x>403)&&(mouse_x<550)&&(mouse_y>140)&&(mouse_y<17
0))
                {
                        setcolor(1);
                        rectangle(402,139,551,171);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>180)&&(mouse_y<21
0))
                {
                        setcolor(1);
                        rectangle(249,179,551,209);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>220)&&(mouse_y<25
0))
                {
                        setcolor(1);
                        rectangle(249,219,551,251);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>260)&&(mouse_y<29
0))
                {
                        setcolor(1);
                        rectangle(249,259,551,291);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>300)&&(mouse_y<33
0))
                {
                        setcolor(1);
                        rectangle(249,299,551,331);
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>340)&&(mouse_y<37
```

```
0))
                {
                        setcolor(1);
                        rectangle(249,339,551,371);
                }
                else
                {
                        setcolor(7);
                        rectangle(39,443,131,466);
                        rectangle(509,443,601,466);
                        rectangle(249,99,551,131);
                        rectangle(249,139,401,171);
                        rectangle(402,139,551,171);
                        rectangle(249,179,551,209);
                        rectangle(249,219,551,251);
                        rectangle(249,259,551,291);
                        rectangle(249,299,551,331);
                        rectangle(249,339,551,371);
                }
                if (mouse_b & 1)
                {
                        hide_mouse();
                        setcolor(1);
                        if((mouse_x>40)&&(mouse_x<130)&&(mouse_y>444)&&(mou
se_y<465))
                                break;
                        else
                        if((mouse_x>510)&&(mouse_x<600)&&(mouse_y>444)&&(mo
use_y<465))
                        {
                                int f=0;
                                char *f1;
                                MEMBER_DB temp;
                                ifstream check("MEMBER.DAT");
                                while(check.read((char*)&temp,sizeof(temp)))
                                {
                                        f1=strstr(mdb.mcode,temp.mcode);
                                        if(f1)
                                                f=1;
                                }
                                if(f==0)
```

```
                                {
                                        ofstream of("MEMBER.DAT",ios::app);
                                        of.seekp(0,ios::end);
                                        status=0;
                                        nlog=1;
                                        strcpy(book,"     -");
                                        strcpy(bcode,"00000");
                                        of.write((char*)&mdb,sizeof(mdb));
                                        of.close();
                                        setcolor(7);
                                        outtextxy(250,400,"Member Number Already
Exists!");
                                        setcolor(1);
                                        outtextxy(270,400,"Record Added!");
                                        sdb.addmember();
                                        struct dosdate_t d;
                                        _dos_getdate(&d);
                                        char D[3],M[3],Y[3],filename[15];
                                        numtostr(d.day,D,1);
                                        numtostr(d.month,M,1);
                                        numtostr(d.year,Y,1);
                                        log.date[0]='\0';
                                        strcat(log.date,D);
                                        strcat(log.date,"\\");
                                        strcat(log.date,M);
                                        strcat(log.date,"\\");
                                        strcat(log.date,Y);
                                        strcpy(log.action,"User Joined the
Library");
                                        strcat(log.action,"
");
                                        strcpy(filename,mcode);
                                        strcat(filename,".txt");
                                        ofstream LOG(filename);
                                        LOG.write((char*)&log,sizeof(log));
                                        LOG.close();
                                        outtextxy(270,420,filename);
                                        outtextxy(370,420,"Created!");
                                        delay(500);
                                        break;
```

```
                        }
                        else
                        {
                                setcolor(4);
                                outtextxy(250,400,"Member Number Already
Exists!");
                                delay(500);
                        }
                }
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>100)&&(mo
use_y<130))
                        inputstr(254,101,mcode);
                else
                if((mouse_x>250)&&(mouse_x<400)&&(mouse_y>140)&&(mo
use_y<170))
                        inputstr(254,141,first);
                else
                if((mouse_x>403)&&(mouse_x<550)&&(mouse_y>140)&&(mo
use_y<170))
                        inputstr(407,141,last);
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>180)&&(mo
use_y<210))
                        inputstr(254,181,phone);
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>220)&&(mo
use_y<250))
                        inputstr(254,221,email);
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>260)&&(mo
use_y<290))
                        inputstr(254,261,address1);
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>300)&&(mo
use_y<330))
                        inputstr(254,301,address2);
                else
                if((mouse_x>250)&&(mouse_x<550)&&(mouse_y>340)&&(mo
use_y<370))
                        inputstr(254,341,address3);
                show_mouse();
        }
```

```
        }
}

void MEMBER_DB::showtable(int mode)
{
        int rec=0,cho=101,page,spage1,spage2,spage3,spage4,sflag;
        page=spage1=spage2=spage3=spage4=0;
        sflag=0;
        char *p;
        char search[20],name[25];
        search[0]='\0';
        do
        {
                if(cho>50)
                {
                        cleardevice();
                        rec=0;
                        setcolor(6);
                        settextstyle(3,0,4);
                        outtextxy(220,5,"Member Details");
                        rectangle(3,3,636,476);
                        rectangle(4,4,635,475);
                        //Main View
                        rectangle(20,100,620,430);
                        setcolor(1);
                        rectangle(20,50,620,70);
                        setcolor(6);
                        line(20,120,620,120);
                        settextstyle(2,0,5);
                        outtextxy(25,100,"Code          Name
Phone                Book Loaned");
                        line(65,100,65,430);
                        line(255,100,255,430);
                        line(405,100,405,430);
                        //Top Buttons
                        setcolor(1);
                        settextstyle(3,0,1);
                        outtextxy(50,74,"Search By :     Code      Name      Phone
Book Loan. ");
                        rectangle(172,78,255,97);
                        rectangle(280,78,353,97);
```

```
                        rectangle(373,78,445,97);
                        rectangle(473,78,575,97);
                        setcolor(6);
                        //Bottom Buttons
                        outtextxy(50,440,"Back to Main Menu
< Prev    Next >");
                        rectangle(40,444,230,463);
                        rectangle(455,444,533,463);
                        rectangle(537,444,615,463);
                        //Reading
                        ifstream ifile("MEMBER.DAT");
                        ifile.seekg((page*13*sizeof(mdb)),ios::beg);
                        while(ifile.read((char*)&mdb,sizeof(mdb))&&rec<=304
)
                        {
                                rec+=24;
                                settextstyle(2,0,5);
                                outtextxy(25,100+rec,mcode);
                                name[0]='\0';
                                strcat(name,first);
                                strcat(name," ");
                                strcat(name,last);
                                outtextxy(70,100+rec,name);
                                outtextxy(260,100+rec,phone);
                                outtextxy(410,100+rec,book);
                        }
                        ifile.close();
                }
                delay(100);
                cho=tablebutton((sdb.total_members)-(page*13));
                setcolor(6);
                settextstyle(3,0,1);
                switch(cho)
                {
                case 1:
                        setcolor(1);
                        rectangle(19,49,621,71);
                        inputstr(23,46,search);
                        setcolor(7);
                        rectangle(19,49,621,71);
                        setcolor(6);
```

```
                        break;
                case 11:
                        setfillstyle(SOLID_FILL,7);
                        bar(21,101,619,429);
                        settextstyle(2,0,5);
                        line(20,120,620,120);
                        outtextxy(25,100,"Code          Name
Phone                Book Loaned");
                        line(65,100,65,430);
                        line(255,100,255,430);
                        line(405,100,405,430);
                        ifstream ifile("MEMBER.DAT");
                        rec=0;
                        while(ifile.read((char*)&mdb,sizeof(mdb))&&rec<=240
)
                        {
                                p=strstr(mdb.mcode,search);
                                if(p)
                                {
                                        rec+=24;
                                        settextstyle(2,0,5);
                                        outtextxy(25,100+rec,mcode);
                                        name[0]='\0';
                                        strcat(name,first);
                                        strcat(name," ");
                                        strcat(name,last);
                                        outtextxy(70,100+rec,name);
                                        outtextxy(260,100+rec,phone);
                                        outtextxy(410,100+rec,book);
                                }
                        }
                        ifile.close();
                        sflag=1;
                        break;
                case 12:
                        setfillstyle(SOLID_FILL,7);
                        bar(21,101,619,429);
                        settextstyle(2,0,5);
                        line(20,120,620,120);
                        outtextxy(25,100,"Code          Name
```

```
Phone                Book Loaned") ;
                    line(65,100,65,430) ;
                    line(255,100,255,430) ;
                    line(405,100,405,430) ;
                    ifstream ifile1("MEMBER.DAT") ;
                    rec=0;
                    while(ifile1.read((char*)&mdb,sizeof(mdb))&&rec<=240
)
                    {
                            name[0]='\0';
                            strcat(name,first) ;
                            strcat(name," " ) ;
                            strcat(name,last) ;
                            p=strstr(name,search) ;
                            if(p)
                            {
                                    rec+=24;
                                    settextstyle(2,0,5) ;
                                    outtextxy(25,100+rec,mcode) ;
                                    name[0]='\0';
                                    strcat(name,first) ;
                                    strcat(name," " ) ;
                                    strcat(name,last) ;
                                    outtextxy(70,100+rec,name) ;
                                    outtextxy(260,100+rec,phone) ;
                                    outtextxy(410,100+rec,book) ;
                            }
                    }
                    ifile1.close() ;
                    sflag=2;
                    break;
            case 13:
                    setfillstyle(SOLID_FILL,7) ;
                    bar(21,101,619,429) ;
                    settextstyle(2,0,5) ;
                    line(20,120,620,120) ;
                    outtextxy(25,100,"Code          Name
Phone                Book Loaned") ;
                    line(65,100,65,430) ;
                    line(255,100,255,430) ;
```

```
                        line(405,100,405,430);
                        ifstream ifile3("MEMBER.DAT");
                        rec=0;
                        while(ifile3.read((char*)&mdb,sizeof(mdb))&&rec<=240
)
                        {
                                p=strstr(mdb.phone,search);
                                if(p)
                                {
                                        rec+=24;
                                        settextstyle(2,0,5);
                                        outtextxy(25,100+rec,mcode);
                                        name[0]='\0';
                                        strcat(name,first);
                                        strcat(name," ");
                                        strcat(name,last);
                                        outtextxy(70,100+rec,name);
                                        outtextxy(260,100+rec,phone);
                                        outtextxy(410,100+rec,book);
                                }
                        }
                        ifile3.close();
                        sflag=3;
                        break;
                case 14:
                        setfillstyle(SOLID_FILL,7);
                        bar(21,101,619,429);
                        settextstyle(2,0,5);
                        line(20,120,620,120);
                        outtextxy(25,100,"Code          Name
Phone                Book Loaned");
                        line(65,100,65,430);
                        line(255,100,255,430);
                        line(405,100,405,430);
                        ifstream ifile4("MEMBER.DAT");
                        rec=0;
                        while(ifile4.read((char*)&mdb,sizeof(mdb))&&rec<=240
)
                        {
                                p=strstr(mdb.book,search);
```

```
                        if(p)
                        {
                                rec+=24;
                                settextstyle(2,0,5);
                                outtextxy(25,100+rec,mcode);
                                name[0]='\0';
                                strcat(name,first);
                                strcat(name," ");
                                strcat(name,last);
                                outtextxy(70,100+rec,name);
                                outtextxy(260,100+rec,phone);
                                outtextxy(410,100+rec,book);
                        }
                }
                ifile4.close();
                sflag=4;
                break;
        case 51:
                if(sflag==0&&page!=0)
                        page--;
                else
                if(sflag==1&&spage1!=0)
                        spage1--;
                else
                if(sflag==2&&spage2!=0)
                        spage2--;
                else
                if(sflag==3&&spage3!=0)
                        spage3--;
                else
                if(sflag==4&&spage4!=0)
                        spage4--;
                break;
        case 52:
                if(sdb.total_members>(page+1)*13)
                {
                        if(sflag==0)
                                page++;
                        else
                        if(sflag==1)
                                spage1++;
                        else
```

```
                        if(sflag==2)
                                spage2++;
                        else
                        if(sflag==3)
                                spage3++;
                        else
                        if(sflag==4)
                                spage4++;
                }
                break;
        case 101:
                ifstream ifile101("MEMBER.DAT");
                if(sflag==0)
                        ifile101.seekg((page*13)*sizeof(mdb),ios::beg
);
                else
                if(sflag==1)
                        ifile101.seekg((spage1*13)*sizeof(mdb),ios::be
g);
                else
                if(sflag==2)
                        ifile101.seekg((spage2*13)*sizeof(mdb),ios::be
g);
                else
                if(sflag==3)
                        ifile101.seekg((spage3*13)*sizeof(mdb),ios::be
g);
                else
                if(sflag==4)
                        ifile101.seekg((spage4*13)*sizeof(mdb),ios::be
g);
                ifile101.read((char*)&mdb,sizeof(mdb));
                ifile101.close();
                show(mcode,mode);
                break;
        case 102:
                ifstream ifile102("MEMBER.DAT");
                if(sflag==0)
                        ifile102.seekg((page*13+1)*sizeof(mdb),ios::b
eg);
                else
                if(sflag==1)
```

```
                        ifile102.seekg((spage1*13+1)*sizeof(mdb),ios::beg);
                else
                if(sflag==2)
                        ifile102.seekg((spage2*13+1)*sizeof(mdb),ios::beg);
                else
                if(sflag==3)
                        ifile102.seekg((spage3*13+1)*sizeof(mdb),ios::beg);
                else
                if(sflag==4)
                        ifile102.seekg((spage4*13+1)*sizeof(mdb),ios::beg);
                ifile102.read((char*)&mdb,sizeof(mdb));
                ifile102.close();
                show(mcode,mode);
                break;
        case 103:
                ifstream ifile103("MEMBER.DAT");
                if(sflag==0)
                        ifile103.seekg((page*13+2)*sizeof(mdb),ios::beg);
                else
                if(sflag==1)
                        ifile103.seekg((spage1*13+2)*sizeof(mdb),ios::beg);
                else
                if(sflag==2)
                        ifile103.seekg((spage2*13+2)*sizeof(mdb),ios::beg);
                else
                if(sflag==3)
                        ifile103.seekg((spage3*13+2)*sizeof(mdb),ios::beg);
                else
                if(sflag==4)
                        ifile103.seekg((spage4*13+2)*sizeof(mdb),ios::beg);
                ifile103.read((char*)&mdb,sizeof(mdb));
                ifile103.close();
                show(mcode,mode);
```

```
                        break;
                case 104:
                        ifstream ifile104("MEMBER.DAT");
                        if(sflag==0)
                                ifile104.seekg((page*13+3)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile104.seekg((spage1*13+3)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile104.seekg((spage2*13+3)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile104.seekg((spage3*13+3)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile104.seekg((spage4*13+3)*sizeof(mdb),ios:
:beg);
                        ifile104.read((char*)&mdb,sizeof(mdb));
                        ifile104.close();
                        show(mcode,mode);
                        break;
                case 105:
                        ifstream ifile105("MEMBER.DAT");
                        if(sflag==0)
                                ifile105.seekg((page*13+4)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile105.seekg((spage1*13+4)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile105.seekg((spage2*13+4)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile105.seekg((spage3*13+4)*sizeof(mdb),ios:
```

```
:beg);
                        else
                        if(sflag==4)
                                ifile105.seekg((spage4*13+4)*sizeof(mdb),ios:
:beg);
                        ifile105.read((char*)&mdb,sizeof(mdb));
                        ifile105.close();
                        show(mcode,mode);
                        break;
                case 106:
                        ifstream ifile106("MEMBER.DAT");
                        if(sflag==0)
                                ifile106.seekg((page*13+5)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile106.seekg((spage1*13+5)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile106.seekg((spage2*13+5)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile106.seekg((spage3*13+5)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile106.seekg((spage4*13+5)*sizeof(mdb),ios:
:beg);
                        ifile106.read((char*)&mdb,sizeof(mdb));
                        ifile106.close();
                        show(mcode,mode);
                        break;
                case 107:
                        ifstream ifile107("MEMBER.DAT");
                        if(sflag==0)
                                ifile107.seekg((page*13+6)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile107.seekg((spage1*13+6)*sizeof(mdb),ios:
```

```
:beg);
                        else
                        if(sflag==2)
                                ifile107.seekg((spage2*13+6)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile107.seekg((spage3*13+6)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile107.seekg((spage4*13+6)*sizeof(mdb),ios:
:beg);
                        ifile107.read((char*)&mdb,sizeof(mdb));
                        ifile107.close();
                        show(mcode,mode);
                        break;
                case 108:
                        ifstream ifile108("MEMBER.DAT");
                        if(sflag==0)
                                ifile108.seekg((page*13+7)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile108.seekg((spage1*13+7)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile108.seekg((spage2*13+7)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile108.seekg((spage3*13+7)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile108.seekg((spage4*13+7)*sizeof(mdb),ios:
:beg);
                        ifile108.read((char*)&mdb,sizeof(mdb));
                        ifile108.close();
                        show(mcode,mode);
                        break;
```

```
                case 109:
                        ifstream ifile109("MEMBER.DAT");
                        if(sflag==0)
                                ifile109.seekg((page*13+8)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile109.seekg((spage1*13+8)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile109.seekg((spage2*13+8)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile109.seekg((spage3*13+8)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==4)
                                ifile109.seekg((spage4*13+8)*sizeof(mdb),ios:
:beg);
                        ifile109.read((char*)&mdb,sizeof(mdb));
                        ifile109.close();
                        show(mcode,mode);
                        break;
                case 110:
                        ifstream ifile110("MEMBER.DAT");
                        if(sflag==0)
                                ifile110.seekg((page*13+9)*sizeof(mdb),ios::b
eg);
                        else
                        if(sflag==1)
                                ifile110.seekg((spage1*13+9)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==2)
                                ifile110.seekg((spage2*13+9)*sizeof(mdb),ios:
:beg);
                        else
                        if(sflag==3)
                                ifile110.seekg((spage3*13+9)*sizeof(mdb),ios:
:beg);
```

```
                        else
                        if(sflag==4)
                                ifile110.seekg((spage4*13+9)*sizeof(mdb),ios::
::beg);
                        ifile110.read((char*)&mdb,sizeof(mdb));
                        ifile110.close();
                        show(mcode,mode);
                        break;
                case 111:
                        ifstream ifile111("MEMBER.DAT");
                        if(sflag==0)
                                ifile111.seekg((page*13+10)*sizeof(mdb),ios::
beg);
                        else
                        if(sflag==1)
                                ifile111.seekg((spage1*13+10)*sizeof(mdb),ios:
::beg);
                        else
                        if(sflag==2)
                                ifile111.seekg((spage2*13+10)*sizeof(mdb),ios:
::beg);
                        else
                        if(sflag==3)
                                ifile111.seekg((spage3*13+10)*sizeof(mdb),ios:
::beg);
                        else
                        if(sflag==4)
                                ifile111.seekg((spage4*13+10)*sizeof(mdb),ios:
::beg);
                        ifile111.read((char*)&mdb,sizeof(mdb));
                        ifile111.close();
                        show(mcode,mode);
                        break;
                case 112:
                        ifstream ifile112("MEMBER.DAT");
                        if(sflag==0)
                                ifile112.seekg((page*13+11)*sizeof(mdb),ios::
beg);
                        else
                        if(sflag==1)
                                ifile112.seekg((spage1*13+11)*sizeof(mdb),ios:
::beg);
```

```
                        else
                        if(sflag==2)
                                ifile112.seekg((spage2*13+11)*sizeof(mdb),ios::beg);
                        else
                        if(sflag==3)
                                ifile112.seekg((spage3*13+11)*sizeof(mdb),ios::beg);
                        else
                        if(sflag==4)
                                ifile112.seekg((spage4*13+11)*sizeof(mdb),ios::beg);
                        ifile112.read((char*)&mdb,sizeof(mdb));
                        ifile112.close();
                        show(mcode,mode);
                        break;
                case 113:
                        ifstream ifile113("MEMBER.DAT");
                        if(sflag==0)
                                ifile113.seekg((page*13+12)*sizeof(mdb),ios::beg);
                        else
                        if(sflag==1)
                                ifile113.seekg((spage1*13+12)*sizeof(mdb),ios::beg);
                        else
                        if(sflag==2)
                                ifile113.seekg((spage2*13+12)*sizeof(mdb),ios::beg);
                        else
                        if(sflag==3)
                                ifile113.seekg((spage3*13+12)*sizeof(mdb),ios::beg);
                        else
                        if(sflag==4)
                                ifile113.seekg((spage4*13+12)*sizeof(mdb),ios::beg);
                        ifile113.read((char*)&mdb,sizeof(mdb));
                        ifile113.close();
                        show(mcode,mode);
                        break;
                case 0:
```

```
                        break;
                }
                if(cho>100)
                        readm=1;
                else
                        readm=0;
        }
        while(cho!=0&&mode!=3);
}

void MEMBER_DB::show(char code[],int mode)
{
if(mode!=3)
{
        cleardevice();
        setcolor(6);
        settextstyle(3,0,4);
        outtextxy(220,5,"Book Details");
        rectangle(3,3,636,476);
        rectangle(4,4,635,475);
        settextstyle(3,0,2);
        outtextxy(50,100,"Member Code ");
        outtextxy(50,130,"Member Name ");
        outtextxy(50,160,"Phone ");
        outtextxy(50,190,"Email ");
        outtextxy(50,220,"Address  ");
        outtextxy(50,310,"Loaned Book ");
        outtextxy(40,350,"< Back");
        rectangle(38,350,130,380);
        if(mode==1)
        {
                outtextxy(200,350," Delete");
                rectangle(198,350,290,380);
        }
        else
        if(mode==2)
        {
                outtextxy(200,350," Update");
                rectangle(198,350,290,380);
                setcolor(1);
                rectangle(215,104,515,130);
```

```
        rectangle(215,134,365,160);
        rectangle(368,134,515,160);
        rectangle(215,164,515,190);
        rectangle(215,194,515,220);
        rectangle(215,224,515,250);
        rectangle(215,254,515,280);
        rectangle(215,284,515,310);
        setcolor(6);
}
fstream file("MEMBER.DAT",ios::in|ios::out|ios::binary);
int flag=0,count=0;
char temp[10];
strcpy(temp,code);
while(file.read((char*)&mdb,sizeof(mdb))&&flag==0)
{
        if(strcmpi(temp,mcode)==0)
        {
                if(mode==2)
                        setcolor(1);
                outtextxy(220,100,mcode);
                char name[25];
                name[0]='\0';
                strcat(name,first);
                strcat(name," " );
                strcat(name,last);
                if(mode==2)
                {
                        outtextxy(220,130,first);
                        outtextxy(373,130,last);
                }
                else
                        outtextxy(220,130,name);
                outtextxy(220,160,phone);
                outtextxy(220,190,email);
                outtextxy(220,220,address1);
                outtextxy(220,250,address2);
                outtextxy(220,280,address3);
                outtextxy(220,310,book);
                setcolor(6);
                delay(150);
                if(detect_mouse)
```

```
                show_mouse();
            while(flag==0)
            {
                test_mouse();
                if((mouse_x>38)&&(mouse_x<130)&&(mouse_y>350
)&&(mouse_y<380))
                {
                        setcolor(6);
                        rectangle(37,349,131,381);
                }
                else
                if((mouse_x>198)&&(mouse_x<290)&&(mouse_y>350
)&&(mouse_y<380)&&(mode==1||mode==2))
                {
                        setcolor(6);
                        rectangle(197,349,291,381);
                }
                else
                if((mouse_x>215)&&(mouse_x<515)&&(mouse_y>104
)&&(mouse_y<130)&&mode==2)
                {
                        setcolor(1);
                        rectangle(214,103,516,131);
                }
                else
                if((mouse_x>215)&&(mouse_x<365)&&(mouse_y>134
)&&(mouse_y<160)&&mode==2)
                {
                        setcolor(1);
                        rectangle(214,133,366,161);
                }
                else
                if((mouse_x>368)&&(mouse_x<515)&&(mouse_y>134
)&&(mouse_y<160)&&mode==2)
                {
                        setcolor(1);
                        rectangle(367,133,516,161);
                }
                else
                if((mouse_x>215)&&(mouse_x<515)&&(mouse_y>164
)&&(mouse_y<190)&&mode==2)
                {
```

```
                        setcolor(1);
                        rectangle(214,163,516,191);
                }
                else
                if((mouse_x>215)&&(mouse_x<515)&&(mouse_y>194
)&&(mouse_y<220)&&mode==2)
                {
                        setcolor(1);
                        rectangle(214,193,516,221);
                }
                else
                if((mouse_x>215)&&(mouse_x<515)&&(mouse_y>224
)&&(mouse_y<250)&&mode==2)
                {
                        setcolor(1);
                        rectangle(214,223,516,251);
                }
                else
                if((mouse_x>215)&&(mouse_x<515)&&(mouse_y>254
)&&(mouse_y<280)&&mode==2)
                {
                        setcolor(1);
                        rectangle(214,253,516,281);
                }
                else
                if((mouse_x>215)&&(mouse_x<515)&&(mouse_y>284
)&&(mouse_y<310)&&mode==2)
                {
                        setcolor(1);
                        rectangle(214,283,516,311);
                }
                else
                {
                        setcolor(7);
                        rectangle(37,349,131,381);
                        rectangle(197,349,291,381);
                        rectangle(214,103,516,131);
                        rectangle(214,133,366,161);
                        rectangle(367,133,516,161);
                        rectangle(214,163,516,191);
                        rectangle(214,193,516,221);
                        rectangle(214,193,516,221);
```

```
                                        rectangle(214,223,516,251);
                                        rectangle(214,253,516,281);
                                        rectangle(214,283,516,311);
                                }
                                if (mouse_b & 1)
                                {
                                        hide_mouse();
                                        if((mouse_x>38)&&(mouse_x<130)&&(mous
e_y>350)&&(mouse_y<380))
                                        {
                                                flag=1;
                                                break;
                                        }
                                        else
                                        if((mouse_x>198)&&(mouse_x<290)&&(mou
se_y>350)&&(mouse_y<380)&&mode==2)
                                        {
                                                file.seekp((count)*(sizeof(mdb)
),ios::beg);
                                                file.write((char*)&mdb,sizeof(m
db));
                                                flag=1;
                                                break;
                                        }
                                        if((mouse_x>198)&&(mouse_x<290)&&(mou
se_y>350)&&(mouse_y<380)&&mode==1)
                                        {
                                                file.seekg(0,ios::beg);
                                                ofstream ofile("TEMP.DAT");
                                                while(file.read((char*)&mdb,siz
eof(mdb)))
                                                {
                                                        if(strcmpi(temp,mcode)!
=0)
                                                                ofile.write((char
*)&mdb,sizeof(mdb));
                                                }
                                                ofile.close();
                                                remove("MEMBER.DAT");
                                                rename("TEMP.DAT","MEMBER.DAT");
                                                sdb.delmember();
```

```
                                        break;
                                    }
                                    else
                                    if((mouse_x>215)&&(mouse_x<515)&&(mou
se_y>104)&&(mouse_y<130)&&mode==2)
                                        inputstr(220,100,mcode);
                                    else
                                    if((mouse_x>215)&&(mouse_x<365)&&(mou
se_y>134)&&(mouse_y<160)&&mode==2)
                                        inputstr(220,130,first);
                                    else
                                    if((mouse_x>368)&&(mouse_x<515)&&(mou
se_y>134)&&(mouse_y<160)&&mode==2)
                                        inputstr(373,130,last);
                                    else
                                    if((mouse_x>215)&&(mouse_x<515)&&(mou
se_y>164)&&(mouse_y<190)&&mode==2)
                                        inputstr(220,160,phone);
                                    else
                                    if((mouse_x>215)&&(mouse_x<515)&&(mou
se_y>194)&&(mouse_y<220)&&mode==2)
                                        inputstr(220,190,email);
                                    else
                                    if((mouse_x>215)&&(mouse_x<515)&&(mou
se_y>224)&&(mouse_y<250)&&mode==2)
                                        inputstr(220,220,address1);
                                    else
                                    if((mouse_x>215)&&(mouse_x<515)&&(mou
se_y>254)&&(mouse_y<280)&&mode==2)
                                        inputstr(220,250,address2);
                                    else
                                    if((mouse_x>215)&&(mouse_x<515)&&(mou
se_y>284)&&(mouse_y<310)&&mode==2)
                                        inputstr(220,280,address3);
                                    show_mouse();
                                }
                            }
                        }
                        count++;
                }
                file.close();
}
```

```
}

void MEMBER_DB::rname(char str[],int &stat)
{
        char name[25];
        name[0]='\0';
        strcat(name,first);
        strcat(name," " );
        strcat(name,last);
        strcpy(str,name);
        stat=status;
}

void MEMBER_DB::loan(char name[],char code[],char Bname[],char Bcode[])
{
        strcpy(name,first);
        strcpy(code,mcode);
        char tempc[5];
        int fg=0,co=0;
        strcpy(tempc,mcode);
        fstream mloan("MEMBER.DAT",ios::in|ios::out|ios::binary);
        while(mloan.read((char*)&mdb,sizeof(mdb))&&fg==0)
        {
                if(strcmpi(tempc,mcode)==0)
                {
                        fg=1;
                        mloan.seekp((co)*sizeof(mdb),ios::beg);
                        strcpy(book,Bname);
                        strcpy(bcode,Bcode);
                        status=1;
                        mloan.write((char*)&mdb,sizeof(mdb));
                }
                co++;
        }
}

void MEMBER_DB::ret(char Bcode[])
{
        char tempc[5];
        int fg=0,co=0;
        strcpy(tempc,Bcode);
```

```
        fstream mloan("MEMBER.DAT",ios::in|ios::out|ios::binary);
        while(mloan.read((char*)&mdb,sizeof(mdb))&&fg==0)
        {
                if(strcmpi(tempc,bcode)==0)
                {
                        fg=1;
                        mloan.seekp((co)*sizeof(mdb),ios::beg);
                        strcpy(book,"      -");
                        strcpy(bcode,"      -");
                        status=0;
                        mloan.write((char*)&mdb,sizeof(mdb));
                }
                co++;
        }
}

void MEMBER_DB::rcode(char str[])
{
        strcpy(str,mcode);
}

/* Function Definitions *\
\* ==================== */
int detect_mouse()
{
      int nButtons,mouseFound;
      asm{
            mov ax,0
            int 0x33
            mov mouseFound,ax
            mov nButtons,bx
      }

      if(mouseFound)
                return nButtons;
      else
                return 0;
}

void show_mouse()
{
      asm{
```

```
            mov ax,0x0001
            int 0x33
      }
}

void hide_mouse()
{
      asm{
            mov ax,0x002
            int 0x33
      }
}

void test_mouse()
{
       asm{
            mov ax,0x0003
            int 0x33
            mov mouse_b,bx
            mov mouse_x,cx
            mov mouse_y,dx
       }
}

void set_mouse_speed(int sx,int sy)
{
      asm{
            mov ax,0x000f
            mov cx,sx
            mov dx,sy
            int 0x33
      }
}

void move_mouse(int x,int y)
{
      asm{
            mov ax,4
            mov cx,x
            mov dx,y
            int 0x33
      }
      mouse_x=x;
```

```
	mouse_y=y;
}

void loading()
{
	int i,temp;
	setcolor(6);
	rectangle(3,3,636,476);
	rectangle(4,4,635,475);
	settextstyle(10,0,5);
	outtextxy(120,100,"Library");
	outtextxy(190,150,"Management");
	outtextxy(250,210,"System!");
	setcolor(1);
	settextstyle(2,0,5);
	outtextxy(250,425,"Loading, Please Wait......");
	rectangle(10,445,629,465);
	setfillstyle(SOLID_FILL,1);
	temp=0;
	for(i=12;i<627;i++)
	{
		bar(12,447,i,463);
		setcolor(2);
		settextstyle(2,0,4);
		if(i<100)
			outtextxy(270,450,"Loading Modules...");
		else
		if(i<200)
		{
			if(temp==0)
			{
				setcolor(0);
				outtextxy(270,450,"Loading Modules...");
				setcolor(2);
				temp=1;
			}
			outtextxy(270,450,"Checking Database...");
		}
		else
		if(i<400)
		{
```

```
                        if(temp==1)
                        {
                                setcolor(0);
                                outtextxy(270,450,"Checking Database...");
                                setcolor(2);
                                temp=2;
                        }
                        outtextxy(270,450,"Initialising Mouse...");
                }
                else
                if(i<627)
                        outtextxy(270,450,"Starting Program...");
                delay(10);
        }
}

void login()
{
        ifstream config("CONFIG.DAT");  //Opening Settings File.
        config.read((char*)&sdb,sizeof(sdb));
        char username[20],password[20];
        config.close();
        //Initialising Strings to NULL
        username[0]='\0';
        password[0]='\0';
        logindraw(username,password);
        if (detect_mouse())
                show_mouse();
        while (::quit==1)
        {
                test_mouse();
                if((mouse_x>180)&&(mouse_x<225)&&(mouse_y>252)&&(mouse_y<27
2))
                {
                        setcolor(6);
                        rectangle(179,251,226,273);
                }
                else
                if((mouse_x>425)&&(mouse_x<480)&&(mouse_y>252)&&(mouse_y<27
2))
                {
```

```
                        setcolor(6);
                        rectangle(424,251,481,273);
                }
                else
                if((mouse_x>300)&&(mouse_x<460)&&(mouse_y>190)&&(mouse_y<20
8))
                {
                        setcolor(1);
                        rectangle(299,189,461,209);
                }
                else
                if((mouse_x>300)&&(mouse_x<460)&&(mouse_y>220)&&(mouse_y<23
8))
                {
                        setcolor(1);
                        rectangle(299,219,461,239);
                }
                else
                {
                        setcolor(7);
                        rectangle(299,189,461,209);
                        rectangle(299,219,461,239);
                        rectangle(179,251,226,273);
                        rectangle(424,251,481,273);
                }
                if (mouse_b & 1)
                {
                        hide_mouse();
                        if((mouse_x>180)&&(mouse_x<225)&&(mouse_y>252)&&(mo
use_y<272))
                        {
                                show_mouse();
                                setcolor(8);
                                rectangle(299,189,461,209);
                                rectangle(299,219,461,239);
                                rectangle(179,251,226,273);
                                rectangle(424,251,481,273);
                                ::quit=exit();
                                if(::quit==1)
                                        logindraw(username,password);
                                else
```

```
                                        break;
                                }
                                else
                                if((mouse_x>300)&&(mouse_x<460)&&(mouse_y>190)&&(mo
use_y<208))
                                {
                                        setcolor(1);
                                        rectangle(299,189,461,209);
                                        inputstr(303,190,username);
                                        setcolor(7);
                                        rectangle(299,189,461,209);
                                        setcolor(1);
                                }
                                else
                                if((mouse_x>300)&&(mouse_x<460)&&(mouse_y>220)&&(mo
use_y<238))
                                {
                                        setcolor(1);
                                        rectangle(299,219,461,239);
                                        inputpass(303,220,password);
                                        setcolor(7);
                                        rectangle(299,219,461,239);
                                        setcolor(1);
                                }
                                else
                                if((mouse_x>425)&&(mouse_x<480)&&(mouse_y>252)&&(mo
use_y<272))
                                {
                                        setcolor(7);
                                        outtextxy(270,255,"Login Successful!");
                                        outtextxy(230,255,"Invalid Username/Password");
                                        setcolor(6);
                                        if(strcmpi(username,sdb.username)==0&&strcmp(p
assword,sdb.password)==0)
                                        {
                                                outtextxy(270,255,"Login Successful!");
                                                delay(1000);
                                                break;
                                        }
                                        else
                                        {
```

```
                                        setcolor(4);
                                        outtextxy(230,255,"Invalid
Username/Password");
                                        setcolor(6);
                                }
                        }
                        show_mouse();
                }
        }
}

void logindraw(char username[],char password[])
{
        cleardevice();
        setbkcolor(7);
        setcolor(6);
        rectangle(3,3,636,476);
        rectangle(4,4,635,475);
        settextstyle(3,0,3);
        outtextxy(250,150,"Welcome!");
        settextstyle(2,0,5);
        setcolor(1);
        rectangle(180,180,480,250);
        rectangle(300,190,460,208);
        rectangle(300,220,460,238);
        outtextxy(200,190,"User Name :");
        outtextxy(200,220,"Password  :");
        setcolor(6);
        outtextxy(190,253,"Exit");
        outtextxy(435,253,"Login");
        rectangle(180,252,225,272);
        rectangle(425,252,480,272);
        setcolor(1);
        outtextxy(303,190,username);
        outpassxy(303,220,password);
}

int mainpage()
{
        mainpagedraw();
        if (detect_mouse())
```

```
                show_mouse();
        while (::quit==1)
        {
                test_mouse();
                utime();
                if((mouse_x>615)&&(mouse_x<635)&&(mouse_y>4)&&(mouse_y<26)
)
                {
                        setcolor(6);
                        rectangle(614,3,636,27);
                }
                else
                if((mouse_x>4)&&(mouse_x<24)&&(mouse_y>4)&&(mouse_y<26))
                {
                        setcolor(6);
                        rectangle(3,3,25,27);
                }
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>120)&&(mouse_y<14
6))
                {
                        setcolor(6);
                        rectangle(444,119,631,147);
                }
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>156)&&(mouse_y<18
2))
                {
                        setcolor(6);
                        rectangle(444,155,631,183);
                }
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>192)&&(mouse_y<21
6))
                {
                        setcolor(6);
                        rectangle(444,191,631,217);
                }
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>228)&&(mouse_y<25
4))
                {
```

```
                setcolor(6);
                rectangle(444,227,631,255);
        }
        else
        if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>264)&&(mouse_y<29
0))
        {
                setcolor(6);
                rectangle(444,263,631,291);
        }
        else
        if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>300)&&(mouse_y<32
6))
        {
                setcolor(6);
                rectangle(444,299,631,325);
        }
        else
        if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>336)&&(mouse_y<36
2))
        {
                setcolor(6);
                rectangle(444,335,631,363);
        }
        else
        {
                setcolor(7);
                rectangle(444,119,631,147);
                rectangle(444,155,631,183);
                rectangle(444,191,631,217);
                rectangle(444,227,631,255);
                rectangle(444,263,631,291);
                rectangle(444,299,631,325);
                rectangle(444,335,631,363);
                line(25,5,25,27);
                line(5,27,25,27);
                line(614,5,614,27);
                line(614,27,634,27);
        }
        if (mouse_b & 1)
        {
```

```
                        hide_mouse();
                        if((mouse_x>615)&&(mouse_x<635)&&(mouse_y>4)&&(mous
e_y<26))
                        {
                                show_mouse();
                                setcolor(8);
                                rectangle(444,119,631,147);
                                rectangle(444,155,631,183);
                                rectangle(444,191,631,217);
                                rectangle(444,227,631,255);
                                rectangle(444,263,631,291);
                                rectangle(444,299,631,325);
                                rectangle(444,335,631,363);
                                rectangle(444,371,631,399);
                                line(25,5,25,27);
                                line(5,27,25,27);
                                line(614,5,614,27);
                                line(614,27,634,27);
                                utime(8);
                                ::quit=exit();
                                if(::quit==1)
                                        mainpagedraw();
                                else
                                        break;
                        }
                        else
                        if((mouse_x>4)&&(mouse_x<24)&&(mouse_y>4)&&(mouse_y
<26))
                        {
                                show_mouse();
                                setcolor(8);
                                rectangle(444,119,631,147);
                                rectangle(444,155,631,183);
                                rectangle(444,191,631,217);
                                rectangle(444,227,631,255);
                                rectangle(444,263,631,291);
                                rectangle(444,299,631,325);
                                rectangle(444,335,631,363);
                                rectangle(444,371,631,399);
                                line(25,5,25,27);
                                line(5,27,25,27);
```

```
                        line(614,5,614,27);
                        line(614,27,634,27);
                        utime(8);
                        help();
                        mainpagedraw();
                }
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>120)&&(mo
use_y<146))
                        return 1;
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>156)&&(mo
use_y<182))
                        return 2;
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>192)&&(mo
use_y<216))
                        return 3;
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>228)&&(mo
use_y<254))
                        return 4;
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>264)&&(mo
use_y<290))
                        return 5;
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>300)&&(mo
use_y<326))
                        return 6;
                else
                if((mouse_x>445)&&(mouse_x<630)&&(mouse_y>336)&&(mo
use_y<362))
                {
                        show_mouse();
                        setcolor(8);
                        rectangle(444,119,631,147);
                        rectangle(444,155,631,183);
                        rectangle(444,191,631,217);
                        rectangle(444,227,631,255);
                        rectangle(444,263,631,291);
                        rectangle(444,299,631,325);
```

```
                                rectangle(444,335,631,363);
                                rectangle(444,371,631,399);
                                line(25,5,25,27);
                                line(5,27,25,27);
                                line(614,5,614,27);
                                line(614,27,634,27);
                                utime(8);
                                ::quit=exit();
                                if(::quit==1)
                                        mainpagedraw();
                                else
                                        break;
                        }
                        show_mouse();
                }
        }
        return 7;
}

void mainpagedraw()
{
        cleardevice();
        setbkcolor(7);
        setcolor(6);
        rectangle(3,3,636,476);
        rectangle(4,4,635,475);
        settextstyle(3,0,4);
        outtextxy(120,15,"Library Management System!");
        rectangle(4,80,635,81);
        //Corner Buttons
        settextstyle(3,0,3);
        rectangle(615,4,635,26);
        outtextxy(620,0,"X");
        rectangle(4,4,24,26);
        outtextxy(9,0,"?");
        //Main Buttons
        rectangle(445,120,630,146);
        outtextxy(450,116,"Lend");
        rectangle(445,156,630,182);
        outtextxy(450,152,"Return");
        rectangle(445,192,630,216);
```

```
        outtextxy(450,188,"Book Details");
        rectangle(445,228,630,254);
        outtextxy(450,224,"Member Details");
        rectangle(445,264,630,290);
        outtextxy(450,260,"Modify database");
        rectangle(445,300,630,326);
        outtextxy(450,296,"Settings");
        rectangle(445,336,630,362);
        outtextxy(450,332,"Exit");
        //Info Bars
        calendar();
        infobox();
}

void lend()
{
        int Flag=0;
        readb=readm=0;
        int bstatus,mstatus;
        char book[25],member[25],date[9];
        do
        {
                bstatus=mstatus=0;
                cleardevice();
                setbkcolor(7);
                setcolor(6);
                rectangle(3,3,636,476);
                rectangle(4,4,635,475);
                settextstyle(1,0,5);
                outtextxy(250,10,"Lend");
                line(4,70,635,70);
                settextstyle(3,0,3);
                outtextxy(50,150,"Select Book");
                outtextxy(50,190,"Select Member");
                rectangle(220,150,520,180);
                rectangle(220,190,520,220);
                outtextxy(50,400,"<Cancel
Process>");
                rectangle(44,402,150,435);
                rectangle(475,402,596,435);
                if(readb==1)
```

```
                {
                        bdb.rtitle(book,bstatus);
                        outtextxy(224,150,book);
                }
                else
                        book[0]='\0';
                if(readm==1)
                {
                        mdb.rname(member,mstatus);
                        outtextxy(224,190,member);
                }
                else
                        member[0]='\0';
                if (detect_mouse())
                        show_mouse();
                for(;;)
                {
                        test_mouse();
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>150)&&(mo
use_y<180))
                        {
                                setcolor(6);
                                rectangle(219,149,521,181);
                        }
                        else
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>190)&&(mo
use_y<220))
                        {
                                setcolor(6);
                                rectangle(219,189,521,221);
                        }
                        else
                        if((mouse_x>44)&&(mouse_x<150)&&(mouse_y>402)&&(mou
se_y<435))
                        {
                                setcolor(6);
                                rectangle(43,401,151,436);
                        }
                        else
                        if((mouse_x>475)&&(mouse_x<596)&&(mouse_y>402)&&(mo
use_y<435))
                        {
```

```
                        setcolor(6);
                        rectangle(474,401,597,436);
                }
                else
                {
                        setcolor(7);
                        rectangle(219,149,521,181);
                        rectangle(219,189,521,221);
                        rectangle(43,401,151,436);
                        rectangle(474,401,597,436);
                }
                if(mouse_b & 1)
                {
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>150
)&&(mouse_y<180))
                        {
                                hide_mouse();
                                bdb.showtable(3);
                                show_mouse();
                                break;
                        }
                        else
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>190
)&&(mouse_y<220))
                        {
                                hide_mouse();
                                mdb.showtable(3);
                                show_mouse();
                                break;
                        }
                        else
                        if((mouse_x>44)&&(mouse_x<150)&&(mouse_y>402
)&&(mouse_y<435))
                        {
                                Flag=1;
                                break;
                        }
                        else
                        if((mouse_x>475)&&(mouse_x<596)&&(mouse_y>402
)&&(mouse_y<435))
                        {
```

```
                                        setcolor(7);
                                        outtextxy(250,350,"Please Select a
Member");
                                        outtextxy(250,350,"Please Select a
Book");
                                        outtextxy(220,350,"The Book Has Already
been Loaned");
                                        outtextxy(220,350,"The Member has Already
Loaned another Book");
                                        outtextxy(10,350,"This Book cannot be
loaned due to insufficient Copies");
                                        setcolor(6);
                                        if(book[0]=='\0')
                                                outtextxy(250,350,"Please Select
a Book");
                                        else
                                        if(member[0]=='\0')
                                                outtextxy(250,350,"Please Select
a Member");
                                        else
                                        if(bstatus==1)
                                                outtextxy(220,350,"The Book Has
Already been Loaned");
                                        else
                                        if(mstatus==1)
                                                outtextxy(220,350,"The Member has
Already Loaned another Book");
                                        else
                                        {
                                                struct dosdate_t d;
                                                _dos_getdate(&d);
                                                char
D[3],M[3],Y[3],curd[9],dued[9];
                                                float J;
                                                numtostr(d.day,D,1);
                                                numtostr(d.month,M,1);
                                                numtostr(d.year,Y,1);
                                                curd[0]='\0';
                                                strcat(curd,D);
                                                strcat(curd,"\\");
                                                strcat(curd,M);
                                                strcat(curd,"\\");
```

```
                                                    strcat(curd,Y);
                                                    J=gdtojd(curd);
                                                    J+=sdb.loan_days;
                                                    jdtogd(dued,J);
                                                    Flag=bdb.loan(dued);
                                                    char
filename[15],bookname[20],mcode[10];

                                                    int dummy;
                                                    bdb.rtitle(bookname,dummy);
                                                    strcpy(log.date,curd);
                                                    strcpy(log.action,"User
Borrowed \"");
                                                    strcat(log.action,bookname);
                                                    strcat(log.action,"\"
");

                                                    mdb.rcode(mcode);
                                                    strcpy(filename,mcode);
                                                    strcat(filename,".txt");
                                                    ofstream
LOG(filename,ios::app);
                                                    LOG.write((char*)&log,sizeof(lo
g));
                                                    LOG.close();
                                                    if(Flag==1)
                                                            break;
                                                }
                                            }
                                        }
                                    }
                                    hide_mouse();
                            }
                            while(Flag==0);
}

void returns()
{
        int Flag=0;
        readb=readm=0;
        int bstatus,mstatus;
        char book[25],member[25],date[9];
        do
```

```
        {
                bstatus=mstatus=0;
                cleardevice();
                setbkcolor(7);
                setcolor(6);
                rectangle(3,3,636,476);
                rectangle(4,4,635,475);
                settextstyle(1,0,5);
                outtextxy(250,10,"Return");
                line(4,70,635,70);
                settextstyle(3,0,3);
                outtextxy(50,150,"Select Book");
                outtextxy(50,190,"Select Member");
                rectangle(220,150,520,180);
                rectangle(220,190,520,220);
                outtextxy(50,400,"<Cancel
Process>");
                rectangle(44,402,150,435);
                rectangle(475,402,596,435);
                if(readb==1)
                {
                        bdb.rtitle(book,bstatus);
                        outtextxy(224,150,book);
                }
                else
                        book[0]='\0';
                if(readm==1)
                {
                        mdb.rname(member,mstatus);
                        outtextxy(224,190,member);
                }
                else
                        member[0]='\0';
                if (detect_mouse())
                        show_mouse();
                for(;;)
                {
                        test_mouse();
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>150)&&(mo
use_y<180))
                        {
```

```
                        setcolor(6);
                        rectangle(219,149,521,181);
                }
                else
                if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>190)&&(mo
use_y<220))
                {
                        setcolor(6);
                        rectangle(219,189,521,221);
                }
                else
                if((mouse_x>44)&&(mouse_x<150)&&(mouse_y>402)&&(mou
se_y<435))
                {
                        setcolor(6);
                        rectangle(43,401,151,436);
                }
                else
                if((mouse_x>475)&&(mouse_x<596)&&(mouse_y>402)&&(mo
use_y<435))
                {
                        setcolor(6);
                        rectangle(474,401,597,436);
                }
                else
                {
                        setcolor(7);
                        rectangle(219,149,521,181);
                        rectangle(219,189,521,221);
                        rectangle(43,401,151,436);
                        rectangle(474,401,597,436);
                }
                if(mouse_b & 1)
                {
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>150
)&&(mouse_y<180))
                        {
                                hide_mouse();
                                bdb.showtable(3);
                                show_mouse();
                                break;
```

```
                        }
                        else
                        if((mouse_x>220)&&(mouse_x<520)&&(mouse_y>190
)&&(mouse_y<220))
                        {
                                hide_mouse();
                                mdb.showtable(3);
                                show_mouse();
                                break;
                        }
                        else
                        if((mouse_x>44)&&(mouse_x<150)&&(mouse_y>402
)&&(mouse_y<435))
                        {
                                Flag=1;
                                break;
                        }
                        else
                        if((mouse_x>475)&&(mouse_x<596)&&(mouse_y>402
)&&(mouse_y<435))
                        {
                                setcolor(7);
                                outtextxy(250,350,"Please Select a
Member");
                                outtextxy(250,350,"Please Select a
Book");
                                outtextxy(220,350,"The Book Has Not been
Loaned");
                                outtextxy(220,350,"The Member has Not
Loaned a Book");
                                setcolor(6);
                                if(book[0]=='\0')
                                        outtextxy(250,350,"Please Select
a Book");
                                else
                                if(member[0]=='\0')
                                        outtextxy(250,350,"Please Select
a Member");
                                else
                                if(bstatus==0)
                                        outtextxy(220,350,"The Book Has
Not been Loaned");
```

```
                                        else
                                        if(mstatus==0)
                                                outtextxy(220,350,"The Member has
Not Loaned a Book");
                                        else
                                        {
                                                struct dosdate_t d;
                                                _dos_getdate(&d);
                                                char
D[3],M[3],Y[3],curd[9],dued[9];
                                                float J,J2,diff;
                                                numtostr(d.day,D,1);
                                                numtostr(d.month,M,1);
                                                numtostr(d.year,Y,1);
                                                curd[0]='\0';
                                                strcat(curd,D);
                                                strcat(curd,"\\");
                                                strcat(curd,M);
                                                strcat(curd,"\\");
                                                strcat(curd,Y);
                                                J=gdtojd(curd);
                                                J2=bdb.ret();
                                                char msg[100],fine[15];
                                                strcpy(msg,"The Member has to Pay
QR ");
                                                diff=J-J2;
                                                diff*=sdb.fine_per_day;
                                                if(J>J2)
                                                {
                                                        numtostr(diff,fine);
                                                        strcat(msg,fine);
                                                        strcat(msg," /-");
                                                        outtextxy(10,350,msg);
                                                        getch();
                                                }
                                                numtostr(d.day,D,1);
                                                numtostr(d.month,M,1);
                                                numtostr(d.year,Y,1);
                                                log.date[0]='\0';
                                                strcat(log.date,D);
                                                strcat(log.date,"\\");
```

```
                                                strcat(log.date,M);
                                                strcat(log.date,"\\");
                                                strcat(log.date,Y);
                                                char
filename[15],bookname[20],mcode[10];
                                                int dummy;
                                                bdb.rtitle(bookname,dummy);
                                                strcpy(log.date,curd);
                                                strcpy(log.action,"User
Returned \"");
                                                strcat(log.action,bookname);
                                                strcat(log.action,"\"
");
                                                mdb.rcode(mcode);
                                                strcpy(filename,mcode);
                                                strcat(filename,".txt");
                                                ofstream
LOG(filename,ios::app);
                                                LOG.write((char*)&log,sizeof(lo
g));
                                                LOG.close();
                                                Flag=1;
                                                break;
                                            }
                                        }
                                    }
                                }
                                hide_mouse();
        }
        while(Flag==0);
}

void settings()
{
        cleardevice();
        char nuser[20],npass[20],cuser[20],cpass[20],temp[5];
        nuser[0]='\0';
        npass[0]='\0';
        cuser[0]='\0';
        cpass[0]='\0';
        setbkcolor(7);
        setcolor(6);
```

```
rectangle(3,3,636,476);
rectangle(4,4,635,475);
settextstyle(1,0,5);
outtextxy(250,10,"Settings");
line(4,70,635,70);
settextstyle(3,0,3);
outtextxy(70,100,"Enter Current Details to Make Any Changes ");
outtextxy(70,140,"Username ");
outtextxy(70,180,"Password ");
rectangle(50,96,600,230);
setcolor(1);
rectangle(200,140,550,170);
rectangle(200,180,550,210);
setcolor(6);
rectangle(50,240,600,450);
outtextxy(70,244,"Username ");
outtextxy(70,284,"Password ");
outtextxy(70,324,"Minumum Copies");
outtextxy(70,364,"Fine Per Day");
outtextxy(70,404,"No of Days to Loan");
setcolor(1);
rectangle(200,244,550,274);
rectangle(200,284,550,314);
rectangle(300,324,450,354);
rectangle(300,364,450,394);
rectangle(300,404,450,434);
setcolor(6);
outtextxy(500,324,"Update");
outtextxy(500,364,"Reset");
outtextxy(500,404,"Cancel");
rectangle(496,324,580,354);
rectangle(496,364,580,394);
rectangle(496,404,580,434);
//Printing Initial Values
setcolor(1);
numtostr(sdb.min_copies,temp,3);
outtextxy(304,324,temp);
numtostr(sdb.fine_per_day,temp,3);
outtextxy(304,364,temp);
numtostr(sdb.loan_days,temp,3);
outtextxy(304,404,temp);
```

```
        setcolor(6);
        if(detect_mouse())
                show_mouse();
        for(;;)
        {
                test_mouse();
                if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>140)&&(mouse_y<17
0))
                {
                        setcolor(1);
                        rectangle(199,139,551,171);
                }
                else
                if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>180)&&(mouse_y<21
0))
                {
                        setcolor(1);
                        rectangle(199,179,551,211);
                }
                else
                if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>244)&&(mouse_y<27
4))
                {
                        setcolor(1);
                        rectangle(199,243,551,275);
                }
                else
                if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>284)&&(mouse_y<31
4))
                {
                        setcolor(1);
                        rectangle(199,283,551,315);
                }
                else
                if((mouse_x>300)&&(mouse_x<450)&&(mouse_y>324)&&(mouse_y<35
4))
                {
                        setcolor(1);
                        rectangle(299,323,451,355);
                }
                else
                if((mouse_x>300)&&(mouse_x<450)&&(mouse_y>364)&&(mouse_y<39
```

```
4))
                {
                        setcolor(1);
                        rectangle(299,363,451,395);
                }
                else
                if((mouse_x>300)&&(mouse_x<450)&&(mouse_y>404)&&(mouse_y<43
4))
                {
                        setcolor(1);
                        rectangle(299,403,451,435);
                }
                else
                if((mouse_x>496)&&(mouse_x<580)&&(mouse_y>324)&&(mouse_y<35
4))
                {
                        setcolor(6);
                        rectangle(497,325,581,355);
                }
                else
                if((mouse_x>496)&&(mouse_x<580)&&(mouse_y>364)&&(mouse_y<39
4))
                {
                        setcolor(6);
                        rectangle(497,363,581,395);
                }
                else
                if((mouse_x>496)&&(mouse_x<580)&&(mouse_y>404)&&(mouse_y<43
4))
                {
                        setcolor(6);
                        rectangle(497,405,581,435);
                }
                else
                {
                        setcolor(7);
                        rectangle(199,139,551,171);
                        rectangle(199,179,551,211);
                        rectangle(199,243,551,275);
                        rectangle(199,283,551,315);
                        rectangle(299,323,451,355);
                        rectangle(299,363,451,395);
```

```
                        rectangle(299,403,451,435);
                        rectangle(497,325,581,355);
                        rectangle(497,363,581,395);
                        rectangle(497,405,581,435);
                }
                if(mouse_b & 1)
                {
                        hide_mouse();
                        if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>140)&&(mo
use_y<170))
                                inputstr(204,140,cuser);
                        else
                        if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>180)&&(mo
use_y<210))
                                inputpass(204,180,cpass);
                        else
                        if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>244)&&(mo
use_y<274))
                                inputstr(204,244,nuser);
                        else
                        if((mouse_x>200)&&(mouse_x<550)&&(mouse_y>284)&&(mo
use_y<314))
                                inputpass(204,284,npass);
                        else
                        if((mouse_x>300)&&(mouse_x<450)&&(mouse_y>324)&&(mo
use_y<354))
                        {
                                char tnum[5];
                                numtostr(sdb.min_copies,tnum,3);
                                inputstr(304,324,tnum);
                                sdb.min_copies=strtonum(tnum);
                        }
                        else
                        if((mouse_x>300)&&(mouse_x<450)&&(mouse_y>364)&&(mo
use_y<394))
                        {
                                char tnum[5];
                                numtostr(sdb.fine_per_day,tnum,3);
                                inputstr(304,364,tnum);
                                sdb.fine_per_day=strtonum(tnum);
                        }
                        else
```

```
                        if((mouse_x>300)&&(mouse_x<450)&&(mouse_y>404)&&(mo
use_y<434))
                        {
                                char tnum[5];
                                numtostr(sdb.loan_days,tnum,3);
                                inputstr(304,404,tnum);
                                sdb.loan_days=strtonum(tnum);
                        }
                        else
                        if((mouse_x>496)&&(mouse_x<580)&&(mouse_y>324)&&(mo
use_y<354))
                        {
                                if((strcmpi(cuser,sdb.username)==0)&&(strcmpi
(cpass,sdb.password)==0))
                                {
                                        strcpy(sdb.username,nuser);
                                        strcpy(sdb.password,npass);
                                        ofstream set("CONFIG.DAT");
                                        set.write((char*)&sdb,sizeof(sdb));
                                        set.close();
                                        break;
                                }
                                else
                                        outtextxy(150,445,"Invalid
Username/Password!!!");
                        }
                        else
                        if((mouse_x>496)&&(mouse_x<580)&&(mouse_y>364)&&(mo
use_y<394))
                        {
                                if((strcmpi(cuser,sdb.username)==0)&&(strcmpi
(cpass,sdb.password)==0))
                                {
                                        strcpy(sdb.username,"");
                                        strcpy(sdb.password,"");
                                        sdb.total_books=0;
                                        sdb.total_members=0;
                                        sdb.loaned_books=0;
                                        sdb.loan_days=14;
                                        sdb.min_copies=5;
                                        sdb.fine_per_day=10;
```

```
                                        ofstream set("CONFIG.DAT");
                                        set.write((char*)&sdb,sizeof(sdb));
                                        set.close();
                                        set.open("BOOKS.DAT");
                                        set.close();
                                        set.open("MEMBER.DAT");
                                        set.close();
                                        remove("BOOKS.DAT");
                                        remove("MEMBER.DAT");
                                        break;
                                }
                                else
                                        outtextxy(150,445,"Invalid
Username/Password!!!");
                        }
                        else
                        if((mouse_x>496)&&(mouse_x<580)&&(mouse_y>404)&&(mo
use_y<434))
                                break;
                        show_mouse();
                }
        }
        ifstream r("CONFIG.DAT");
        r.read((char*)&sdb,sizeof(sdb));
        r.close();
}

int tablebutton(int rec)
{
        settextstyle(2,0,5);
        if (detect_mouse())
                show_mouse();
        while (::quit==1)
        {
                test_mouse();
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>50)&&(mouse_y<70)
)
                {
                        setcolor(1);
                        rectangle(19,49,621,71);
                }
```

```
                else
                if((mouse_x>40)&&(mouse_x<230)&&(mouse_y>444)&&(mouse_y<463
))
                {
                        setcolor(6);
                        rectangle(39,443,231,464);
                }
                else
                if((mouse_x>455)&&(mouse_x<533)&&(mouse_y>444)&&(mouse_y<46
3))
                {
                        setcolor(6);
                        rectangle(454,443,534,464);
                }
                else
                if((mouse_x>537)&&(mouse_x<615)&&(mouse_y>444)&&(mouse_y<46
3))
                {
                        setcolor(6);
                        rectangle(536,443,616,464);
                }
                else
                if((mouse_x>172)&&(mouse_x<255)&&(mouse_y>78)&&(mouse_y<97
))
                {
                        setcolor(1);
                        rectangle(171,77,256,98);
                }
                else
                if((mouse_x>280)&&(mouse_x<353)&&(mouse_y>78)&&(mouse_y<97
))
                {
                        setcolor(1);
                        rectangle(279,77,354,98);
                }
                else
                if((mouse_x>373)&&(mouse_x<445)&&(mouse_y>78)&&(mouse_y<97
))
                {
                        setcolor(1);
                        rectangle(372,77,446,98);
                }
```

```
                else
                if((mouse_x>473)&&(mouse_x<575)&&(mouse_y>78)&&(mouse_y<97
))
                {
                        setcolor(1);
                        rectangle(472,77,576,98);
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>124)&&(mouse_y<147
)&&rec>0)
                {
                        setcolor(6);
                        outtextxy(10,124,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>148)&&(mouse_y<171
)&&rec>1)
                {
                        setcolor(6);
                        outtextxy(10,148,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>172)&&(mouse_y<195
)&&rec>2)
                {
                        setcolor(6);
                        outtextxy(10,172,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>196)&&(mouse_y<219
)&&rec>3)
                {
                        setcolor(6);
                        outtextxy(10,196,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>220)&&(mouse_y<243
)&&rec>4)
                {
                        setcolor(6);
                        outtextxy(10,220,"o");
                }
```

```
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>244)&&(mouse_y<267
)&&rec>5)
                {
                        setcolor(6);
                        outtextxy(10,244,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>268)&&(mouse_y<291
)&&rec>6)
                {
                        setcolor(6);
                        outtextxy(10,268,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>292)&&(mouse_y<315
)&&rec>7)
                {
                        setcolor(6);
                        outtextxy(10,292,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>316)&&(mouse_y<339
)&&rec>8)
                {
                        setcolor(6);
                        outtextxy(10,316,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>340)&&(mouse_y<363
)&&rec>9)
                {
                        setcolor(6);
                        outtextxy(10,340,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>364)&&(mouse_y<387
)&&rec>10)
                {
                        setcolor(6);
                        outtextxy(10,364,"o");
                }
```

```
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>388)&&(mouse_y<411
)&&rec>11)
                {
                        setcolor(6);
                        outtextxy(10,388,"o");
                }
                else
                if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>412)&&(mouse_y<435
)&&rec>12)
                {
                        setcolor(6);
                        outtextxy(10,412,"o");
                }
                else
                {
                        setcolor(7);
                        rectangle(19,49,621,71);
                        rectangle(39,443,231,464);
                        rectangle(454,443,534,464);
                        rectangle(536,443,616,464);
                        rectangle(171,77,256,98);
                        rectangle(279,77,354,98);
                        rectangle(372,77,446,98);
                        rectangle(472,77,576,98);
                        outtextxy(10,124,"o");
                        outtextxy(10,148,"o");
                        outtextxy(10,172,"o");
                        outtextxy(10,196,"o");
                        outtextxy(10,220,"o");
                        outtextxy(10,244,"o");
                        outtextxy(10,268,"o");
                        outtextxy(10,292,"o");
                        outtextxy(10,316,"o");
                        outtextxy(10,340,"o");
                        outtextxy(10,364,"o");
                        outtextxy(10,388,"o");
                        outtextxy(10,412,"o");
                }
                if (mouse_b & 1)
                {
```

```
                    hide_mouse();
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>50)&&(mous
e_y<70))
                            return 1;
                    else
                    if((mouse_x>40)&&(mouse_x<230)&&(mouse_y>444)&&(mou
se_y<463))
                            return 0;
                    else
                    if((mouse_x>455)&&(mouse_x<533)&&(mouse_y>444)&&(mo
use_y<463))
                            return 51;
                    else
                    if((mouse_x>537)&&(mouse_x<615)&&(mouse_y>444)&&(mo
use_y<463))
                            return 52;
                    else
                    if((mouse_x>172)&&(mouse_x<255)&&(mouse_y>78)&&(mou
se_y<97))
                            return 11;
                    else
                    if((mouse_x>280)&&(mouse_x<353)&&(mouse_y>78)&&(mou
se_y<97))
                            return 12;
                    else
                    if((mouse_x>373)&&(mouse_x<445)&&(mouse_y>78)&&(mou
se_y<97))
                            return 13;
                    else
                    if((mouse_x>473)&&(mouse_x<575)&&(mouse_y>78)&&(mou
se_y<97))
                            return 14;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>124)&&(mou
se_y<147)&&rec>0)
                            return 101;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>148)&&(mou
se_y<171)&&rec>1)
                            return 102;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>172)&&(mou
se_y<195)&&rec>2)
```

```
                        return 103;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>196)&&(mou
se_y<219)&&rec>3)
                        return 104;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>220)&&(mou
se_y<243)&&rec>4)
                        return 105;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>244)&&(mou
se_y<267)&&rec>5)
                        return 106;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>268)&&(mou
se_y<291)&&rec>6)
                        return 107;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>292)&&(mou
se_y<315)&&rec>7)
                        return 108;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>316)&&(mou
se_y<339)&&rec>8)
                        return 109;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>340)&&(mou
se_y<363)&&rec>9)
                        return 110;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>364)&&(mou
se_y<387)&&rec>10)
                        return 111;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>388)&&(mou
se_y<411)&&rec>11)
                        return 112;
                    else
                    if((mouse_x>20)&&(mouse_x<620)&&(mouse_y>412)&&(mou
se_y<435)&&rec>12)
                        return 113;
                    show_mouse();
                }
```

```
        }
        return 0;
}

int modify()
{
        cleardevice();
        setcolor(6);
        settextstyle(3,0,4);
        outtextxy(220,5,"Modify Database");
        rectangle(3,3,636,476);
        rectangle(4,4,635,475);
        settextstyle(3,0,2);
        outtextxy(100,100,"Book Database                Member Database");
        line(320,95,320,400);
        outtextxy(120,150,"Add                                Add");
        outtextxy(118,200,"Edit                                Edit");
        outtextxy(118,250,"Delete                                Delete");
        outtextxy(50,420,"< Back to Main");
        rectangle(115,150,180,180);
        rectangle(113,200,180,230);
        rectangle(113,250,180,280);
        rectangle(450,150,515,180);
        rectangle(448,200,515,230);
        rectangle(448,250,515,280);
        rectangle(45,420,210,450);
        if (detect_mouse())
                show_mouse();
        while (::quit==1)
        {
                test_mouse();
                if((mouse_x>115)&&(mouse_x<180)&&(mouse_y>150)&&(mouse_y<18
0))
                {
                        setcolor(6);
                        rectangle(114,149,181,181);
                }
                else
                if((mouse_x>113)&&(mouse_x<180)&&(mouse_y>200)&&(mouse_y<23
0))
                {
```

```
                        setcolor(6);
                        rectangle(112,199,181,231);
                }
                else
                if((mouse_x>113)&&(mouse_x<180)&&(mouse_y>250)&&(mouse_y<28
0))
                {
                        setcolor(6);
                        rectangle(112,249,181,281);
                }
                else
                if((mouse_x>450)&&(mouse_x<515)&&(mouse_y>150)&&(mouse_y<18
0))
                {
                        setcolor(6);
                        rectangle(449,149,516,181);
                }
                else
                if((mouse_x>448)&&(mouse_x<515)&&(mouse_y>200)&&(mouse_y<23
0))
                {
                        setcolor(6);
                        rectangle(447,199,516,231);
                }
                else
                if((mouse_x>448)&&(mouse_x<515)&&(mouse_y>250)&&(mouse_y<28
0))
                {
                        setcolor(6);
                        rectangle(447,249,516,281);
                }
                else
                if((mouse_x>45)&&(mouse_x<210)&&(mouse_y>420)&&(mouse_y<450
))
                {
                        setcolor(6);
                        rectangle(44,419,211,451);
                }
                else
                {
                        setcolor(7);
                        rectangle(114,149,181,181);
```

```
                        rectangle(112,199,181,231);
                        rectangle(112,249,181,281);
                        rectangle(449,149,516,181);
                        rectangle(447,199,516,231);
                        rectangle(447,249,516,281);
                        rectangle(44,419,211,451);
                }
                if (mouse_b & 1)
                {
                        hide_mouse();
                        if((mouse_x>45)&&(mouse_x<210)&&(mouse_y>420)&&(mou
se_y<450))
                                return 0;
                        else
                        if((mouse_x>115)&&(mouse_x<180)&&(mouse_y>150)&&(mo
use_y<180))
                                return 1;
                        else
                        if((mouse_x>113)&&(mouse_x<180)&&(mouse_y>200)&&(mo
use_y<230))
                                return 2;
                        else
                        if((mouse_x>113)&&(mouse_x<180)&&(mouse_y>250)&&(mo
use_y<280))
                                return 3;
                        else
                        if((mouse_x>450)&&(mouse_x<515)&&(mouse_y>150)&&(mo
use_y<180))
                                return 4;
                        else
                        if((mouse_x>448)&&(mouse_x<515)&&(mouse_y>200)&&(mo
use_y<230))
                                return 5;
                        else
                        if((mouse_x>448)&&(mouse_x<515)&&(mouse_y>250)&&(mo
use_y<280))
                                return 6;
                        show_mouse();
                }
        }
        return 0;
}
```

```
int exit()
{
        setbkcolor(8);
        setfillstyle(SOLID_FILL,7);
        hide_mouse();
        bar(230,180,440,280);
        setcolor(4);
        settextstyle(2,0,5);
        rectangle(230,180,440,280);
        outtextxy(250,210,"Are You Sure You");
        outtextxy(350,220,"want Exit?");
        outtextxy(273,255,"Yes");
        outtextxy(388,255,"No");
        rectangle(270,255,300,270);
        rectangle(380,255,410,270);
        setcolor(1);
        show_mouse();
        for(;;)
        {
                test_mouse();
                setcolor(4);
                if((mouse_x>380)&&(mouse_x<410)&&(mouse_y>255)&&(mouse_y<27
0))
                        rectangle(379,254,411,271);
                else
                if((mouse_x>270)&&(mouse_x<300)&&(mouse_y>255)&&(mouse_y<27
0))
                        rectangle(269,254,301,271);
                else
                {
                        setcolor(7);
                        rectangle(379,254,411,271);
                        rectangle(269,254,301,271);
                }
                if (mouse_b & 1)
                {
                        hide_mouse();
                        if((mouse_x>380)&&(mouse_x<410)&&(mouse_y>255)&&(mo
use_y<270))
                                return 1;
```

```
                        else
                        if((mouse_x>270)&&(mouse_x<300)&&(mouse_y>255)&&(mo
use_y<270))
                                return 0;
                        show_mouse();
                }
        }
}

void help()
{
        setbkcolor(8);
        setfillstyle(SOLID_FILL,7);
        hide_mouse();
        bar(230,180,440,280);
        setcolor(1);
        settextstyle(2,0,5);
        rectangle(230,180,440,280);
        outtextxy(235,188,"See Documentation included");
        outtextxy(265,200,"in Package for Help.");
        outtextxy(310,225,"Copyright");
        outtextxy(235,238," 2009 Fahim Imaduddin Dalvi ");
        outtextxy(328,255,"OK");
        rectangle(320,255,350,270);
        setcolor(1);
        show_mouse();
        for(;;)
        {
                test_mouse();
                setcolor(1);
                if((mouse_x>320)&&(mouse_x<350)&&(mouse_y>255)&&(mouse_y<27
0))
                        rectangle(319,254,351,271);
                else
                {
                        setcolor(7);
                        rectangle(319,254,351,271);
                }
                if (mouse_b & 1)
                {
                        hide_mouse();
```

```
                        if((mouse_x>320)&&(mouse_x<350)&&(mouse_y>255)&&(mo
use_y<270))
                                break;
                        show_mouse();
                }
        }
}

void calendar()
{
        struct dosdate_t d;
        settextstyle(2,0,5);
        _dos_getdate(&d);
        setcolor(1);
        rectangle(36,270,220,420);
        rectangle(35,269,221,421);
        line(36,293,220,293);
        line(36,294,220,294);
        line(36,315,220,315);
        line(36,400,220,400);
        line(36,401,220,401);
        char month[]
[12]={"January","February","March","April","May","June","July","August","Sept
ember","October","November","December"};
        int date,day,max,x,y;
        if(d.month==1||d.month==3||d.month==5||d.month==7||d.month==8||
d.month==10||d.month==12)
                max=31;
        else
        if(d.month==2)
        {
                if(d.year%4==0)
                        max=29;
                else
                        max=28;
        }
        else
                max=30;
        date=d.day;
        day=d.dayofweek;
        for(int i=date;i>0;i--)
```

```
        {
                if(day==0)
                        day=6;
                else
                        day--;
        }
        day++;
        outtextxy(50,272,month[d.month-1]);
        outnum(200,272,d.year);
        outtextxy(50,296,"Su Mo Tu We Th Fr Sa");
        x=55;
        y=310;
        for(i=day;i>0;i--)
        {
                outtextxy(x,y,"   ");
                x+=24;
        }
        for(i=1;i<=max;i++)
        {
                if(day==7)
                {
                        day=0;
                        y+=14;
                        x=55;
                }
                outnum(x,y,i);
                x+=24;
                if(i==d.day-1)
                        rectangle(x-10,y,x+10,y+15);
                day++;
        }
}

void infobox()
{
        setcolor(1);
        rectangle(36,100,220,220);
        rectangle(35,99,221,221);
        line(36,123,220,123);
        line(36,124,220,124);
        settextstyle(2,0,5);
```

```
        outtextxy(100,105,"Infobox");
        outtextxy(40,130," Books        : ");
        outtextxy(40,150," Members      : ");
        outtextxy(40,170," Loaned Books : ");
        outnum(180,130,sdb.total_books);
        outnum(180,150,sdb.total_members);
        outnum(180,170,sdb.loaned_books);
}

void utime(int color)
{
        static int ts=10001;
        if(ts>10000)
        {
                struct time t;
                gettime(&t);
                setcolor(1);
                setfillstyle(SOLID_FILL,color);
                bar(37,402,219,419);
                outnum(100,400,t.ti_hour);
                outtextxy(120,400,":");
                outnum(150,400,t.ti_min);
                outtextxy(170,400,":");
                outnum(200,400,t.ti_sec);
                ts++;
        }
        else
                ts=0;
}

void inputstr(int x,int y,char str[])
{
        char ch;
        int c=strlen(str);
        while(ch!='\r')
        {
                ch=getch();
                if(ch!='\r'&&ch!='\b')
                {
                        str[c]=ch;
                        str[c+1]='\0';
```

```
                c++;
            }
            if(ch=='\b'&&c!=0)
            {
                setcolor(0);
                outtextxy(x,y,str);
                setcolor(1);
                str[c-1]=str[c];
                c--;
            }
            outtextxy(x,y,str);
        }
}

void inputpass(int x,int y,char str[])
{
        char ch;
        int c=strlen(str);
        while(ch!='\r')
        {
            ch=getch();
            if(ch!='\r'&&ch!='\b')
            {
                str[c]=ch;
                str[c+1]='\0';
                c++;
            }
            if(ch=='\b'&&c!=0)
            {
                setcolor(0);
                outpassxy(x,y,str);
                setcolor(1);
                str[c-1]=str[c];
                c--;
            }
            outpassxy(x,y,str);
        }
}

void outpassxy(int x,int y,char pass[])
{
```

```
        int c;
        c=strlen(pass);
        char temp[20];
        for(int i=0;i<c;i++)
                temp[i]='*';
        temp[i]='\0';
        outtextxy(x,y,temp);
}

void numtostr(int number,char num[],int l)
{
        for(int i=l;i>=0;i--)
        {
                num[i]=(number%10+'0');
                number=number/10;
        }
        num[l+1]='\0';
}

int strtonum(char num[])
{
        int number=0;
        int l;
        l=strlen(num);
        for(int i=0;i<l;i++)
                number=(number*10)+(num[i]-'0');
        return number;
}

void outnum(int x,int y,int num,int spacing)
{
        int d,i=-spacing;
        if(num==0)
                outtextxy(x,y,"0");
        while(num!=0)
        {
                i+=spacing;
                d=num%10;
                if(d==1)
                        outtextxy(x-i,y,"1");
                else
```

```
                if(d==2)
                        outtextxy(x-i,y,"2");
                else
                if(d==3)
                        outtextxy(x-i,y,"3");
                else
                if(d==4)
                        outtextxy(x-i,y,"4");
                else
                if(d==5)
                        outtextxy(x-i,y,"5");
                else
                if(d==6)
                        outtextxy(x-i,y,"6");
                else
                if(d==7)
                        outtextxy(x-i,y,"7");
                else
                if(d==8)
                        outtextxy(x-i,y,"8");
                else
                if(d==9)
                        outtextxy(x-i,y,"9");
                else
                if(d==0)
                        outtextxy(x-i,y,"0");
                num=num/10;
        }
}

float gdtojd(char date[])
{
        char year[5],month[3],day[3];
        int y,m,d;
        float JD;
        day[0]=date[0];
        day[1]=date[1];
        day[2]='\0';
        month[0]=date[3];
        month[1]=date[4];
        month[2]='\0';
        year[0]='2';
        year[1]='0';
```

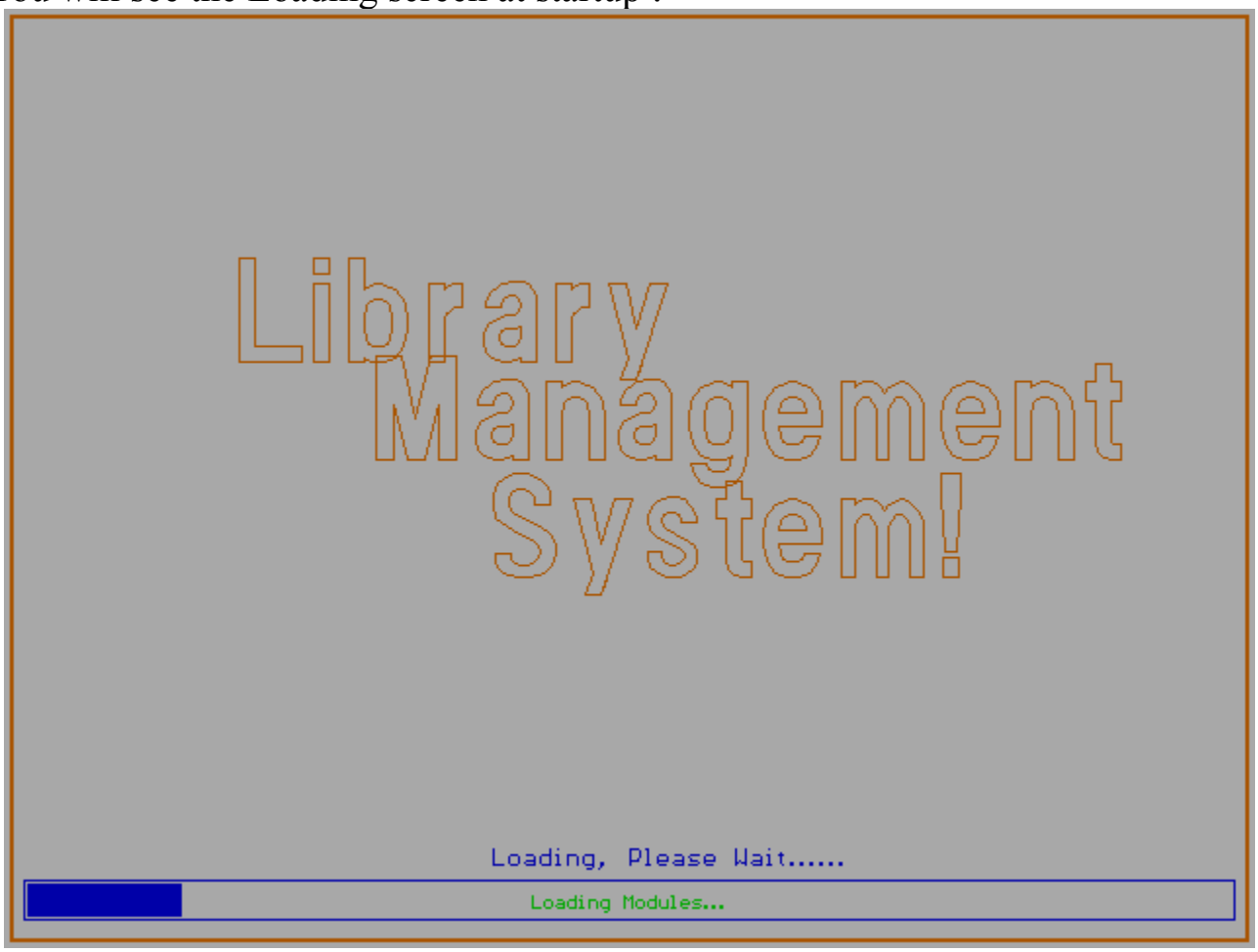
```
        year[2]=date[6];
        year[3]=date[7];
        year[4]='\0';
        y=strtonum(year);
        m=strtonum(month);
        d=strtonum(day);
        JD = 367*y-int((7*(y+int((m+9)/12)))/4)+int((275*m)/
9)+d+1721013.5;
        JD=JD+720896;
        return JD;
}

void jdtogd(char date[],float jd)
{
int y,m,d;
jd=jd-1721119;
y=(4*jd-1)/146097;
jd=4*jd-1-146097*y;
d=jd/4;
jd=(4*d+3)/1461;
d=4*d+3-1461*jd;
d=(d+4)/4;
m=(5*d-3)/153;
d=5*d-3-153*m;
d=(d+5)/5;
y=100*y+jd;
if(m<10)
        m=m+3;
else
{
        m=m-9;
        y=y+1;
}
char day[3],month[3],year[3];
numtostr(d,day,1);
numtostr(m,month,1);
numtostr(y,year,1);
date[0]='\0';
strcat(date,day);
strcat(date,"\\");
strcat(date,month);
```

```
strcat(date,"\\");
strcat(date,year);
}
```

User Manual

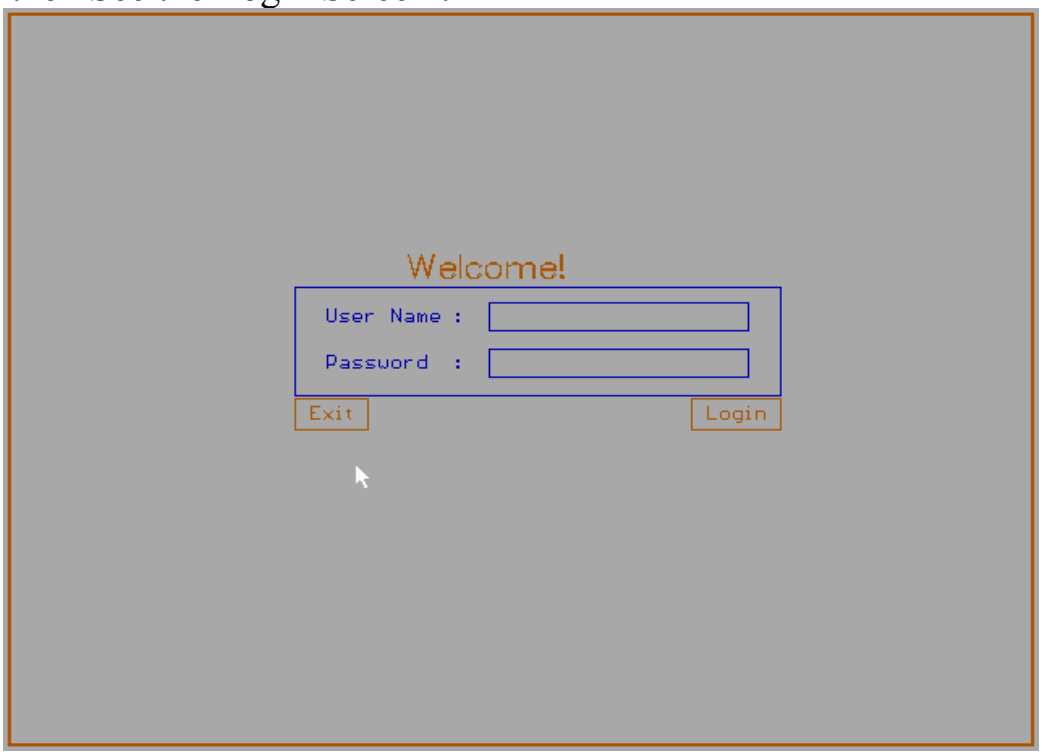
This Section will provide Instruction on how to use the Program.

You will see the Loading screen at startup :

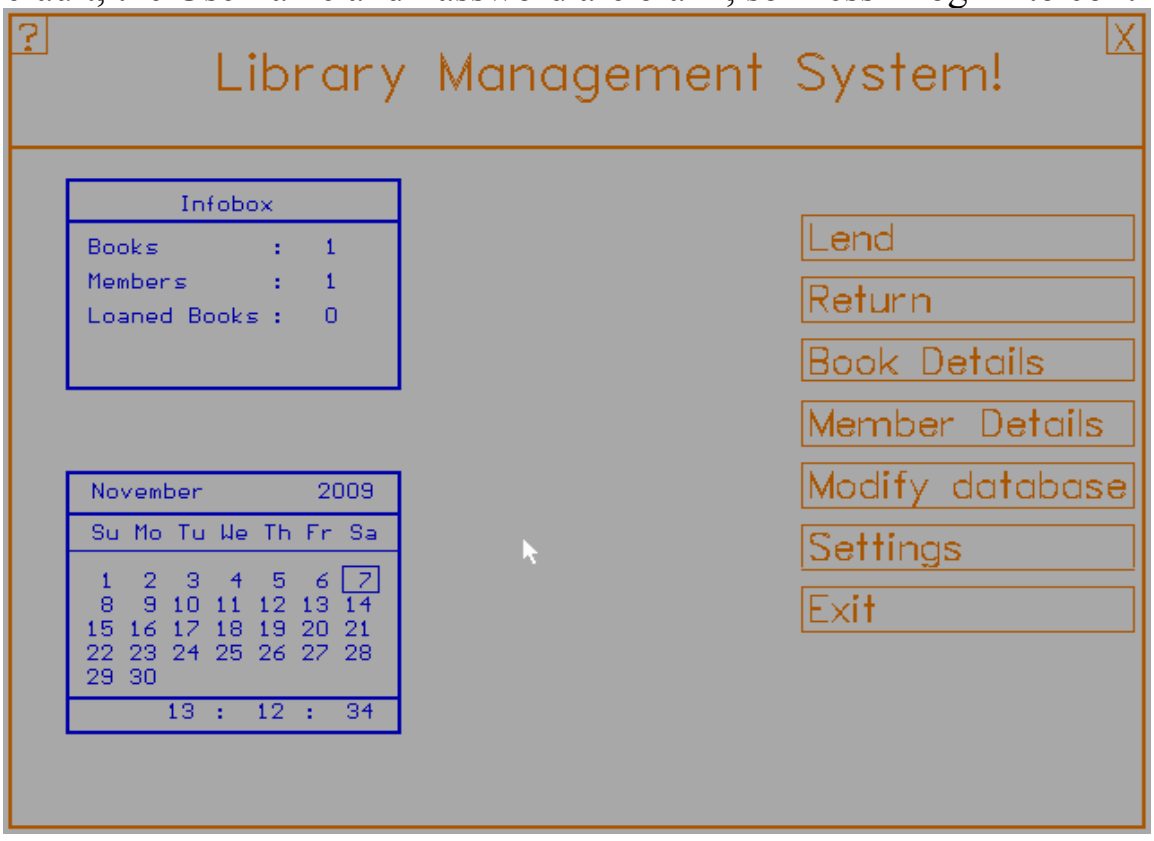


There is Not Much you can do here. Wait for the Program to Load.

You will then See the Login Screen :



By Default, the Username and Password are blank, so Press “Login” to continue.



Finally, The Main Menu!

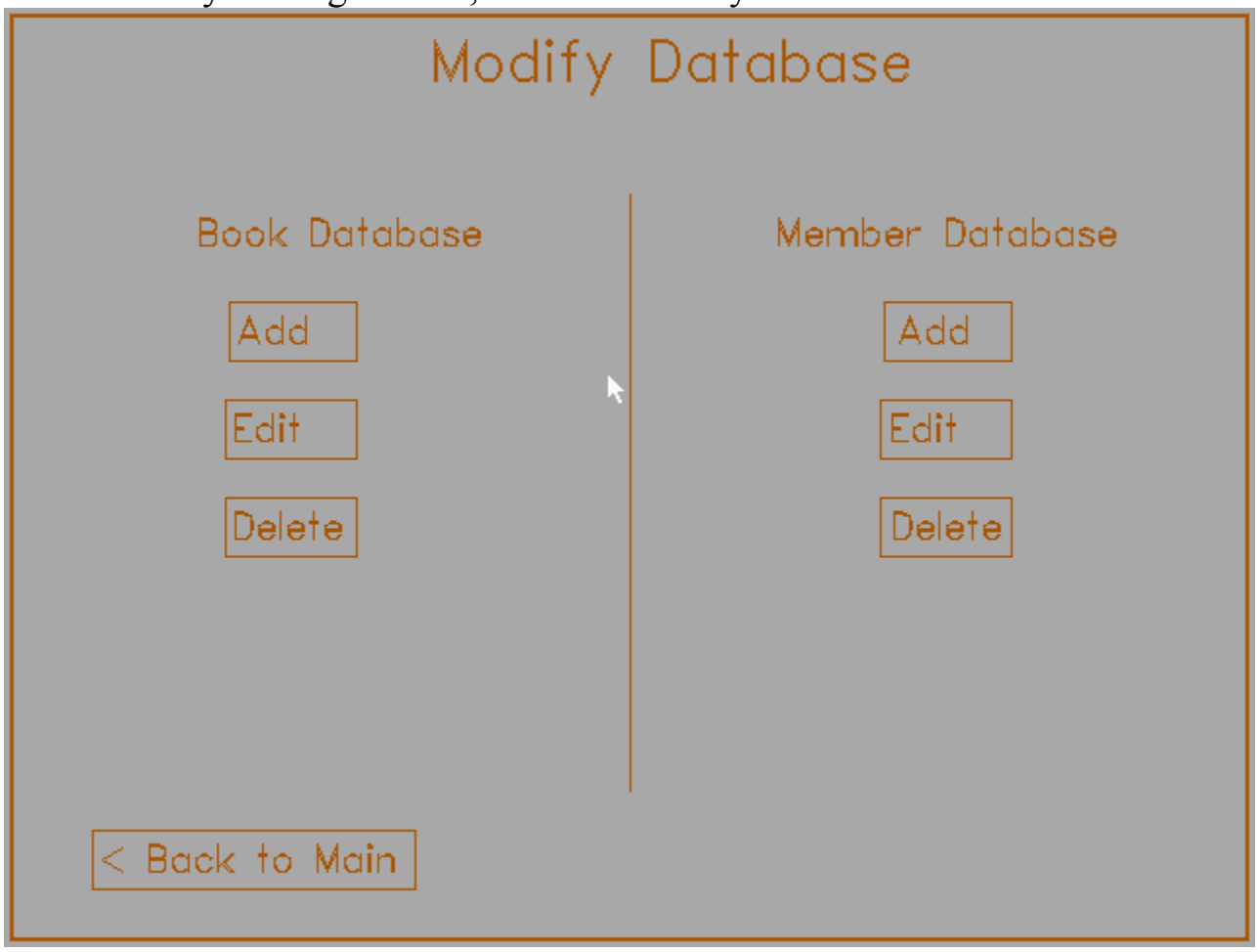
Here is a Brief Descriptions of the Options :

- Lend : This is were you can Lend the Books to Different Members.
- Return : The Books can be Returned to the Library through this Screen
- Book Details : Click on this Option for a Table of all Books present in the Database.
- Member Details : Same as above, Except that it gives a list of all Members.
- Modify Database : Here you can Add/Edit/Delete Books and Members.
- Settings : You can change Program Options like Username and Password here.
- Exit : Exits the Program.

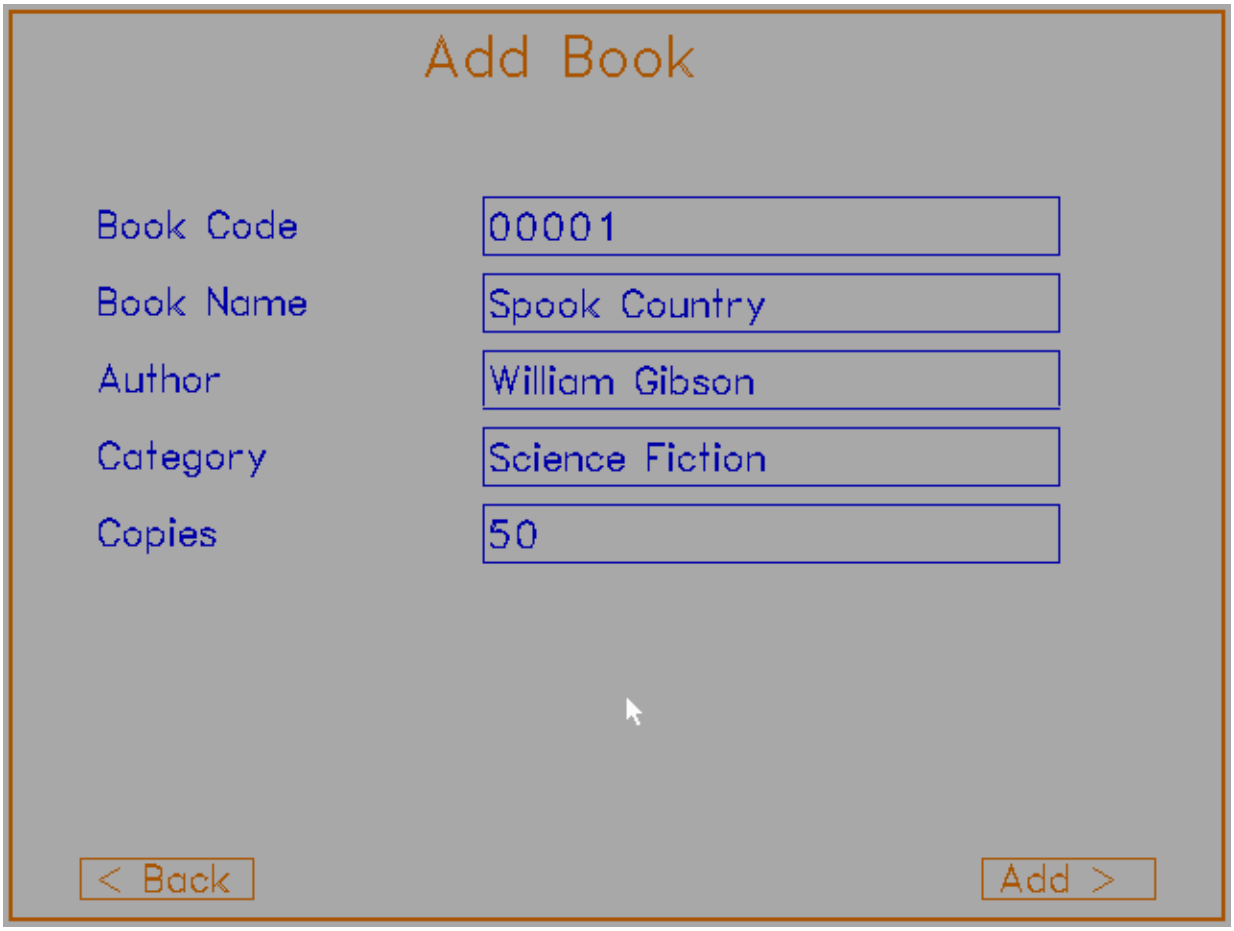
There are some other Elements on the page :

- Info Box : Gives brief Information about the Library at a Glance.
- Calendar : A Calendar and Clock for the Librarian.

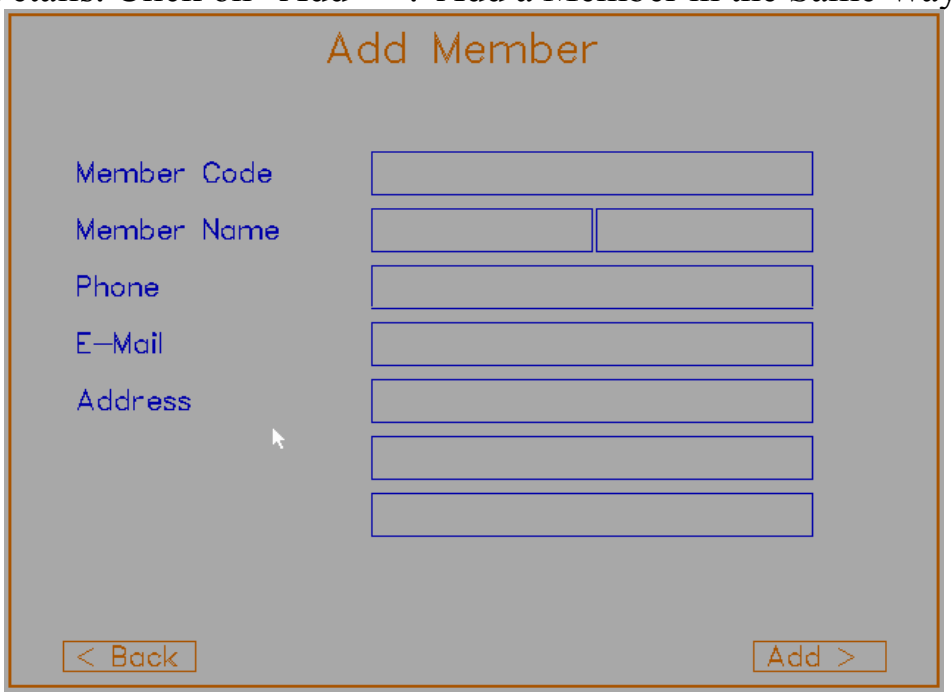
Let us Start By Adding a Book, Click on Modify Database :



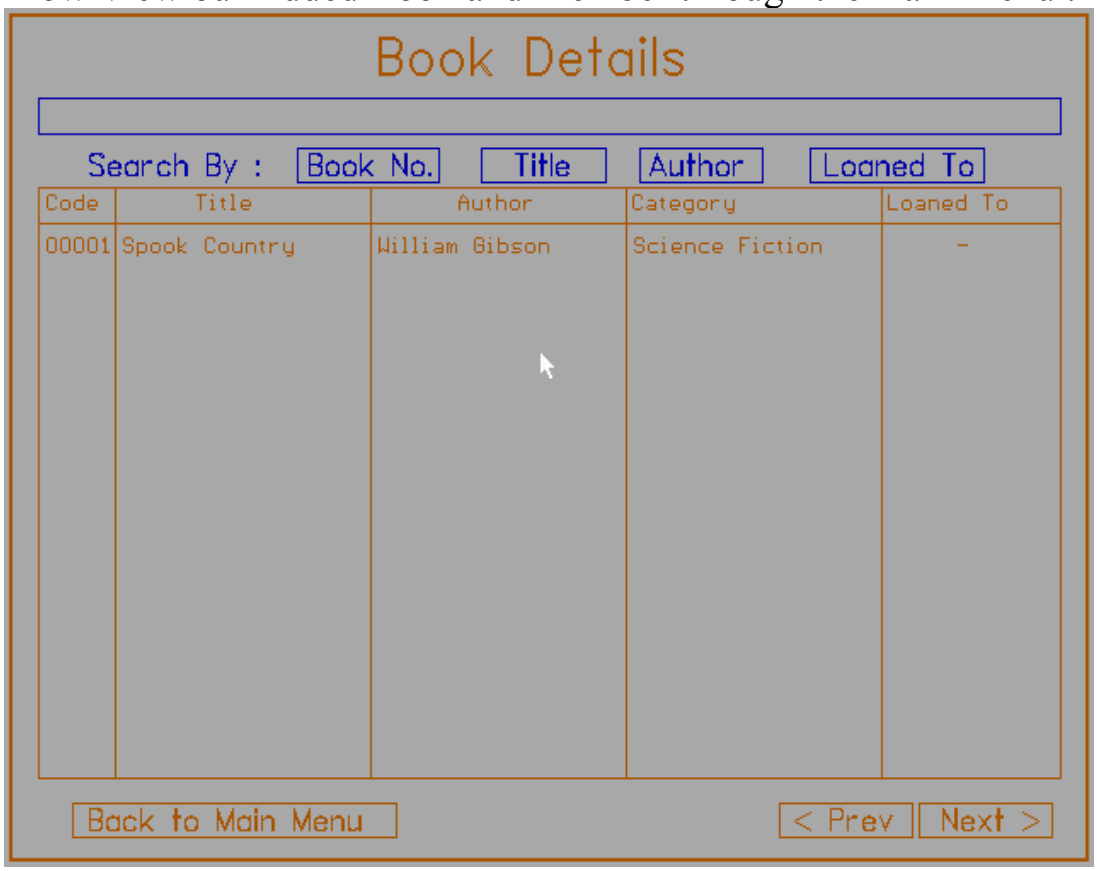
Next Click on “Add” under Book Database :

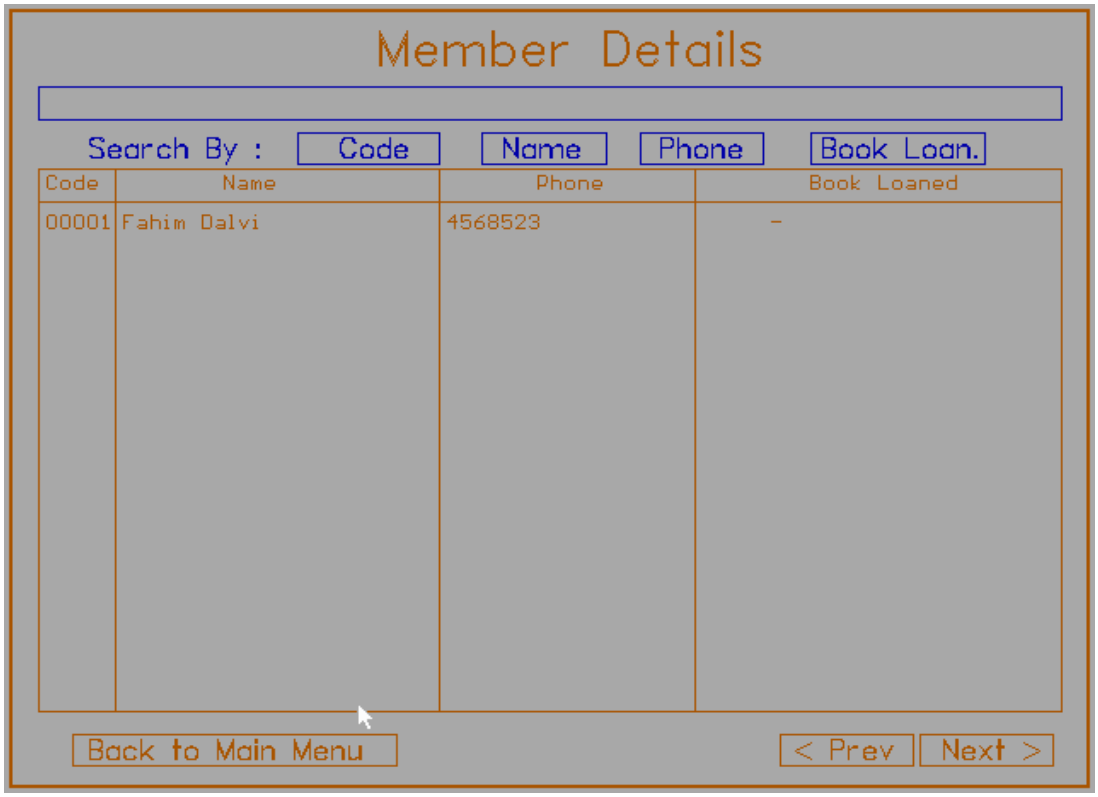


Fill in the Details. Click on “Add >” . Add a Member in the Same Way.

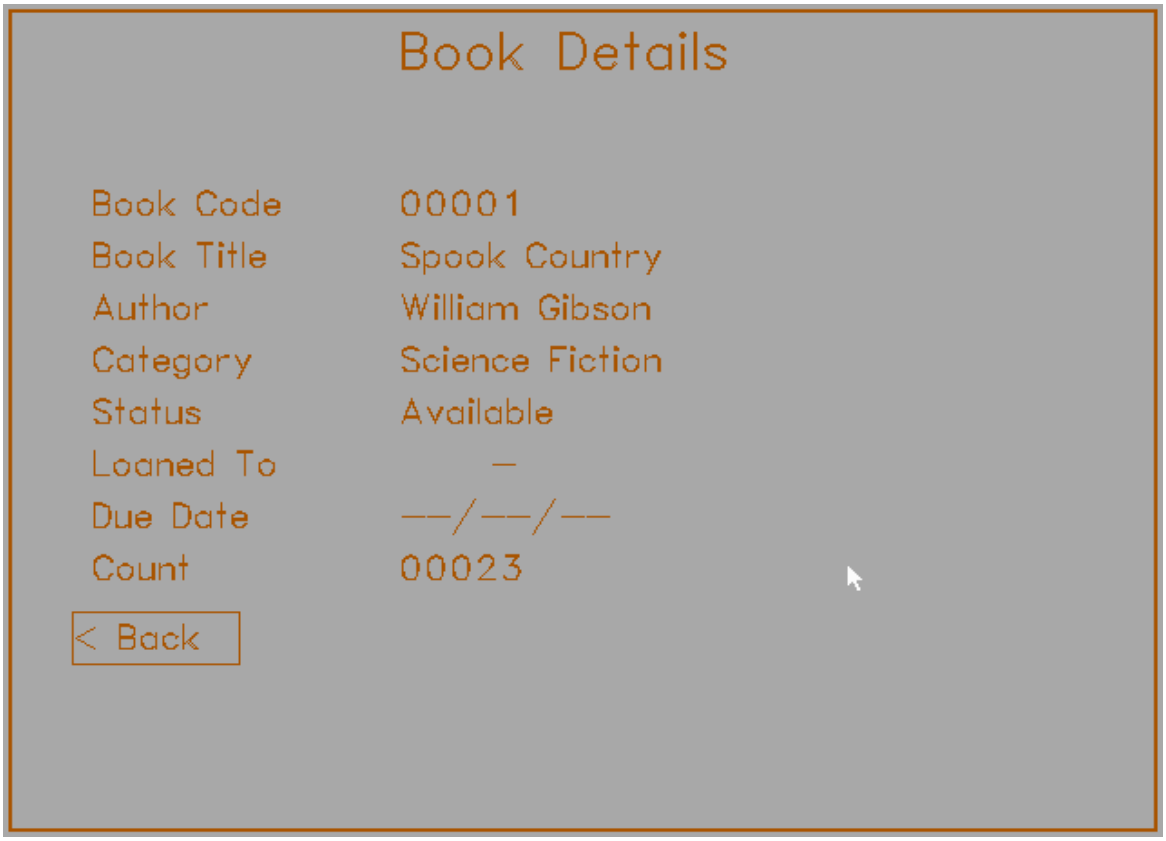


We can now View our Added Book and Member through the main Menu :



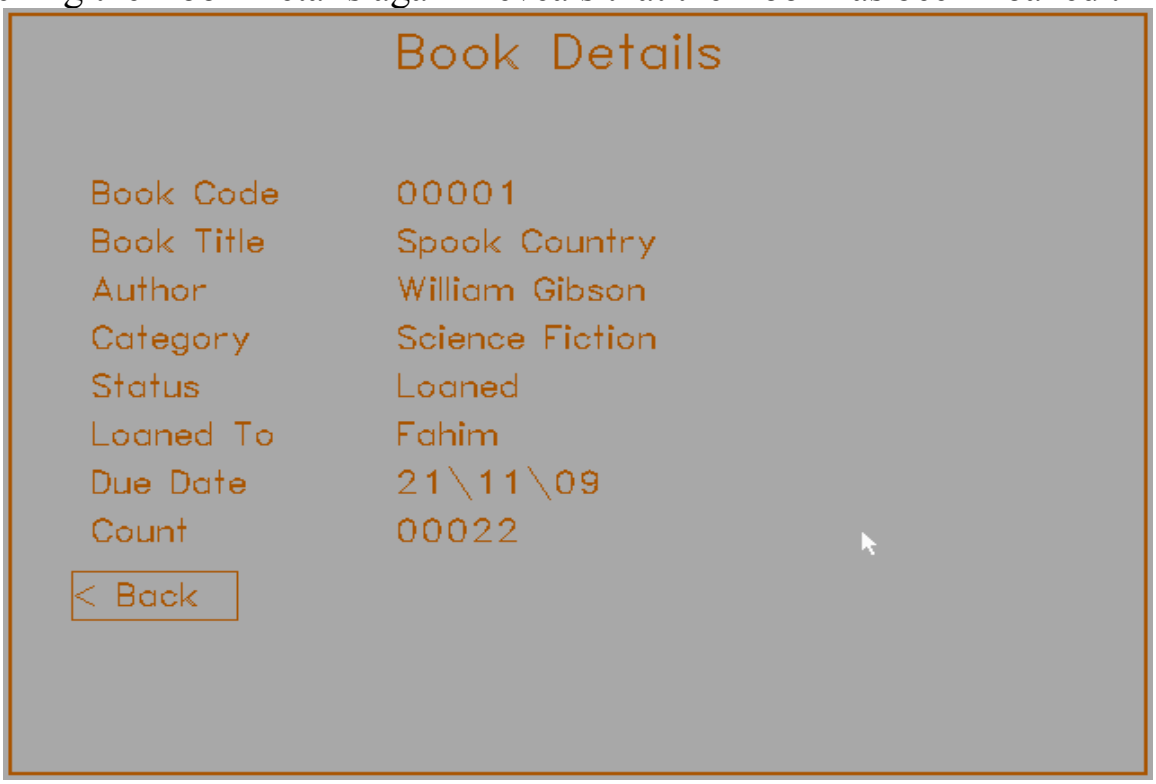


Click on the Record to see more Details:

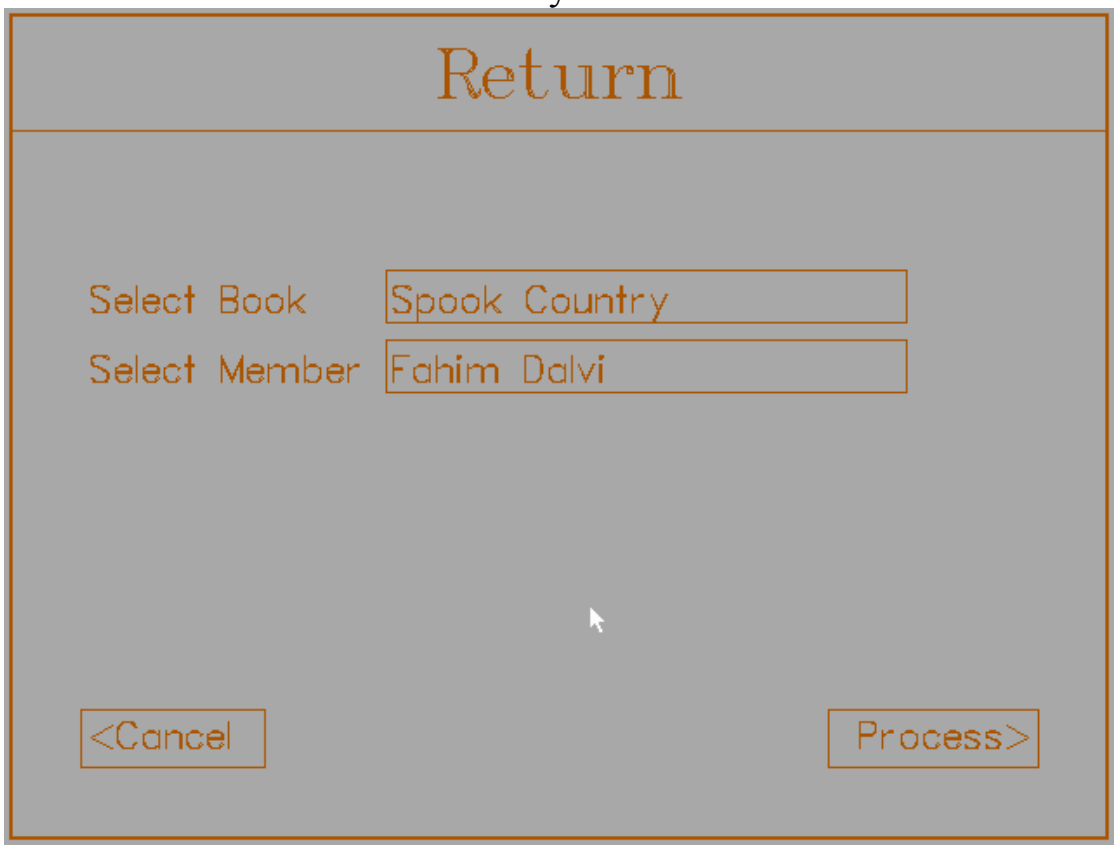


Let us now Lend the new Book to our Member :

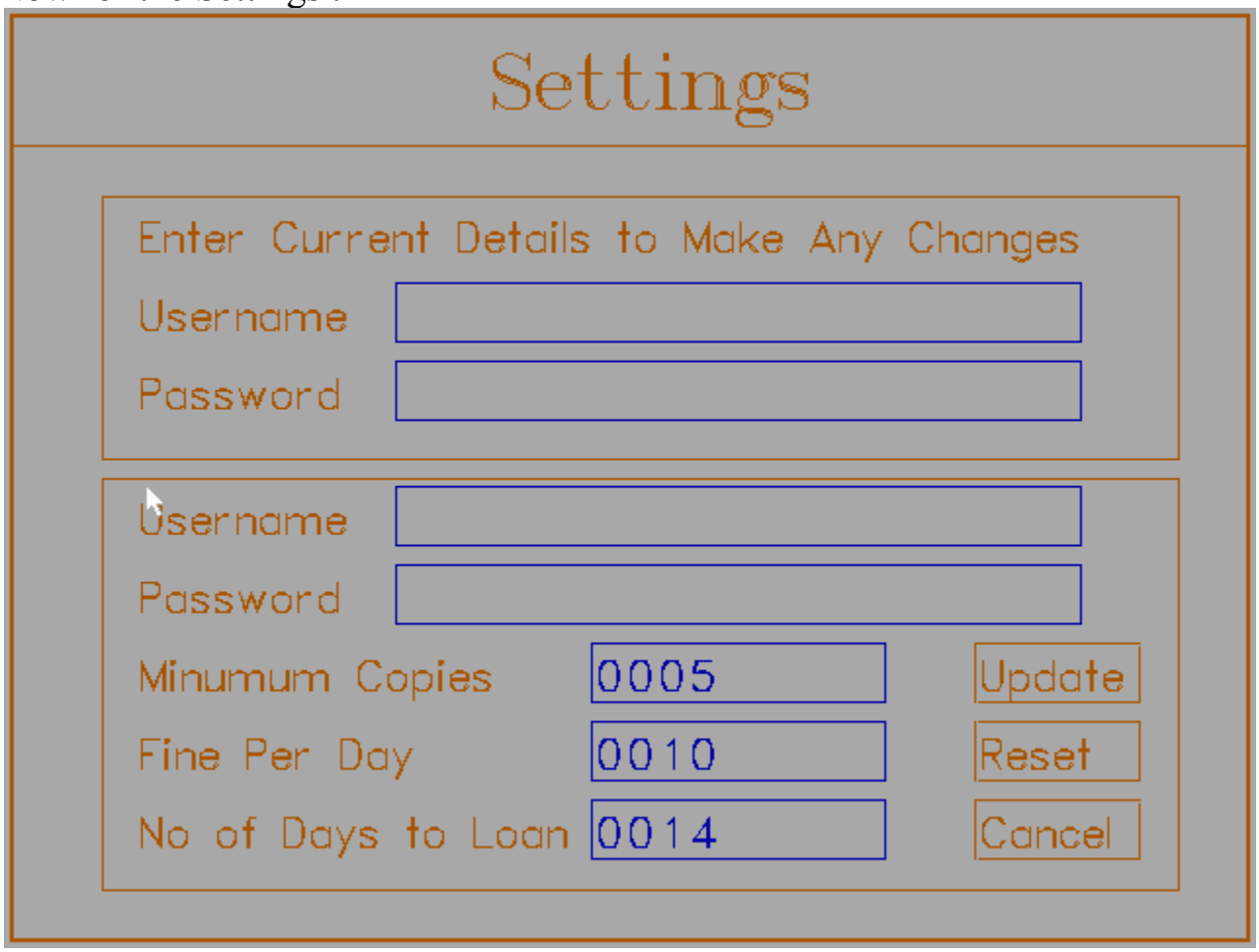
Checking the Book Details again Reveals that the Book has been Loaned :



We can Return the Book in the Same way :



Now for the Settings :

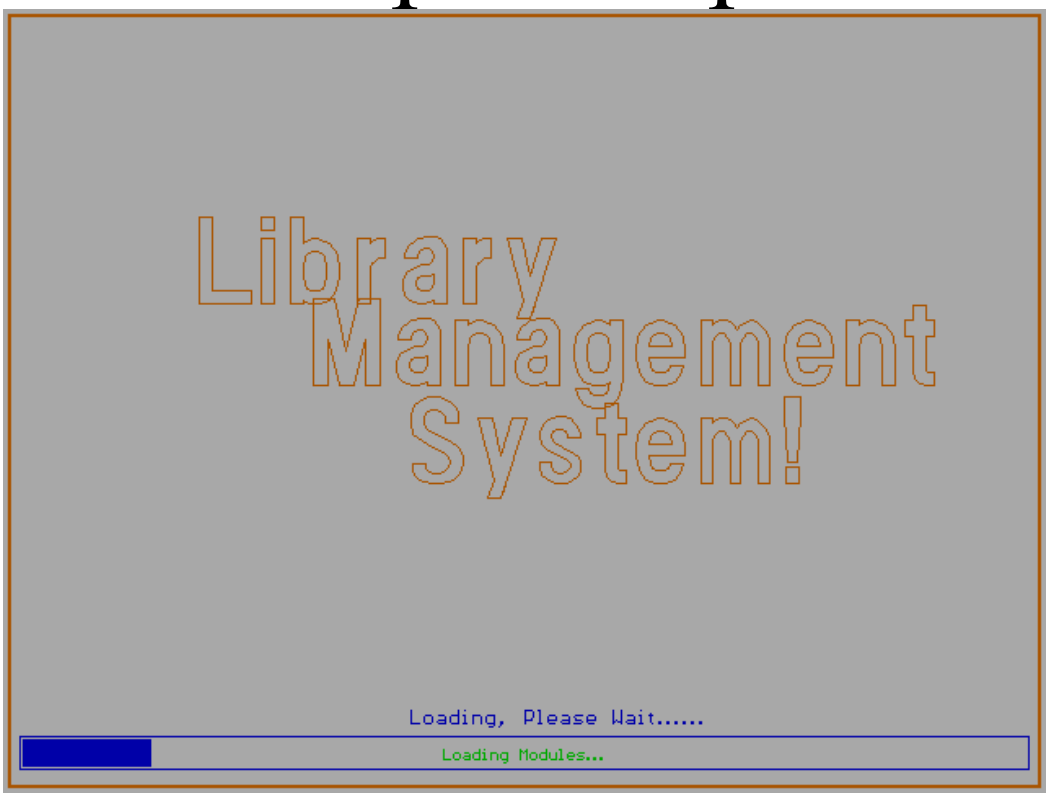


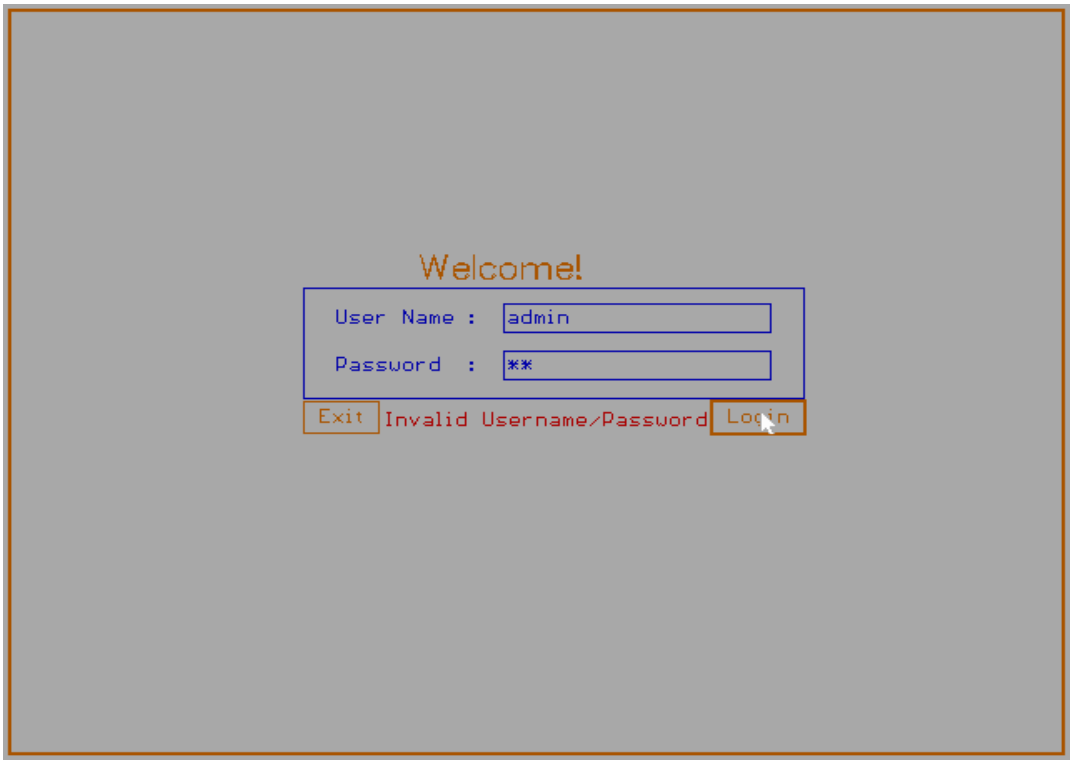
Enter the New Values and Click “Update”. If you want to Reset the settings to Default click “Reset”.

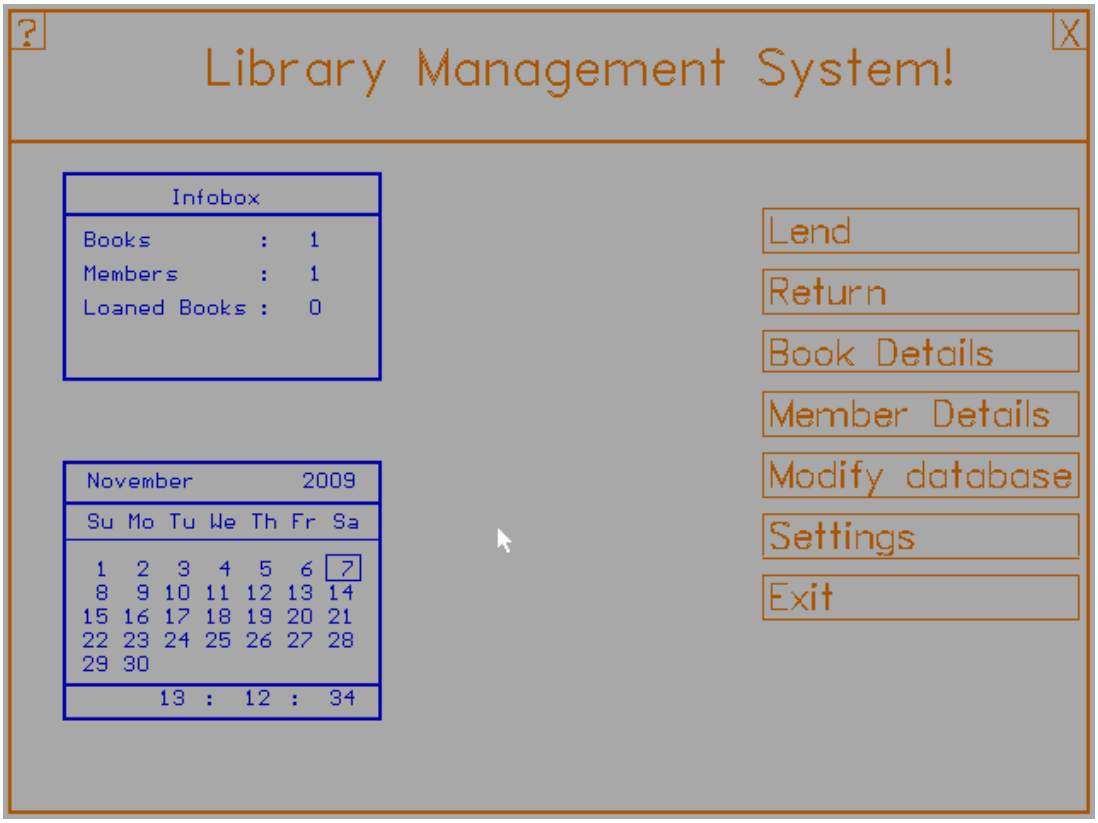
Clicking on the “Exit” Option in the Main Menu will Exit the Program after asking Confirmation.

That All you need to know to operate this simple, yet powerful program!

Sample Output



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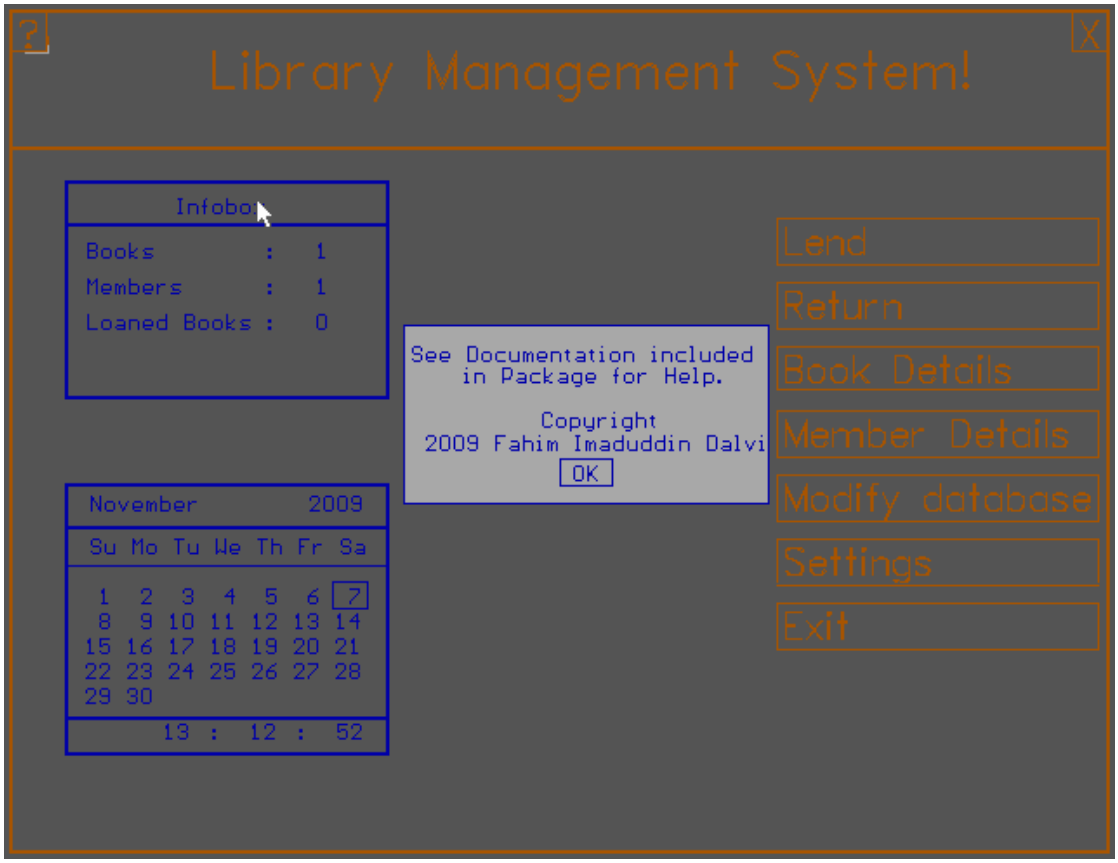
Members : 1
Loaned Books : 0
November 2009
Su Mo Tu We Th Fr Sa
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30
13 : 12 : 34
Lend
Return
Book Details
Member Details
Modify database
Settings
Exit


?
X
Library Management System!
Infobox
Books : 1
Members : 1
Loaned Books : 0
See Documentation included in Package for Help.
Copyright 2009 Fahim Imaduddin Dalvi
OK
November 2009
Su Mo Tu We Th Fr Sa
1 2 3 4 5 6 7
8 9 10 11 12 13 14
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29 30
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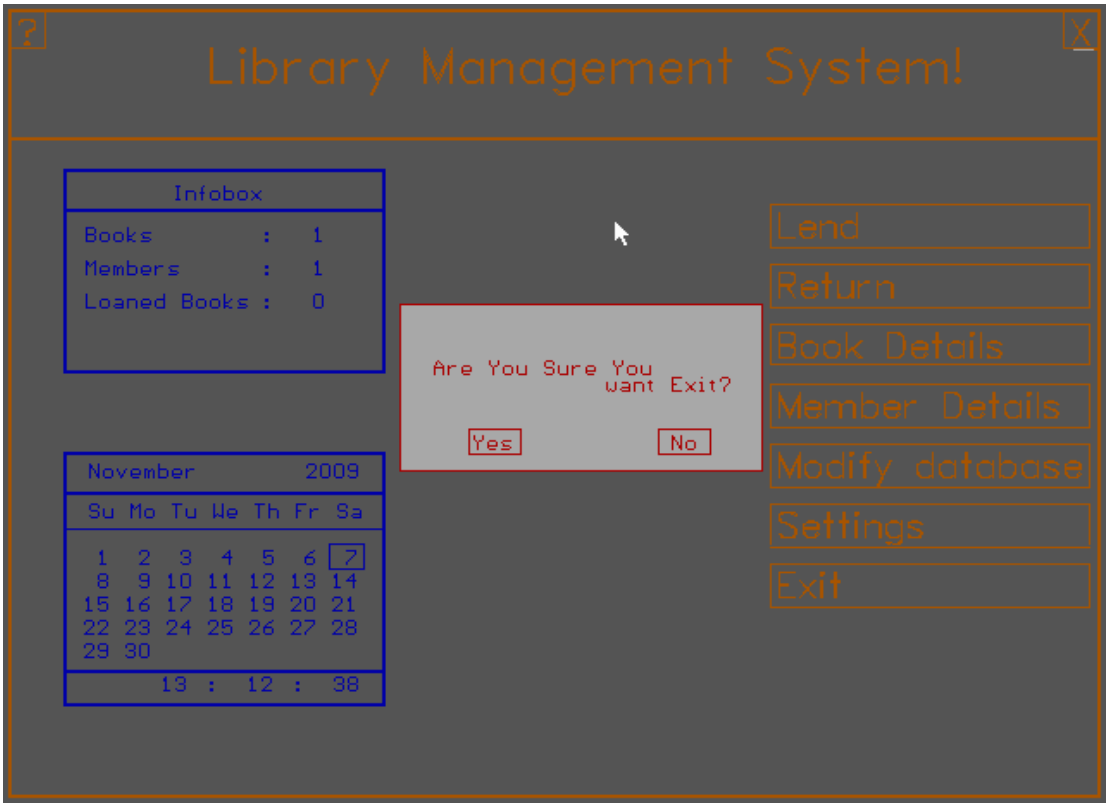
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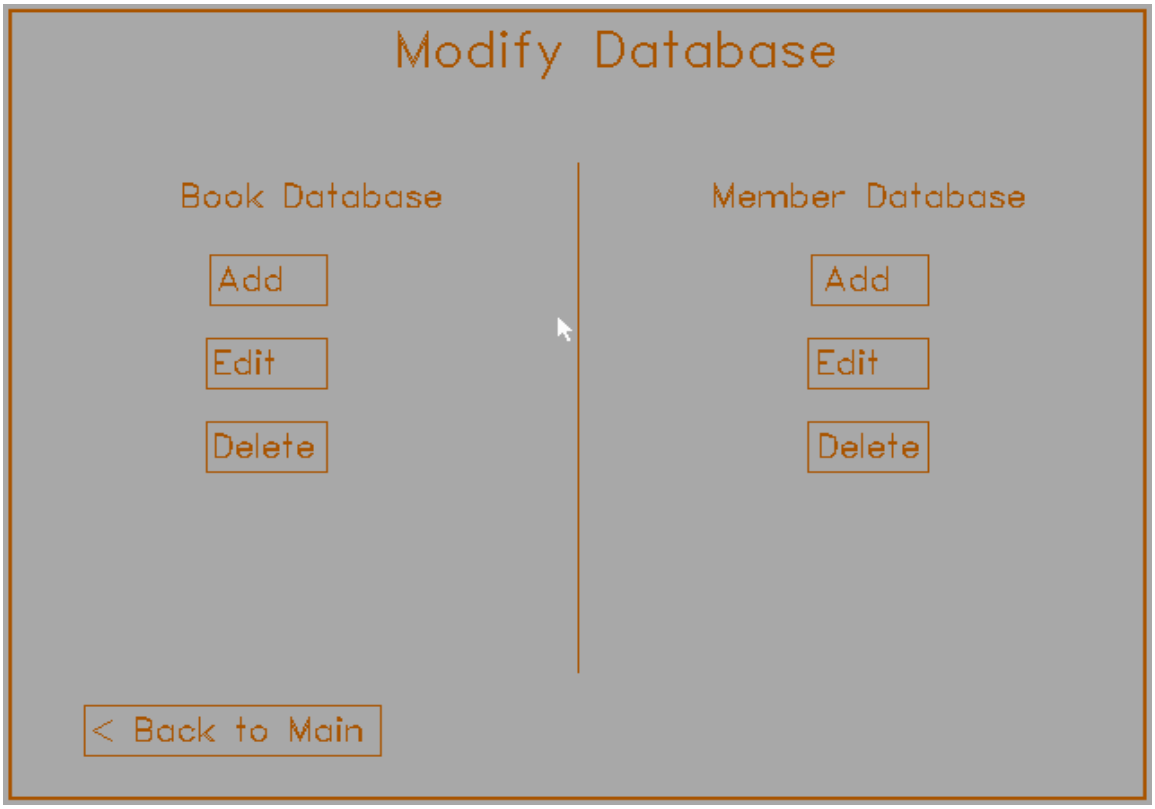
Are You Sure You want Exit?
Yes
No
Lend
Return
Book Details
Member Details
Modify database
Settings
Exit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Edit
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Member Database
Add
Edit
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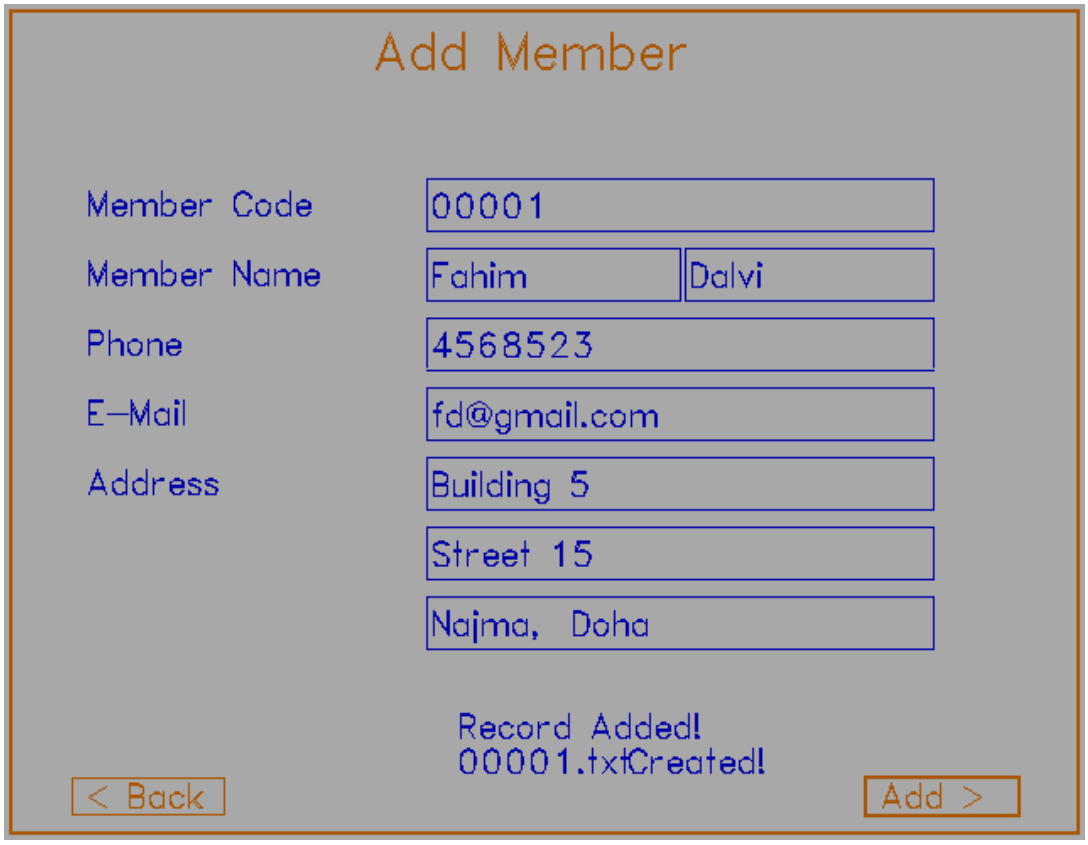
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Member Name
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Dalvi
Phone
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E-Mail
fd@gmail.com
Address
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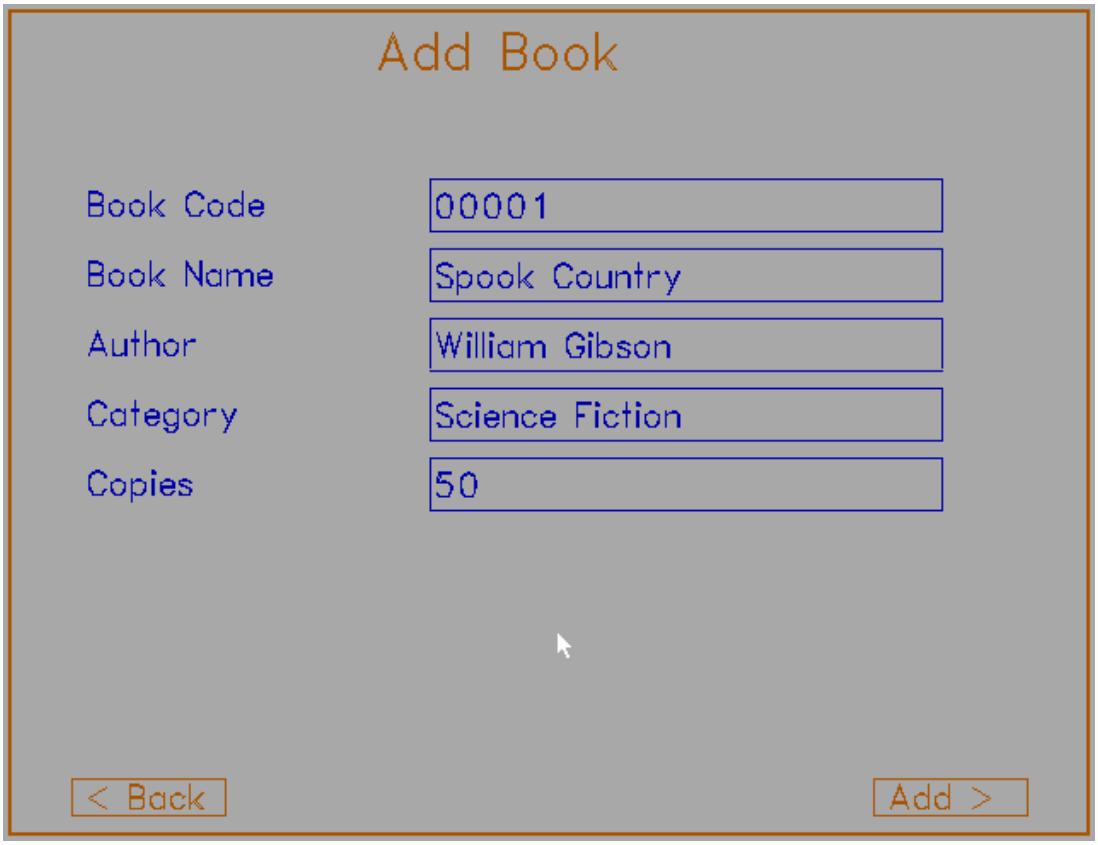
Street 15
Najma, Doha
Record Added!
00001.txtCreated!
< Back
Add >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Copies
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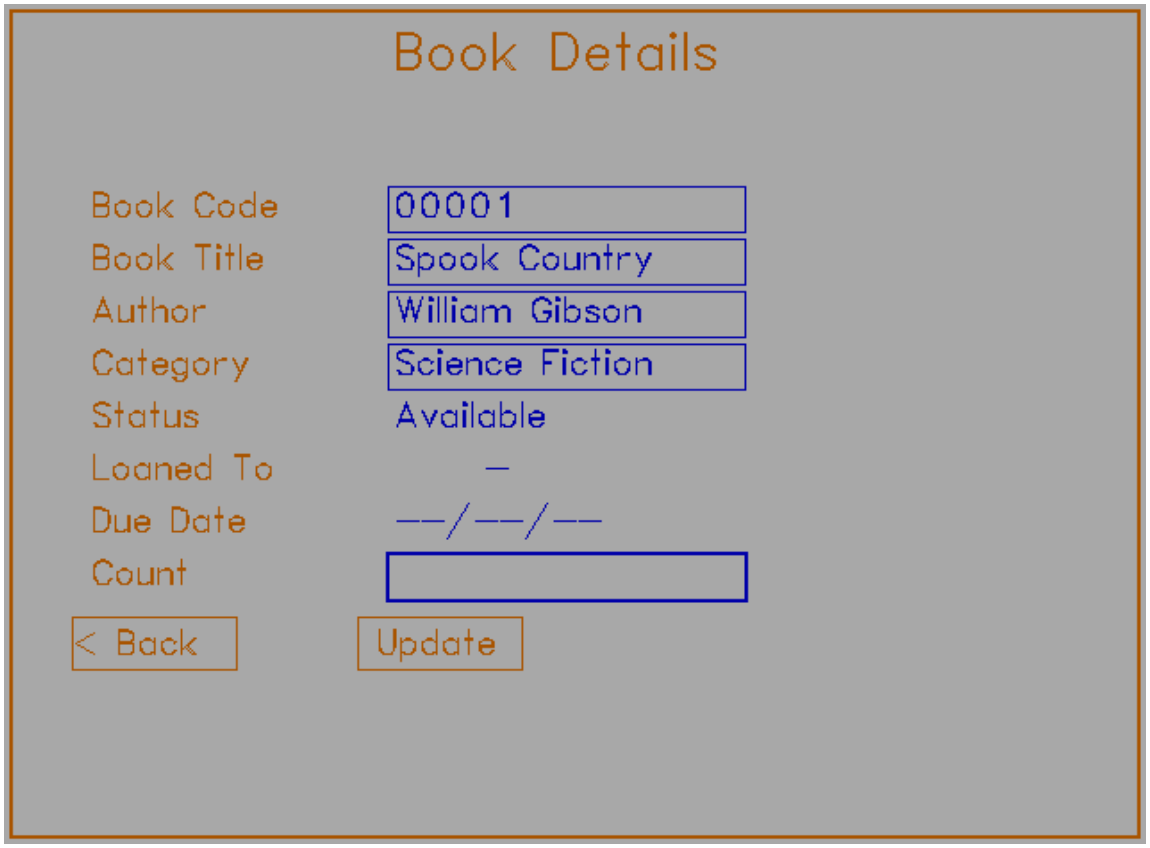
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Count
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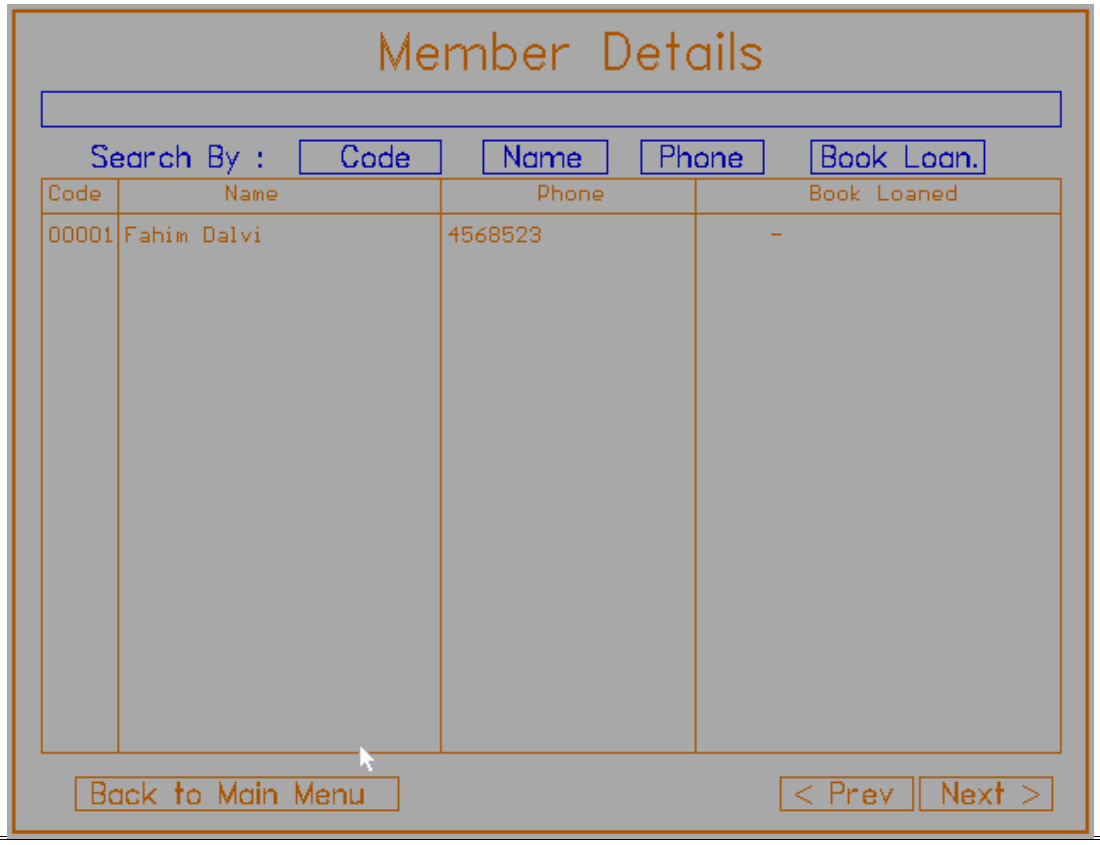
Update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Phone
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Fahim Dalvi
4568523
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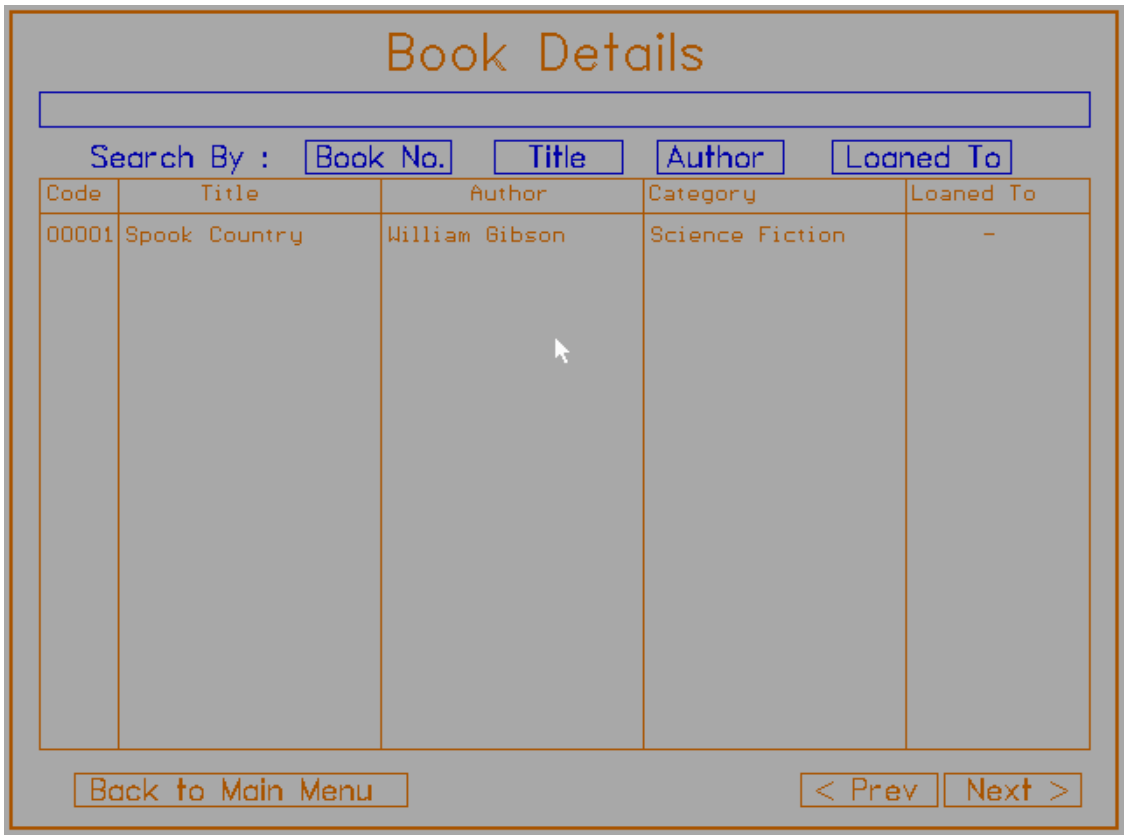
< Prev
Next >


Book Details
Search By :
Book No.
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Spook Country
William Gibson
Science Fiction
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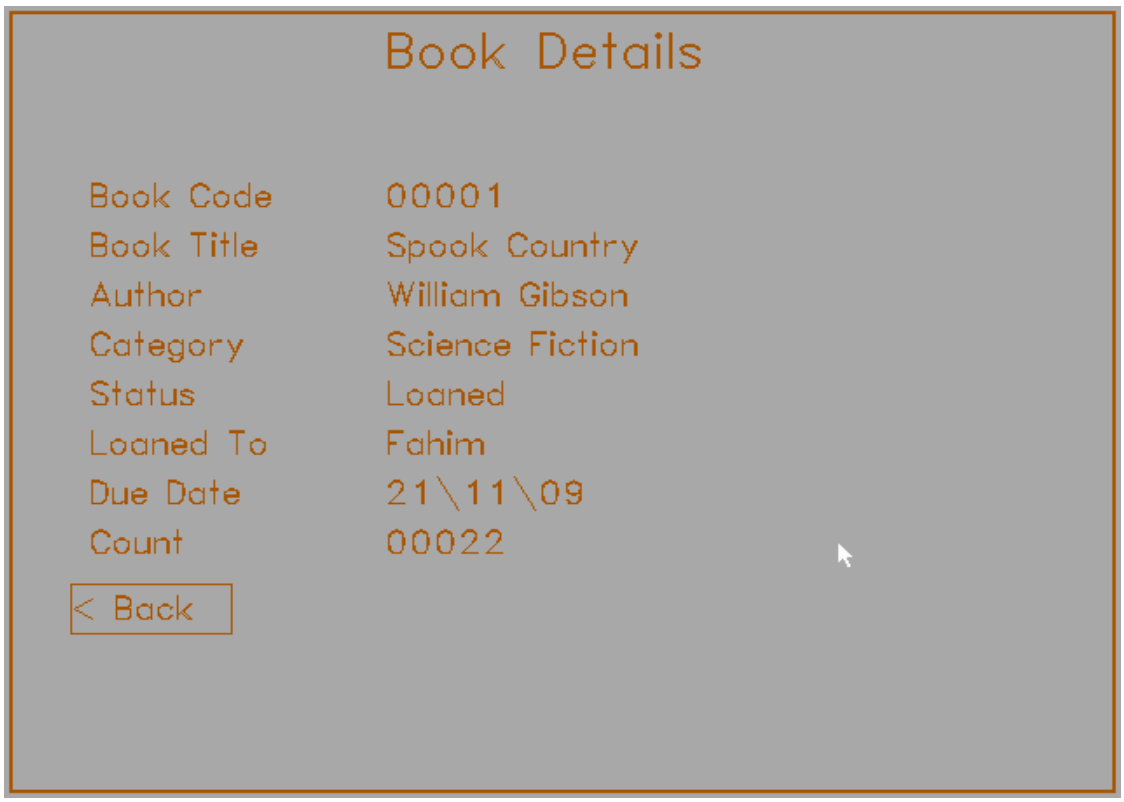
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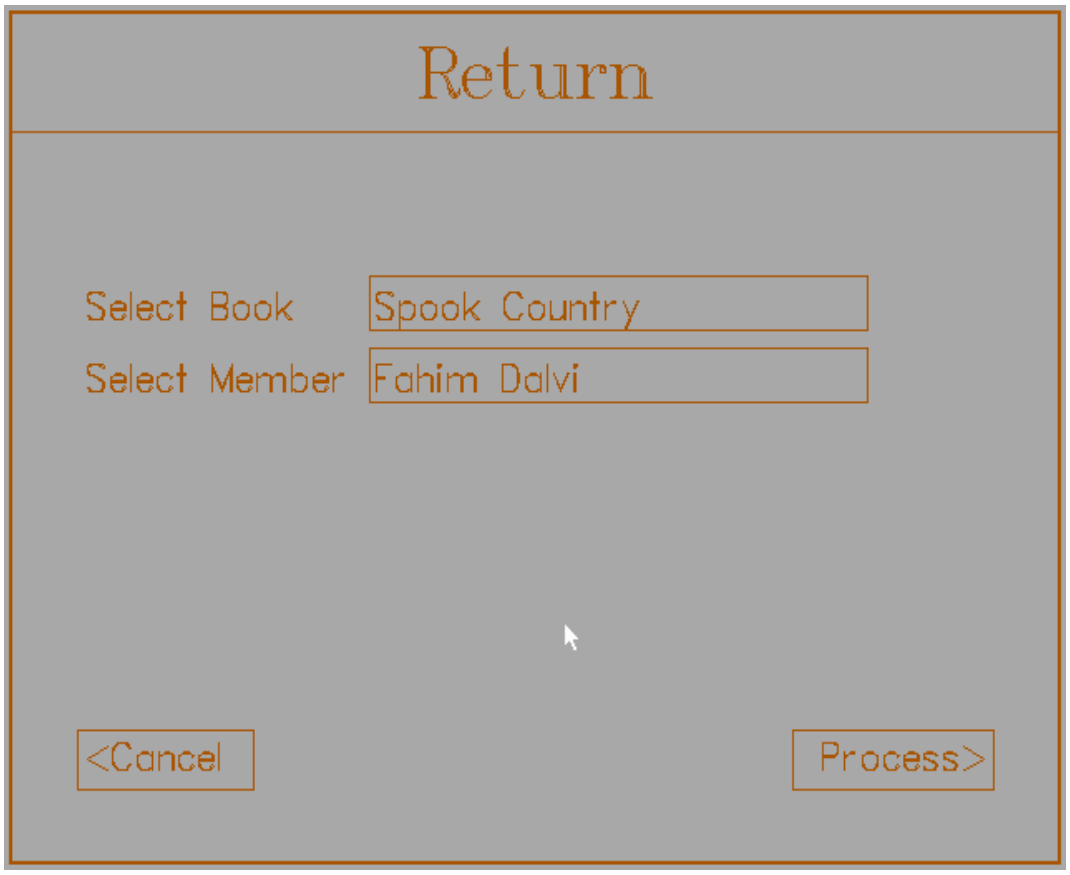
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Select Member
Fahim Dalvi
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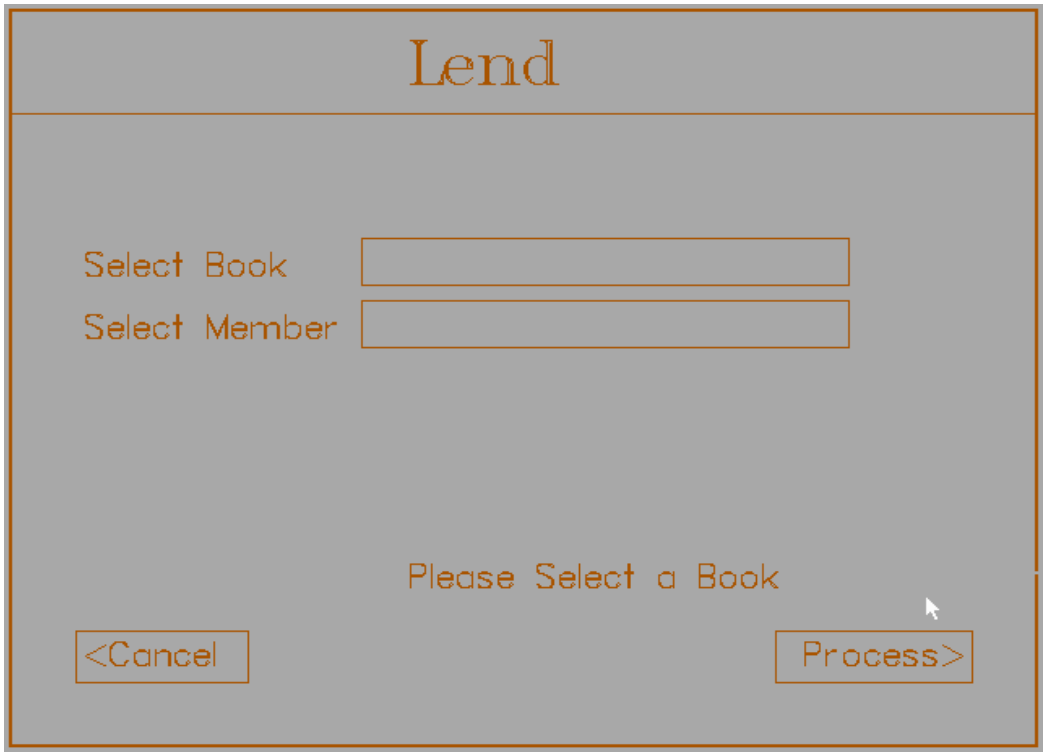
Lend
Select Book
Select Member
Please Select a Book
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Conclusion

I have tried to Keep the structure of this Program as Simple an Understandable as Possible. The Goal was to make Use of C++ to its fullest. During the process of creating this program, many problems were Encountered, such as :

- Mouse Functions
  - It was indeed very difficult to find the mouse functions, as Turbo C++ is an old compiler.

- File Related Problems
  - In this Complex Program, there were many places where files didn't work properly due to improper file handling. It was very difficult to troubleshoot such problems.

- Input/Output in Graphics Mode
  - In Order to make this program fully graphical, Functions were required to Input/Output in Graphical Format. Problem Further increased when we needed to input numbers, these required completely different functions!

- String to Number and Vice-versa
  - Inputing Numbers was very difficult to implement. So

the only option was to convert this into String, input using String Input functions, and convert these back to Numbers!

- Working with Dates
  - It was not easy to work with dates, specially because of different days in different months. The Solution to this was to use Julian Dates(i.e. A Count of Days since a specific date). Again Functions were required to convert between dates and Julian Dates!

As one can see, this program is still in its early days. It will definitely be improved in the coming years!

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