



Lanka Nippon Biztech Institute

PROJECT CASE STUDY

IT11024

Programming Fundamentals

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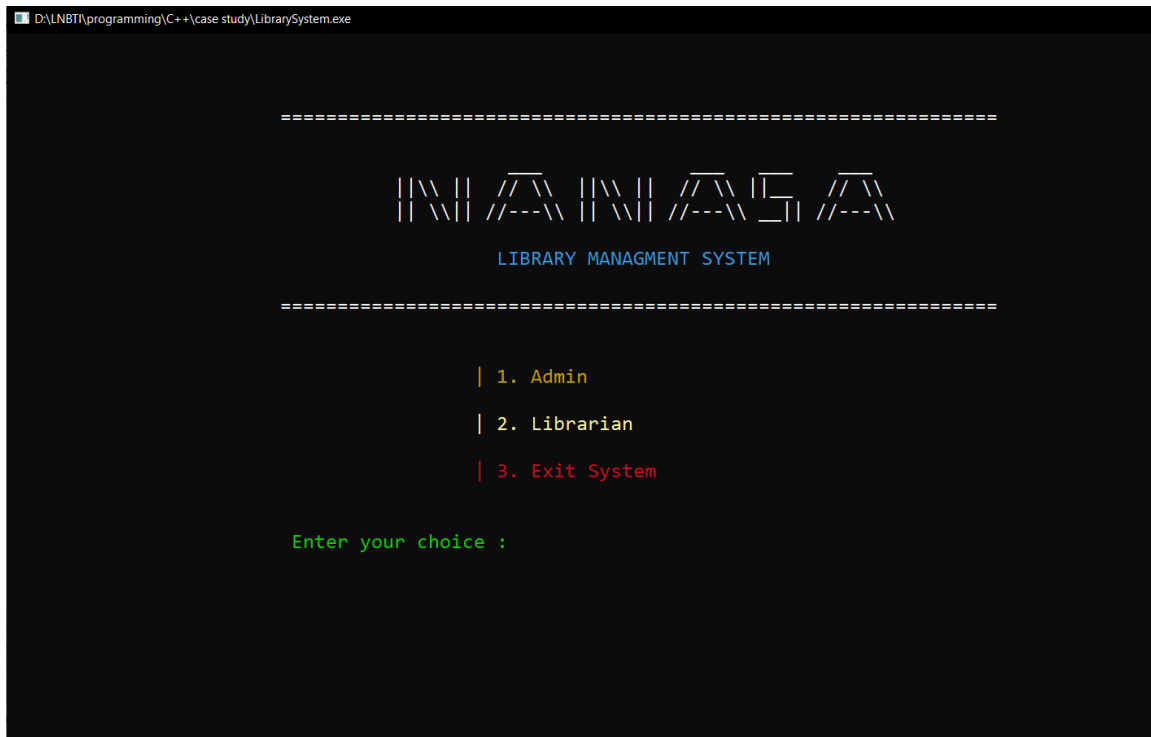
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INTRODUCTION

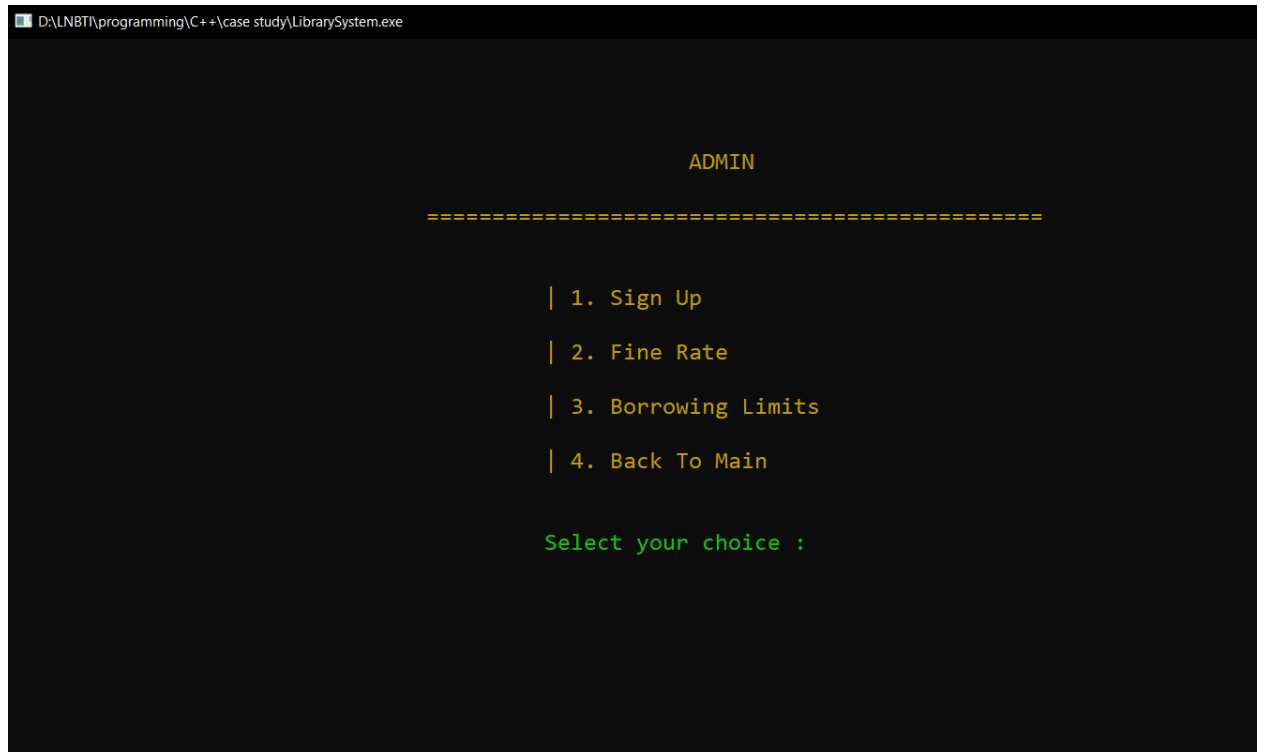
This project is for Library Management System. This Library name is Nanasa library. And it can use Admin and librarian only. There is Admin Who Sign Up Librarians and do changes according to the rules of library. Librarian can log to their account and do things like add, delete, search, update books and borrowers and issue books and return them like that. This project is easy to handle data in the library.

EVIDENCE FOR THE SYSTEM IMPLEMENTATION.



Main Menu

This menu is navigating to Admin, Librarian, Exit the system. If you choose number 1. Then you can go to admin menu with login to the admin. If you choose librarian, then you can log it to using your account and show the menu. If you enter number 3 then show have a nice day and exit the system.



Admin Menu

When you entered the admin menu then you can see signup, fine rate, borrowing limits, back to main. Sign up use to register librarians to the library and it can do only admin then the librarian is registered admin gives username and password to the librarian. The fine rate is admin can change the charge of overdue book and save it file. Then the borrowing limit is admin change the limit of borrowing books for members. If you choose back to main then you comes to the main menu.

```
D:\LNBTI\programming\C++\case study\LibrarySystem.exe

LIBRARIAN

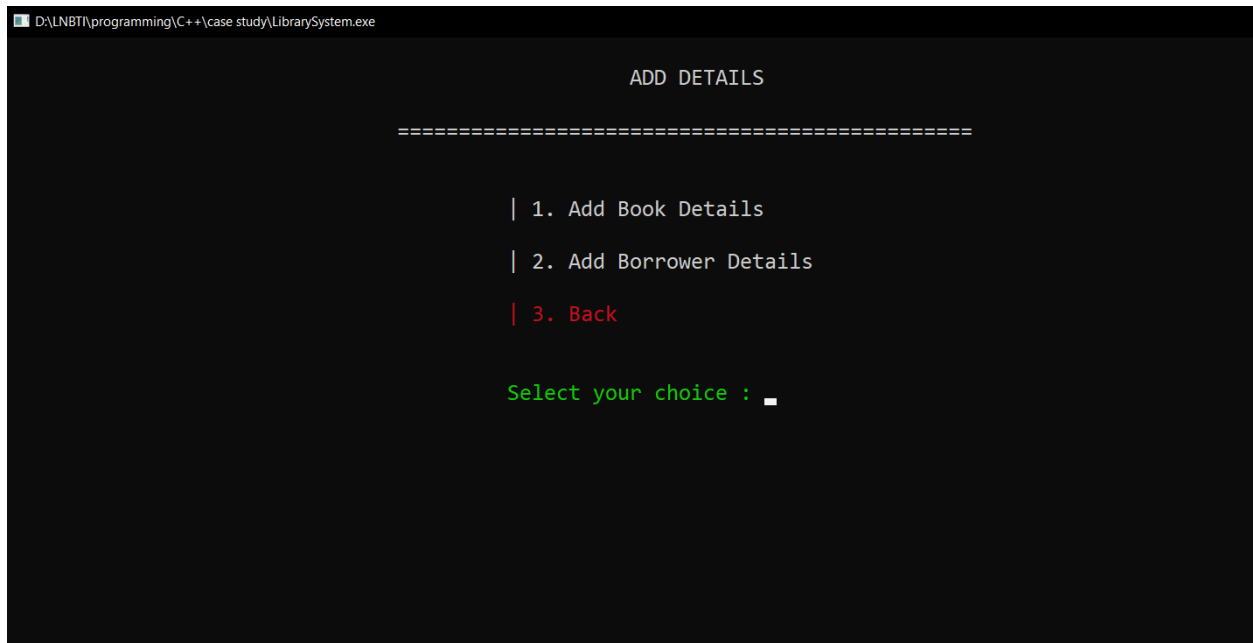
=====

| 1. Add Details
| 2. Delete Details
| 3. Search Details
| 4. All Details
| 5. Issue Books
| 6. All Issue Books
| 7. Return Books
| 8. Back To Main

Select your choice : _
```

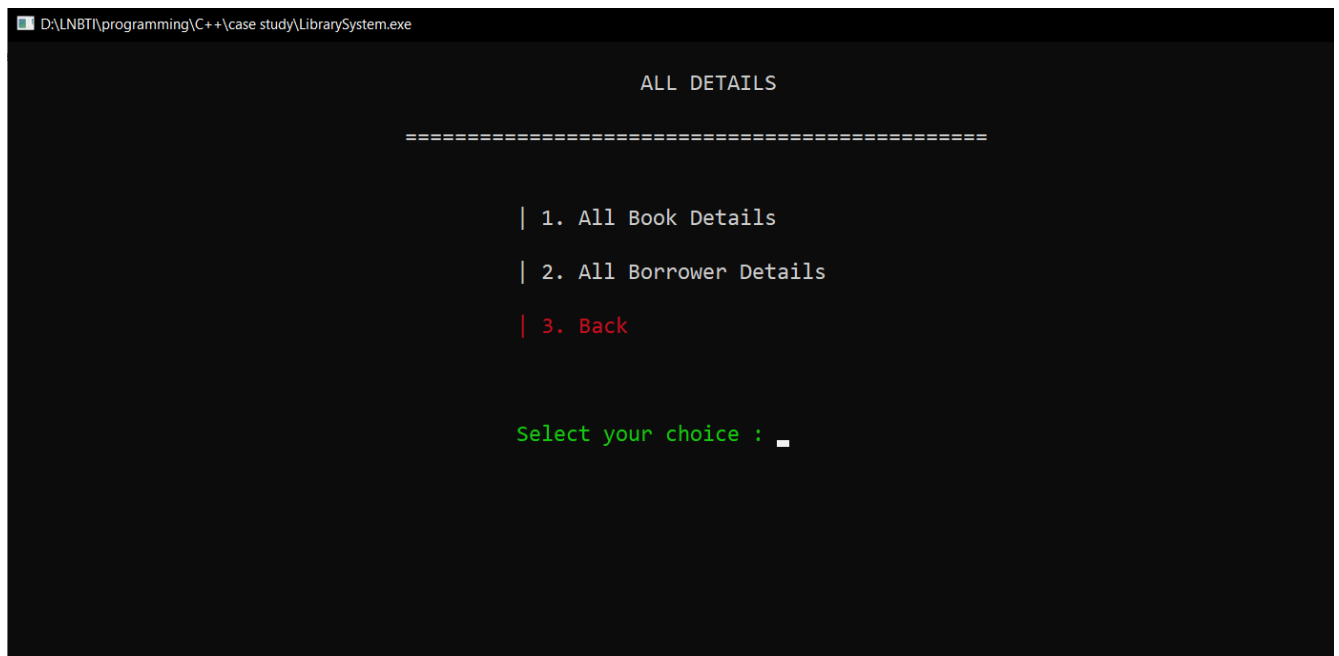
Librarian Menu

This is the librarian menu. There are add delete search and update and all books borrower's details, issue books and return book. You choose number 1 then you can add details. If you choose 2 then you can delete details. If you choose 4 then you can update detail. If you enter number 3, then you can search books and borrowers. If you chose 5 then you can see all the details, you entered. If you want to back to main menu, then you want to press number 6 then can issue book and number 7 is view all the issued book. when you enter 8 then can return issued book.



Add Details

Add details are divided into two categories: number 1 is add book details, where you can add book isbn, title, author, price, publisher, status, and number 2 is add borrowers details, where you can add borrower id, name, join date, and contact number. If you want to go to the librarian menu, then enter number 3.



All Details

All details are divided into two categories. Number 1 is all book details; you can see all book details like ISBN, title, author, price, publisher, status, and number 2 is all borrowers details; you can see all borrower details like id, name, join date, and contact number. If you want to go to the librarian menu, then enter number 3.


```
D:\LNBT\programming\C++\case study\LibrarySystem.exe

SEARCH DETAILS

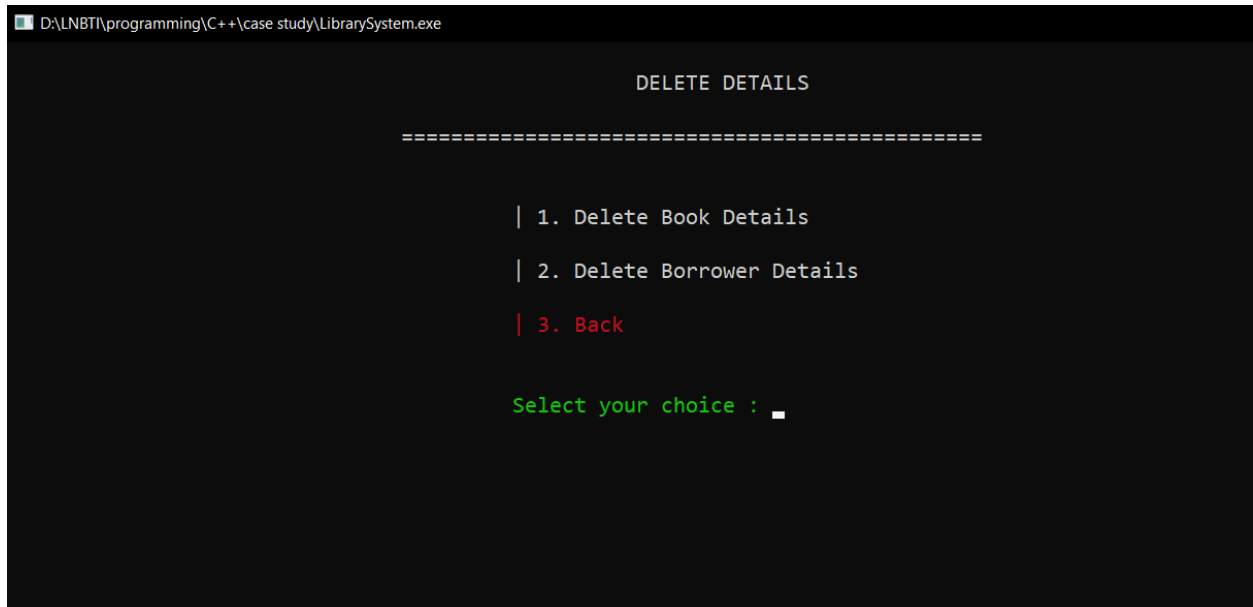
=====

| 1. Search Book Details
| 2. Search Borrower Details
| 3. Back

Select your choice :
```

Search Details

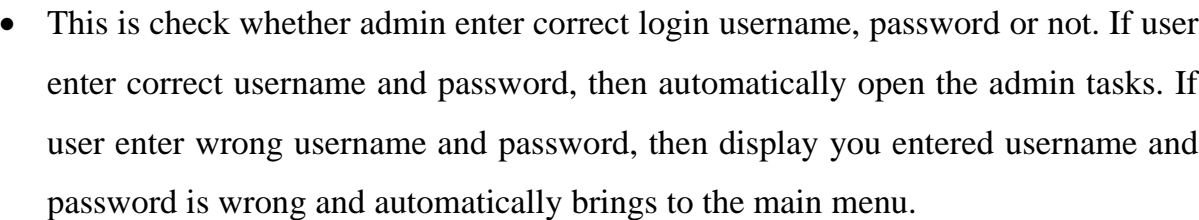
Search details are two categories. Number 1 is searching book details you can search book details using ISBN number if the book is found then print out searched book details and number 2 is searching borrower details you can search borrower details using ID number if there is a borrower found then print out searched borrower details If you want to go librarian menu, then enter number 3.



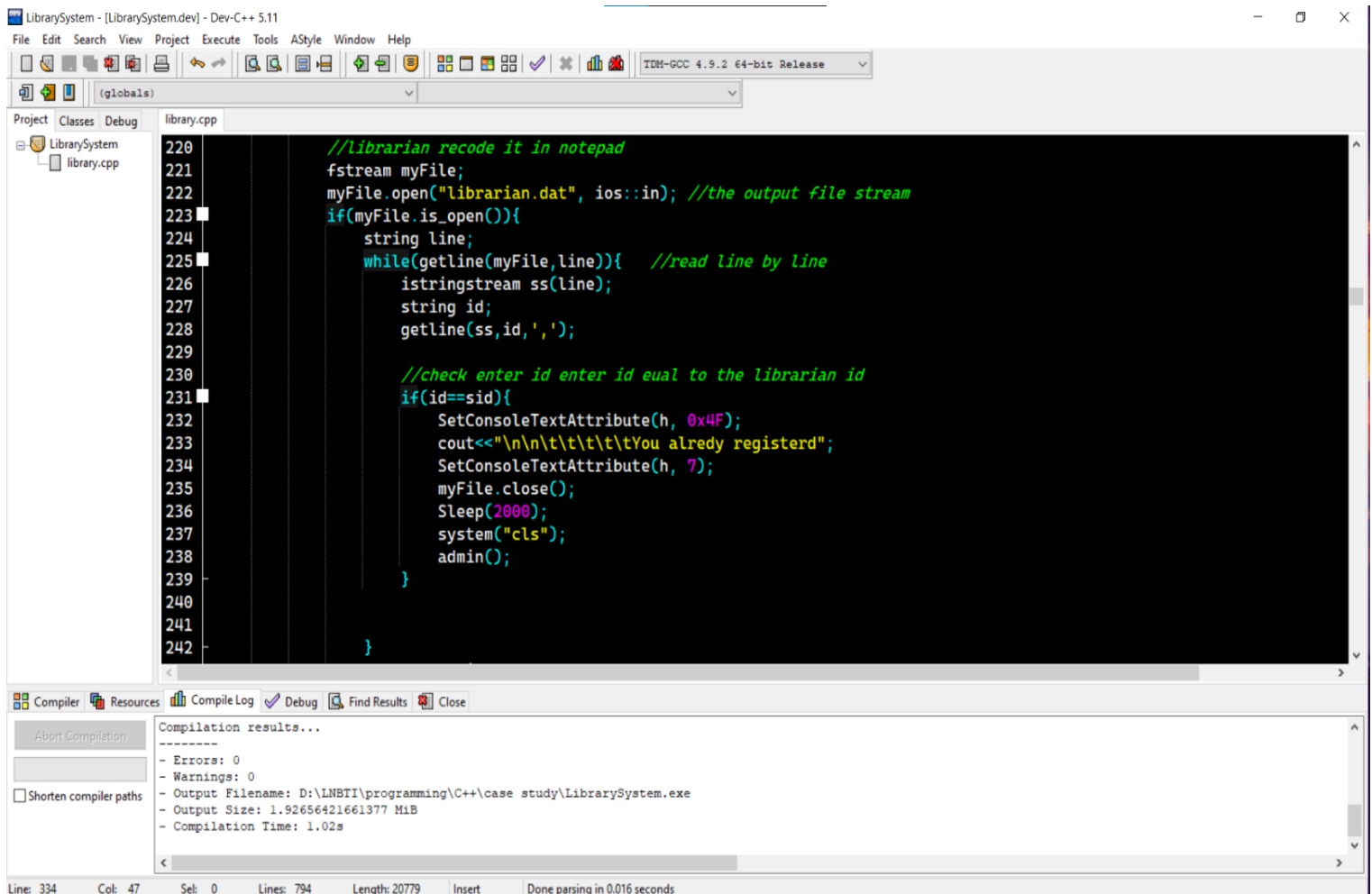
Delete Details

This menu can use to delete details. If you enter number 1 then you can delete book details. You can enter If you enter number 2 then you can delete borrower details.

11 | Page



- This is check whether admin enter correct login username, password or not. If user enter correct username and password, then automatically open the admin tasks. If user enter wrong username and password, then display you entered username and password is wrong and automatically brings to the main menu.



- This code is check whether librarian is already added or not. If the librarian is not already added, then show the details to fill and can create username and password to librarian. If it is not, then shows librarian is already added and back to the admin task menu.

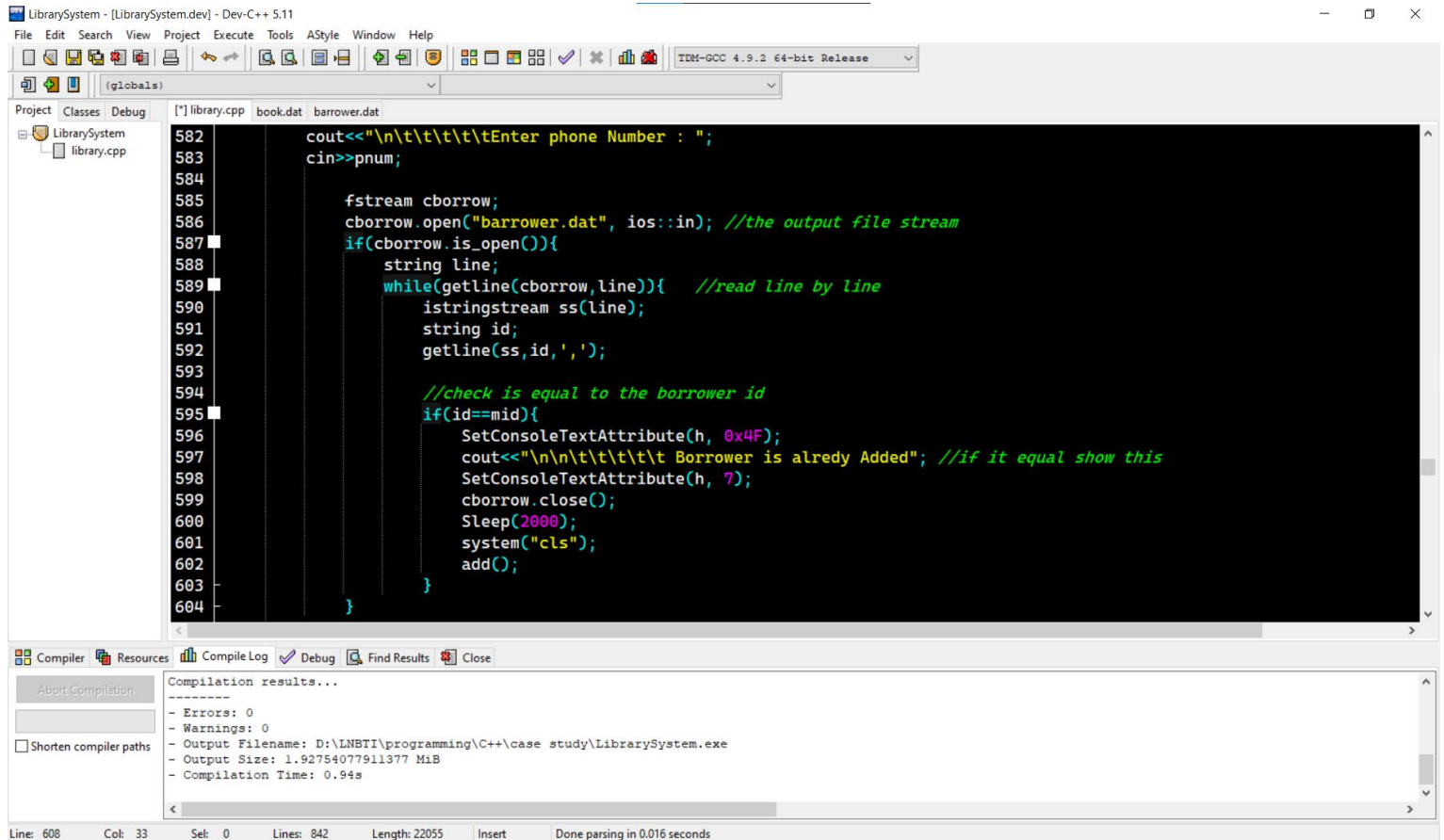
```
524     fstream cbook;
525     cbook.open("book.dat", ios::in); //the output file stream
526     if(cbook.is_open()){
527         string line;
528         while(getline(cbook,line)){ //read line by line
529             istringstream ss(line);
530             string id;
531             getline(ss,id,',');
532
533             //check is equal to the book isbn
534             if(id==isbn){
535                 SetConsoleTextAttribute(h, 0x4F);
536                 cout<<"\n\n\t\t\t\t\t Book is already Added"; //if it equal show this
537                 SetConsoleTextAttribute(h, 7);
538                 cbook.close();
539                 Sleep(2000);
540                 system("cls");
541                 add();
542             }
543     }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\LNBTI\programming\C++\case study\LibrarySystem.exe
- Output Size: 1.92705249786377 MiB
- Compilation Time: 0.98s

Line: 524 Col: 23 Sel: 0 Lines: 819 Length: 21420 Insert Done parsing in 0.031 seconds

- This code is check whether book is already added or not to the library. If the book is not already added, then added successfully. If is it not, then show the book is already added and back to the add details menu.



- This code is check whether borrower is already added or not. If the borrower is not already added, then added borrower successfully. If is it not, then show the borrower is already added and back to the add details menu.

The screenshot shows a C++ IDE with the following components:

- Project Explorer:** Shows a project named "LibrarySystem" with a file "library.cpp".
- Code Editor:** Displays the code for "library.cpp" from line 1178 to 1203. The code is as follows:


```

1178 ifstream sborrow("borrower.dat");
1179 if(sborrow.is_open()){
1180     string lineb;
1181     SetConsoleTextAttribute(h, 11);
1182     while(getline(sborrow, lineb)){
1183         string idd;
1184         istringstream iss(lineb);
1185         getline(iss, idd, '\t');
1186         if(idd==boid){
1187             SetConsoleTextAttribute(h, 2);
1188             cout << "\n\t\t\t\t\tID" << "\t\tNAME" << "\t\tJOIN DATE" << "\tContact Number\n";
1189             cout << "\n\t\t\t\t\t" << lineb << endl;
1190             sborrow.close();
1191
1192         }else{
1193             SetConsoleTextAttribute(h, 0x4F);
1194             cout << "\n\n\t\t\t\t\tBorrower is not in Recode !! ";
1195             Sleep(2500);
1196             system("cls");
1197             librarian();
1198         }
1199     }
1200 }else{
1201     cout << "\n\t\t\t\t\tNot Opend ! ";
1202 }
1203
      
```
- Compiler Output:** Shows the compilation results:


```

Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: D:\LNBTI\programming\C++\case study\LibrarySystem.exe
- Output Size: 1.94326591491699 MiB
- Compilation Time: 1.33s
      
```
- Status Bar:** Shows "Line: 1178 Col: 46 Sel: 0 Lines: 1346 Length: 32989 Insert Done parsing in 0.031 seconds".

- When the librarian issued a book first it checks the borrower is on the recode or not. It checks with borrow id and there is not borrower with entered borrow id. Then display you are not in the recode and back to librarian menu.

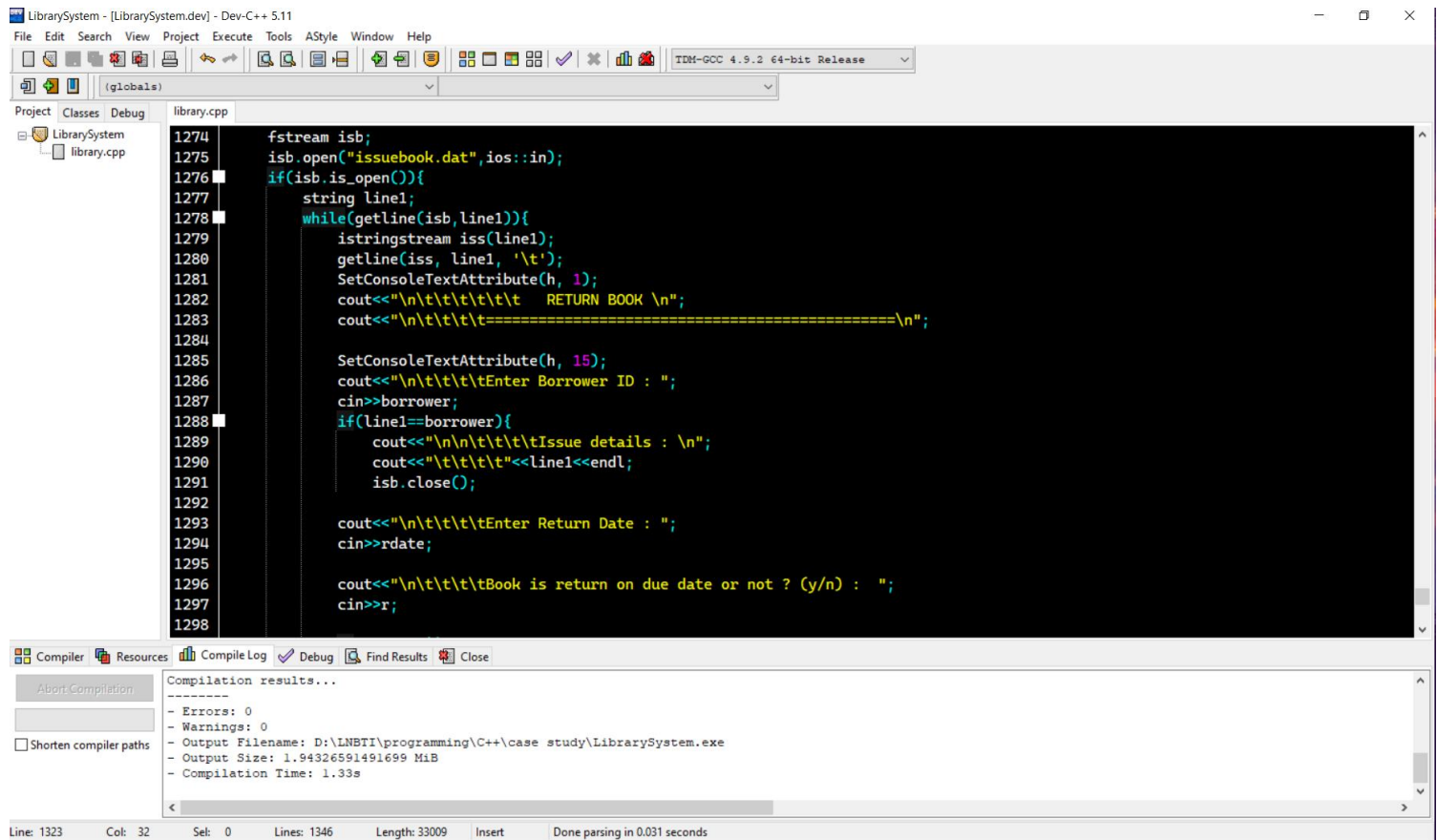

```
1208 ifstream isbook("book.dat");
1209 if(isbook.is_open()){
1210     string linen;
1211     SetConsoleTextAttribute(h, 11);
1212     while(getline(isbook, linen)){
1213         string isnum;
1214         istringstream iss(linen);
1215         getline(iss, isnum, '\t');
1216         if(isnum==is){
1217             SetConsoleTextAttribute(h, 2);
1218             cout << "\n\t\t\tISBN\tBOOK NAME\tAUTHOR\tPUBLISHER\tPRICE\tSTATUS\n";
1219             cout<<"\n\t\t\t"<<linen<<endl;
1220             isbook.close();
1221
1222         }else{
1223             SetConsoleTextAttribute(h, 0x4F);
1224             cout<<"\n\n\t\t\t\t\tBook is not in Recode or It's unavailable now !! ";
1225             Sleep(2500);
1226             system("cls");
1227             Librarian();
1228         }
1229     }
1230 }else{
1231     cout<<"\n\t\t\t\t\tNot Open !";
1232 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: D:\LNBTI\programming\C++\case study\LibrarySystem.exe
- Output Size: 1.94326591491699 MiB
- Compilation Time: 1.33s

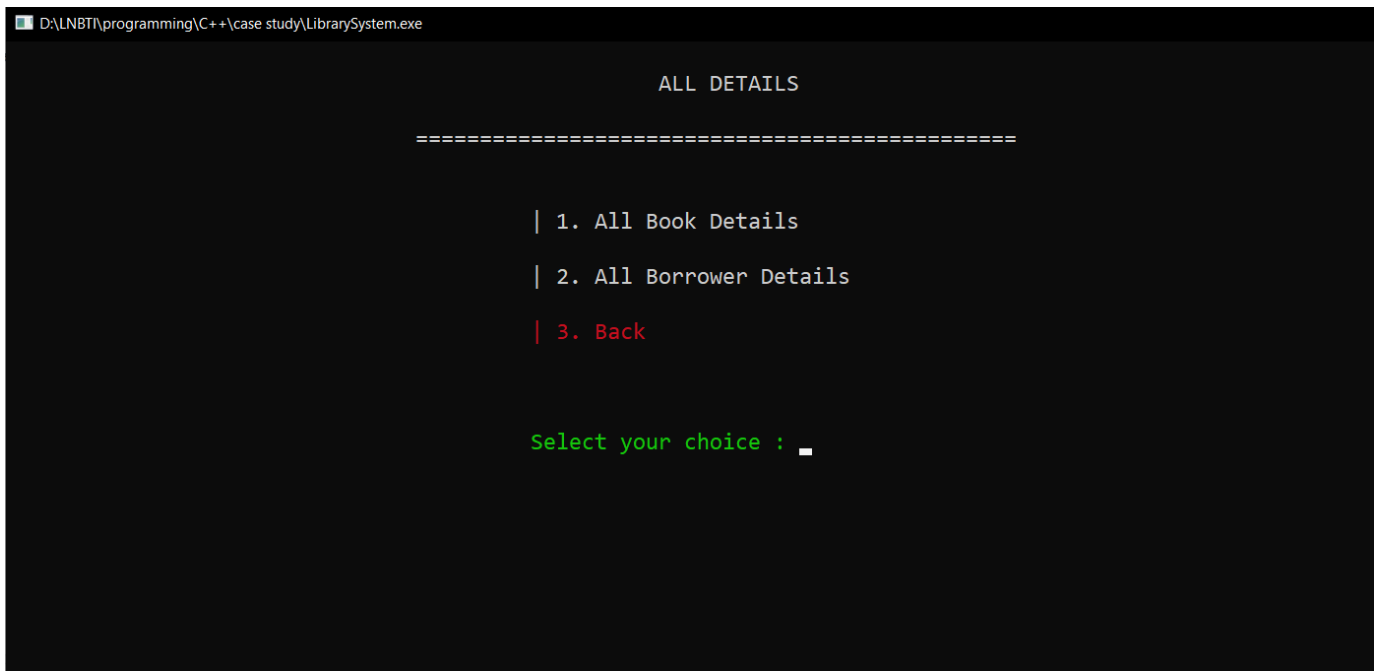
Line: 1178 Col: 46 Sel: 0 Lines: 1346 Length: 32989 Insert Done parsing in 0.031 seconds

- When the librarian issued a book first it checks the borrower is on the recode or not. If borrower on the recodes, then check the book ISBN number is in the recodes. If it is not, then display books is not in recode or not available and go to library menu. But book ISBN number is in the recode then librarian can issue the book.



- In the return book, first enter the borrow id and check whether the borrower have book or not id borrower have then show the issued details.

ADDITIONAL FEATURES



```
D:\LNBTI\programming\C++\case study\LibrarySystem.exe

ALL DETAILS

=====

| 1. All Book Details
| 2. All Borrower Details
| 3. Back

Select your choice : _
```

- You can view all books and borrowers in the library. It shows the records before saved from librarian. If you enter 1 then you can see all books and if you enter number 2 then you can see all borrowers in the library.

- It's looks like this:

```
D:\LNBTI\programming\C++\case study\LibrarySystem.exe

                                BORROWER LIST
                                -----

ID      NAME      JOIN DATE      Contact Number
=====
B001    oneli jayodya  12/07/2023     756174242
B002    dilshara      02/05/2023     745128375

Press any key to continue.....
```

```
D:\LNBTI\programming\C++\case study\LibrarySystem.exe

                                BOOKS LIST
                                -----

ISBN    BOOK NAME    AUTHOR  PUBLISHER    GENRE    PRICE    STATUS
=====
IS100    madolduwa      martin  godagama     Story    600      available

Press any key to continue.....
```

```
D:\LNBTI\programming\C++\case study\LibrarySystem.exe

LIBRARIAN

=====

| 1. Add Details
| 2. Delete Details
| 3. Search Details
| 4. All Details
| 5. Issue Books
| 6. All Issue Books
| 7. Return Books
| 8. Back To Main

Select your choice : _
```

- If you want to see all issued book, then entered number 7 and it show like this.

```
D:\LNBTI\programming\C++\case study\LibrarySystem.exe

ALL ISSUE DETAILS
-----

BORROWER ID   BOOK ID   ISSUE DATE   DUE DATE
=====

M001          IS100     12/7/2023     22/7/2023

Press any key to continue.....
```

TEST PLAN

Library Management System	
Test Plan Id	01
Brief Introduction about the system	Library system
Test Objectives	Add details. Search details. All details. Delete details.
Features to be Tested	Add Book Add Borrower Search Book Search Borrower All Book All Borrower Delete Book Delete Borrower Issue Book All Issue Book
Test Environment	Laptop, Dev C++
Test Approach	Black Box
Testing Tasks	Test Planning, Test Designing, Test Development, Test Execution, Test Evolution
Test Deliverables	Test Plan, Test Environment, Test Summary, Test Result, Test Evolution Report.
Schedule	Date: 13/08/2023 Time: 7.09 P.M

TEST CASES

Test Case	
Test Unit: Enter Book details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: Add book details to the library system	Test Execution Date: 13/08/2023
Title: Add book	Test Execution Time: 11.30 p.m.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	Add details of a books	01	ISBN: IS100 Book name: Madolduwa Author name: Martin Publisher: godagama Genre: Story Price: Rs.600 Status: available	Show book is added	Book is added	pass
02.	Add details of a books	02	ISBN: IS100 Book name: hathpana Author name: Andriya Publisher: godagama Genre: Story Price: Rs.500 Status: available	Book id is already added	Book is already added	pass

Test Case	
Test Unit: Enter Borrower details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: Add borrower details to the library system	Test Execution Date: 13/08/2023
Title: Add borrower	Test Execution Time: 11.35 p.m.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	Add details of a borrower	01	Borrower id: M001 Name: oneli Join date: 05/03/2023 Phone number : 0756174242	Show borrower is added	borrower is added	pass
02.	Add details of a borrower	02	Borrower id: M001 Name: dilshara Join date: 03/03/2023 Phone number : 0745698213	borrower id is already added	borrower is already added	pass

Test Case	
Test Unit: Search book details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: search book details in the library system	Test Execution Date: 13/08/2023
Title: Search book	Test Execution Time: 11.55 p.m.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	search details of a book	01	ISBN no: IS100	ISBN: IS100 Book name: Madolduwa Author name:Martin Publisher: godagama Genre: Story Price:Rs.600 Status: available	ISBN: IS100 Book name: Madolduwa Author name:Martin Publisher: godagama Genre: Story Price:Rs.600 Status: available	pass
02.	search details of a book	02	ISBN no: IS105	No recode	No recode	pass

Test Case	
Test Unit: Search borrower details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: search borrower details in the library system	Test Execution Date: 14/08/2023
Title: Search borrower	Test Execution Time: 12.00 A.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	search details of a borrower	01	Borrow id: M001	Borrower id: M001 Name: oneli Join date: 05/03/2023. Phone number: 0756174242	Borrower id: M001 Name: oneli Join date: 05/03/2023. Phone number: 0756174242	pass
02.	search details of a borrower	02	Borrow id: M050	No recode	No recode	pass

Test Case	
Test Unit: view All book details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: view all book details of the added books	Test Execution Date: 14/08/2023
Title: All books	Test Execution Time: 1.00 A.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	view details of a book	01		ISBN: IS100 Book name: Madolduwa Author name:Martin Publisher: godagama Genre: Story Price:Rs.600 Status: available	ISBN: IS100 Book name: Madolduwa Author name:Martin Publisher: godagama Genre: Story Price:Rs.600 Status: available	pass

Test Case	
Test Unit: All borrower details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: view All borrowers details of the borrower added	Test Execution Date: 14/08/2023
Title: All borrower	Test Execution Time: 2.00 A.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	veiw details of a borrower	01		Borrower id: M001 Name: oneli Join date: 05/03/2023 Phone number : 0756174242	Borrower id: M001 Name: oneli Join date: 05/03/2023 Phone number : 0756174242	pass

Test Case	
Test Unit: delete book details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: delete book details of the added books	Test Execution Date: 16/08/2023
Title: Delete books	Test Execution Time: 11.00 P.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	delete details of a book	01	ISBN no: IS100	Deleted successfully	Deleted successfully	pass

Test Case	
Test Unit: delete borrower details	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: delete borrower details of the added borrower	Test Execution Date: 16/08/2023
Title: Delete borrower	Test Execution Time: 11.17 P.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	delete details of a borrower	01	Borrower id : M001	Deleted successfully	Deleted successfully	pass

Test Case	
Test Unit: Issue book	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: issue book to borrower	Test Execution Date: 16/08/2023
Title: Issue book	Test Execution Time: 2.00 P.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	Issue book	01	Borrower id : M001 ISBN no: IS100 Date of issue:15/07/2023 Due date :29/07/2023	Issued a book	Issued a book	pass

Test Case	
Test Unit: all Issued book	Tester: Oneli jayodya
Test Case ID: 01	Test Type: Black Box
Test Description: view issued books	Test Execution Date: 16/08/2023
Title: All issue books	Test Execution Time: 2.10 P.M.

Step no.	Test step	Test case ID	Test Input	Expect Result	Actual Result	Test Result
01.	All Issued book	01		Borrower id : M001 ISBN no: IS100 Date of issue:15/07/2023 Due date :29/07/2023	Borrower id : M001 ISBN no: IS100 Date of issue:15/07/2023 Due date :29/07/2023	pass

USER DOCUMENTATION

- First, you start the “Nanasa Library System” and then you can see the interface of the library system. It can use only Admin and Librarian.
- If you are an admin then you can enter your admin account entered number 1. Then you must enter the username and password of the admin. If it is wrong, then again you come to the main menu. If it is right, then shows your logging success and you can see admin tasks.
- Then you can see there are tasks for admin. If you entered number 1 then you can register a librarian. But if the librarian is already added then it says you already registered. If it is not, then show you are registered. And admin can give the username as the librarian’s first name and can give the password as the last 4 digits of the librarian’s id with NL. Then shows successfully and auto-comes to the admin menu.
- If you entered number 2 then the admin can change the fine rate according to the library rules.
- If you entered number 3 then the admin can change the borrowing limit according to the rules of the library.
- Then number 4 entered then go back to the main menu.
- Now you are in main menu and if you are a librarian then you entered number 2 and you must log into your own account, before admin created for you. Then you

entered correct password and username then you can access if it is not then showing wrong username or password and back to main menu.

- When you access the librarian then you can see task of librarian. If you entered number 1 then you can add details. In the add details there are two book and borrower. if you want to add a book then enter number 1.
- In the add book, you want to enter book ISBN number. If the ISBN already added it shows already added and display add details menu. If it is not, then you can enter book name and author name, publisher, genre, price, and availability. Then it says book added and back to the add menu.
- If you want to add borrower then you want to enter number 2 and you can enter borrower ID, name, join date and contact number. If the borrower already added, then it checked by id and show already added. If you want to go librarian menu, then press number 3 to back.
- Now you again on the librarian menu. If you want to delete details, then you enter number 2. Now you in delete details and it divides two types of books and borrowers.
- If you want to delete a book, then press number 1. Then you enter the ISBN of the book you want to delete. And press any number on your keyboard and it back to delete. If you want to delete the borrower, then press number 2. Then you enter the ID of the borrower you want to delete. And press any number on your keyboard and it back to delete. And enter number 3 to back to the menu.
- Then now you are in the menu and if you entered number 3 then you can search for details. If you want to search for a book, then go inside the search details and press number 1 and enter ISBN to search for it if you want to search for a

borrower then press number 2 and enter the ID number to search for the borrower. number 3 is back to the librarian menu.

- Now you are again on the librarian menu. If you want to see all details, then you enter number 4. Now you are in all the details and if you want to see all books then press number 1 and if you want to see borrowers then press number 2. Number 3 is back to the librarian menu.
- When the borrower wants to borrow a book from the library then you want to enter number 5 to issue the books. When you entered the issue book then you can see the borrowing limit and enter the borrow id and if the borrower not in the borrower file, then show not recoded. If it is not then entering book ISBN number, date of issued and due date of the book. And it recoded then show issued successfully. If you want to issue another book, then press y/Y as yes then you can enter another book if the borrowing limit is equal then enter n/N as no and it auto bac to the librarian.
- If you want to see all the issued books, then press number 6 in librarian menu. The it shows all the issued book in their and press any key to back the menu.
- If you want to return the book, then you press number 7 to it. And when you login to it you want to enter borrow id to check if it is issued you to correct or not then it is correct then you can enter the return date and id it is correct to due date then press Y/y as yes if it is not then pressing N/n as no and now you can see the fine rate and enter late dates the print the amount of fine.
- If you want to go back to main then press number 8.

EVIDENCE OF CODE IMPLEMENTATION

```
#include<iostream>
#include<fstream> //file handling
#include<string>
#include<string.h>
#include<sstream>
#include<conio.h>
#include<windows.h>//to access windows library
```

```
using namespace std;
```

```
//function declar
```

```
void admin();
```

```
void librarian();
```

```
void add();
```

```
void veiw();
```

```
void search();
```

```
void del();
```

```
void issue();
```

```
void allissue();
```

```
void returnbook();
```

```
//main menu
```

```
int main(){
```



```

switch(choice){
    //admin
    case 1:{

        HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);

        //bg color
        system("color 60"); //bg yellow text black
        system("cls");

        //log variable
        string auser,apw, un , passw;

        //admin username and password
        un = "admin";
        passw = "ad@12";

        //admin log
        cout<<"\n\n\n";
        cout<<"\n\t\t\t\t\t ADMIN \n";

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

        cout<<"\n\n\t\t\t\t\t Enter your User Name => ";
        cin>>auser;
        cout<<"\n\t\t\t\t\t Enter Your Password => ";
        cin>>apw;

```

```

//correct login or not
if(auser == un && apw == passw){

    SetConsoleTextAttribute(h, 0x2F); //green
    cout<<"\n\n\t\t\t\t\tYour Login Successful!";
    Sleep(500);
    system("cls");
    cout<<"\n\n\n";
    admin();
}else{
    SetConsoleTextAttribute(h, 4); // red
    cout<<"\n\n\t\t\t\t\tYour Password or Username is wrong ! Try
Again!!";

    Sleep(1000);
    system("cls");
    main();
}

break;
}

//librarian
case 2:{

    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);

    //bg color
    system("color E0"); //bg light yellow

```

```

system("cls");

//log variable
string libuser,libpw ,luser,lpw;
int count;


//librarian log
cout<<"\n\n\n";
cout<<"\n\t\t\t\t\t LIBRARIAN \n";

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

cout<<"\n\n\t\t\t\t\t Enter Your Password => ";
cin>>libpw;
cout<<"\n\t\t\t\t\t Enter your User Name => ";
cin>>libuser;


fstream File;
File.open("usepw.dat", ios::in); //the output file stream
if(File.is_open()){
    string line;

    while(getline(File,line)){ //read end of line
        string apw,aun;
        istringstream iss(line);
        getline(iss, apw, ' ');
        getline(iss, aun, ' ');
    }
}

```



```

//check enter id enter id equal to the librarian id
if(apw==libpw && aun==libuser){

    SetConsoleTextAttribute(h, 0x2F);
    cout<<"\n\n\t\t\t\t\tYou can Access";
    SetConsoleTextAttribute(h, 7);
    File.close();
    Sleep(2000);
    system("cls");
    librarian();
}

}

SetConsoleTextAttribute(h, 0x4F);
    cout<<"\n\n\t\t\t\t\tYou can't Access !! wrong
password or username";

    SetConsoleTextAttribute(h, 7);
    File.close();
    Sleep(4000);
    system("cls");
    main();

}else{
    SetConsoleTextAttribute(h,4);
    cout<<"\n\n\t\t\t\t\t-----Not found-----";
}

```

```

        break;
    }

    //Exit
    case 3:{
        SetConsoleTextAttribute(h,15);
        cout<<"\n\n\t\t\t\t\t~~~~~ Have a Nice Day ~~~~~\n\n\n";
        break;
    }

    //wrong choice
    default:{
        SetConsoleTextAttribute(h, 0x4F);
        cout<<"\n\n\t\t\t!!! Wrong choise !!!";
        Sleep(1000);
        system("cls");
        main();
        break;
    }

}

return 0;
}

//admin task
void admin(){

```

```

int select;

HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);

system("color 04");
SetConsoleTextAttribute(h, 6);

//admin menu
cout<<"\n\t\t\t\t\t ADMIN \n";
cout<<"\n\t\t\t\t\t=====\\
n";
cout<<"\n\n\t\t\t\t\t | 1. Sign Up\n";
cout<<"\n\t\t\t\t\t | 2. Fine Rate\n";
cout<<"\n\t\t\t\t\t | 3. Borrowing Limits\n";
cout<<"\n\t\t\t\t\t | 4. Back To Main";
SetConsoleTextAttribute(h, 10);
cout<<"\n\n\n\t\t\t\t\t Select your choice : ";
cin>>select;

switch(select){

//librarian registration
case 1:{
    system("cls");

    string sname,sid,semail;

```



```

    }
}else{
    SetConsoleTextAttribute(h,4);
    cout<<"\n\n\t\t\t\t\t-----Not found-----";
}

```

```

cout<<"\n\t\t\t\t\t Enter your Name : \t";
cin.ignore();
getline(cin,sname);
cout<<"\n\t\t\t\t\t Enter Email Address : ";
cin>>semail;
cout<<"\n\t\t\t\t\t Enter Phone Number : ";
cin>>sphone;

```

//librarian recode it in notepad

```

fstream myFile1;
myFile1.open("librarian.dat", ios::app); //the output file

stream

if(myFile1.is_open()){
    SetConsoleTextAttribute(h, 0x2F);
    cout<<"\n\n\t\t\t\t\t You are registerd";

myFile1<<sid<<','<<sname<<','<<semail<<','<<sphone<< ' '<<endl;
    myFile1.close();
}else{
    cout<<"\n\n\t\t\t\t\t File not opend";

```

```
}
```

```
//admin give username and password
```

```
SetConsoleTextAttribute(h,14);
```

```
string luser, lpw;
```

```
cout<<"\n\n\t\t\t\t Create Username & Password to Librarian \n\n";
```

```
SetConsoleTextAttribute(h,15);
```

```
cout<<"\t\t\t\t Enter Password : ";
```

```
cin>>lpw;
```

```
cout<<"\t\t\t\t Enter Username : ";
```

```
cin>>luser;
```

```
//save usernames and pws
```

```
fstream File;
```

```
File.open("usepw.dat", ios::app);
```

```
if(File.is_open()){
```

```
    File<<lpw<<' '<<luser<<endl;
```

```
    SetConsoleTextAttribute(h,0x2F);
```

```
    cout<<"\n\n\t\t\t\t Successfull";
```

```
    File.close();
```

```
}else{
```

```
    SetConsoleTextAttribute(h,0x4F);
```

```
    cout<<" File Open Failed !!";
```

```

    }

    Sleep(1000);
    system("cls");
    system("color 04");
    admin();

    break;
}

//fine rate
case 2:{
    system("cls");

    float rate ;
    int r;
    fstream Frate;

    Frate.open("rate.dat",ios::in);
    if(!Frate){
        cout<<" File not Found !!";

    }else{

        string line;
        while(getline(Frate,line)){
            istringstream iss(line);

```



```

        }
        Frate.close();
        SetConsoleTextAttribute(h,15);
        cout<<"\n\n\n\t\t\tPress any key to continue.....";
        getche();
system("cls");
admin();

    }else if(r==2){
        SetConsoleTextAttribute(h,15);
        cout<<"\n\n\n\t\t\tPress any key to continue.....";
        getche();
system("cls");
admin();
    }
    break;
}

//borrow limit
case 3:{
    system("cls");

    int limit ;
    int o;

    fstream Flimit;
    Flimit.open("limit.dat",ios::in);

```



```

        SetConsoleTextAttribute(h,0x4F);
        cout<<"\n\t\t\t\t\tFile Open Failed !!";
    }else{
        cout<<"\n\n\t\t\t\t\tEnter new Borrow Limit : ";
        cin>>limit;
        Flimit <<limit<<endl;
        SetConsoleTextAttribute(h,2);
        cout<<"\n\n\t\t\t\t\tNew Borrow Limit is :
" <<limit<<endl;

    }
    Flimit.close();
    SetConsoleTextAttribute(h,15);
    cout<<"\n\n\n\t\t\t\t\tPress any key to continue.....";
    getche();
    system("cls");
    admin();

    }else if(o==2){
        SetConsoleTextAttribute(h,15);
        cout<<"\n\n\n\t\t\t\t\tPress any key to continue.....";
        getche();
        system("cls");
        admin();
    }
    break;
}

```

```

        //back to main
        case 4:{
            system("cls");
            main();
            break;
        }

        //wrong
        default:
            system("cls");
            main();

    }

}

//librarian tasks
void librarian(){

    system("cls");
    int option;

    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);

    system("color 04");
    SetConsoleTextAttribute(h, 14);
    cout<<"\n\t\t\t\t\t LIBRARIAN \n";

```



```

    }
    case 3:{
        //search books and borrowers
        search();
        break;
    }
    case 4:{
        //display all details added
        system("cls");
        veiw();
        librarian();
        break;
    }

    case 5:{
        //issue books
        issue();
        break;
    }
    case 6:{
        allissue();
        break;
    }
    case 7:{
        //return books
        returnbook();
        break;
    }

```



```

cout<<"\n\t\t\t\t\t | 1. Add Book Details\n";
cout<<"\n\t\t\t\t\t | 2. Add Borrower Details\n";
SetConsoleTextAttribute(h, 4);
cout<<"\n\t\t\t\t\t | 3. Back ";

SetConsoleTextAttribute(h, 10);
cout<<"\n\n\t\t\t\t\t Select your choice : ";
cin>>ad;

//add book details
if(ad==1){

    float price;
    string bname, aname, isbn,genre,pub;
    string status="Available";

    system("cls");
    SetConsoleTextAttribute(h, 8);
    cout<<"\n\n\t\t\t\t\t ADD BOOK DETAILS \n";

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

    SetConsoleTextAttribute(h, 15);
    cout<<"\n\n\t\t\t\t\t Enter Book's ISBN No. : ";
    cin>>isbn;
    fstream cbook;

    cbook.open("book.dat", ios::in); //the output file stream
    if(cbook.is_open()){
        string line;

```



```

while(getline(cbook,line)){ //read line by line
    istringstream ss(line);
    string id;
    getline(ss,id,'\t');

    //check is equal to the book isbn
    if(id==isbn){
        SetConsoleTextAttribute(h, 0x4F);
        cout<<"\n\n\t\t\t\t\t Book is alredy Added"; //if
it equal show this

        SetConsoleTextAttribute(h, 7);
        cbook.close();
        Sleep(2000);
        system("cls");
        add();
    }
}

}else{
    cout<<"\n\n\t\t\t\t\t Not Found";
}

cout<<"\n\n\t\t\t\t\t Enter Book's Name : ";
cin.ignore();
getline(cin,bname);
cout<<"\n\n\t\t\t\t\t Enter Author's Name : ";
getline(cin,aname);
cout<<"\n\n\t\t\t\t\t Enter Publisher : ";
getline(cin,pub);
cout<<"\n\n\t\t\t\t\t Enter Genre of Book : ";

```

```

cin>>genre;

cout<<"\n\n\t\t\t Enter Price of Book : Rs. ";

cin>>price;

cout<<"\n\n\t\t\t Status of Availability : ";

cout<<status;

```

```

//not equal then add

```

```

fstream mybook;

mybook.open("book.dat", ios::app); //the output file stream

if(mybook.is_open()){

```

```

    mybook<<isbn<<"\t"<<bname<<"\t"<<aname<<"\t"<<pub<<"\t"<<genre<<"\t"<<price
    <<"\t"<<status<<endl;

```

```

        SetConsoleTextAttribute(h, 0x2F);

        cout<<"\n\n\t\t\t Book is Added";

        SetConsoleTextAttribute(h, 15);

        mybook.close();

        Sleep(2000);

        system("cls");

        add();

```

```

    }else{

        cout<<"\n\n\t\t\t File not opend!!";

    }

```

```

//add borrowers

```

```

}else if(ad==2){
    string mname,date,mid;
    int pnum;

    system("cls");
    SetConsoleTextAttribute(h, 8);
    cout<<"\n\t\t\t\t\t ADD BORROWER DETAILS \n";

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

    SetConsoleTextAttribute(h, 15);
    cout<<"\n\t\t\t\t\tEnter ID : ";
    cin.ignore();
    getline(cin,mid);
    fstream cborrow;

    cborrow.open("barrower.dat", ios::in); //the output file stream
    if(cborrow.is_open()){
        string line;
        while(getline(cborrow,line)){ //read line by line
            istringstream ss(line);
            string id;
            getline(ss,id,'\t');

            //check is equal to the borrower id
            if(id==mid){
                SetConsoleTextAttribute(h, 0x4F);
                cout<<"\n\t\t\t\t\t Borrower is alredy Added";

                SetConsoleTextAttribute(h, 7);
            }
        }
    }
}

```

```

        cborrow.close();

        Sleep(2000);

        system("cls");

        add();

    }

}

}else{

    cout<<"\n\n\t\t\t\t\t NOT FOUND ";

}

cout<<"\n\n\t\t\t\t\tEnter Name : ";

getline(cin,mname);

cout<<"\n\t\t\t\t\tEnter Join Date : ";

getline(cin,date);

cout<<"\n\t\t\t\t\tEnter phone Number : ";

cin>>pnum;


fstream addbarrow;

addbarrow.open("barrower.dat", ios::app); //the output file stream

if(addbarrow.is_open()){

    addbarrow<<mid<<"\t"<<mname<<"\t"<<date<<"\t"<<pnum<<endl;

//    addbarrow<<mid<<','<<mname<<','<<date<<','<<pnum<<endl;

    SetConsoleTextAttribute(h, 0x2F);

    cout<<"\n\n\t\t\t\t\t Borrow is Added";

    SetConsoleTextAttribute(h, 15);

    addbarrow.close();

    Sleep(2000);

```

```

        system("cls");
        add();
    }else{
        cout<<"\n\n\t\t\t\t\t File not opend!!";
    }

}

}else if(ad==3){

    system("cls");
    librarian();

}

}

}

}

//display details
void veiw(){

    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);
    int v;
    system("cls");

    system("color 04");

```

```

SetConsoleTextAttribute(h, 7);

cout<<"\n\t\t\t\t\t ALL DETAILS \n";

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

cout<<"\n\n\t\t\t\t\t | 1. All Book Details\n";
cout<<"\n\t\t\t\t\t | 2. All Borrower Details\n";
SetConsoleTextAttribute(h, 4);
cout<<"\n\t\t\t\t\t | 3. Back\n";


SetConsoleTextAttribute(h, 10);
cout<<"\n\n\n\t\t\t\t\t Select your choice : ";
cin>>v;


//display books
if(v==1){

    system("cls");
    SetConsoleTextAttribute(h, 9);
    cout<<"\n\n\t\t\t\t\t BOOKS LIST";
    cout<<"\n\t\t\t\t\t-----";
    SetConsoleTextAttribute(h, 15);


    // Open the file in input mode
    ifstream all("book.dat");
    if(all.is_open()){
        string line;
        SetConsoleTextAttribute(h, 11);
        cout << "\n\n\n\t\t\t\t\tISBN\tBOOK
NAME\tAUTHOR\tPUBLISHER\tGENRE\tPRICE\tSTATUS\n";

```



```

        ifstream all("barrower.dat");

        if(all.is_open()){
            string line;

            SetConsoleTextAttribute(h, 11);

            cout << "\n\n\n\t\t\tID" << "\tNAME" << "\tJOIN DATE" << "\tContact
Number\n";

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

            while(getline(all,line)){
                SetConsoleTextAttribute(h, 15);
                cout<<'\n'<<'\n'<<'\t'<<'\t'<<'\t'<<'\t'<<'\t'<<'\t'<<line<<endl;

                }

                all.close();

            }
            else{
                cout<<"not opened !";

            }

            cout<<"\n\n\n\t\t\tPress any key to continue.....";

            getch();

            system("cls");

            veiw();

            //back to menu

        }else if(v==3){

            librarian();

            //wrong number

        }else{

```



```

        SetConsoleTextAttribute(h, 0x4F);

        cout<<"\n\n\t\t\t\t\t Wrong number !! ";

        Sleep(2000);

        system("cls");

        librarian();

    }

}

//search books

void search(){

    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);

    int c;

    system("cls");

    system("color 04");

    //search menu

    SetConsoleTextAttribute(h, 7);

    cout<<"\n\t\t\t\t\t SEARCH DETAILS \n";

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

    cout<<"\n\n\t\t\t\t\t | 1. Search Book Details\n";

    cout<<"\n\t\t\t\t\t | 2. Search Borrower Details\n";

    SetConsoleTextAttribute(h, 4);

    cout<<"\n\t\t\t\t\t | 3. Back\n";

    SetConsoleTextAttribute(h, 10);

```

```

cout<<"\n\n\t\t\t\t\t Select your choice : ";
cin>>c;

//search book
if(c==1){

    system("cls");
    string sid;
    SetConsoleTextAttribute(h, 1);

    cout<<"\n\n\t\t\t\t\t SEARCH BOOKS";
    cout<<"\n\n\t\t\t\t\t-----";
    SetConsoleTextAttribute(h, 15);
    cout<<"\n\n\n\t\t\t\t\t Enter Book ISBN number : ";
    cin>>sid;

    // check isbn are equal and print
    ifstream sbook("book.dat");
    if(sbook.is_open()){
        string line;
        SetConsoleTextAttribute(h, 11);

        //cout << "\n\n\n" << "\t" << "\t" << "\t" << "ISBN" << "\t" << "BOOK
NAME" << "\t" << "AUTHOR" << "\t" << " ' " << "PRICE" << "\t" << "STATUS \n";
        while(getline(sbook,line)){
            string spw;
            istringstream iss(line);
            getline(iss, spw, '\t');
            if(spw==sid){

```

```

        SetConsoleTextAttribute(h, 15);

        cout << "\n\n\n\t\tISBN\tBOOK
NAME\tAUTHOR\tPUBLISHER\tGENRE\tPRICE\tSTATUS\n";

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

        cout<<"\n\t\t\t"<<line<<endl;

        sbook.close();

    }else{

        cout<<" \n\t\t\t\tNo recode !";

        }

    }

    cout<<"\n\n\n\t\t\tPress any key to continue.....";

    getche();

    search();

    sbook.close();

}

}

//search borrower

}else if(c==2){

    system("cls");

    string sbid;

    SetConsoleTextAttribute(h, 1);

```



```

        search();

        cout<<" \n\t\t\t\tNOT AVAILABLE THIS BOOK !";

        sborrow.close();

    }else{

        cout<<"\n\t\t\t\t Not Open ";

    }

}

}else if(c==3){

    librarian();

}

else{

    SetConsoleTextAttribute(h, 0x4F);

    cout<<"\n\n\t\t\t\t Wrong number !! ";

    Sleep(2000);

    system("cls");

    librarian();

}

}

//delete details

void del(){

    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);

    int d;

    system("cls");

    system("color 04");

    SetConsoleTextAttribute(h, 7);

```

```

cout<<"\n\t\t\t\t\t DELETE DETAILS \n";

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

cout<<"\n\n\t\t\t\t\t | 1. Delete Book Details\n";
cout<<"\n\t\t\t\t\t | 2. Delete Borrower Details\n";
SetConsoleTextAttribute(h, 4);
cout<<"\n\t\t\t\t\t | 3. Back ";

SetConsoleTextAttribute(h, 10);
cout<<"\n\n\n\t\t\t\t\t Select your choice : ";
cin>>d;

//book delete
if(d==1){

    system("cls");
    float tprice;
    string tname, taname, tgenre, tstatus, tpub ,isbn;
    string tisbn;
    int count;
    bool found =false;

    SetConsoleTextAttribute(h, 7);
    cout<<"\n\n\t\t\t\t\t\t\t\t\t DELETE BOOKS";
    cout<<"\n\t\t\t\t\t\t\t\t\t-----";

    fstream bfile;
    fstream tfile;

```

```

        //file in output mode
tfile.open("tempbk.dat", ios::out);
bfile.open("book.dat",ios::in);

if(!tfile||!bfile){

        cout<<" File not open"<<endl;

    }else{

        SetConsoleTextAttribute(h, 15);
        cout<<"\n\n\n\t\t\t\t\t Enter Book ISBN number : ";
        cin>>isbn;

while(bfile>>tisbn>>tbnam>>taname>>tpub>>tgenre>>tprice>>tstatus){

        //      cout<<tisbn;
        //      cout<<isbn;
        if(tisbn==isbn){
                cout << "Book found true" << endl;
                found = true;

        }else{

tfile<<tisbn<<tbnam<<taname<<tpub<<tgenre<<tprice<<tstatus;

        }

    }
}

```

```

bfile.close();

tfile.close();

if(found==true){
    remove("book.dat");
    rename("tempbk.dat","book.dat");
    SetConsoleTextAttribute(h, 0x2F);
    cout<<"\n\t\t\tDeleted Successfully "<<endl;
    Sleep(3000);
    del();
}else{
    remove("tempbk.dat");
    cout<<" Not found"<<endl;
    //bfile.close();
    Sleep(3000);
    del();
}
}

//borrow delete
}else if(d==2){

    system("cls");
    string mname,date,mid,id;
    int pnum;

    int count;
    bool found =false;

```



```

SetConsoleTextAttribute(h, 7);

cout<<"\n\n\t\t\t\t\t DELETE BORROWERS";

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


fstream tborrowfile;

fstream bborrowfile;


//file in output mode
tborrowfile.open("tempborrow.dat", ios::out);
bborrowfile.open("barrower.dat", ios::in);


if(!tborrowfile||!bborrowfile){

    cout<<" File not open"<<endl;

}

else{

    SetConsoleTextAttribute(h, 15);

    cout<<"\n\n\n\t\t\t\t\t Enter borrow ID number : ";

    cin>>id;

    while(bborrowfile>>mid>>mname>>date>>pnum){

        //    cout<<tisbn;

        //    cout<<isbn;

        if(mid==id){

            cout << "Book found true" << endl;

```

```

        found = true;

    }else{
        tborrowfile<<mid<<mname<<date<<pnum;
    }
}

bborrowfile.close();
tborrowfile.close();

if(found==true){
    remove("barrower.dat");
    rename("temoborrow.dat","barrower.dat");
    SetConsoleTextAttribute(h, 0x2F);
    cout<<"\n\t\t\tDeleted Successfully "<<endl;
    Sleep(3000);
    del();
}else{
    remove("temoborrow.dat");
    cout<<" Not found"<<endl;
    //bfile.close();
    Sleep(3000);
    del();
}
}

```

```

//back to menu
}else if(d==3){

    librarian();

//enter wrong num
}else{

    SetConsoleTextAttribute(h, 0x4F);
    cout<<"\n\n\t\t\t\t\t Wrong number !! ";
    Sleep(2000);
    system("cls");
    librarian();
}
}

void issue(){
    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);
    string isdate,boid,bonam,is,due;
    string i;

    system("cls");

    system("color 04");

    fstream ratee;

```

```

ratee.open("limit.dat", ios::in);
if(ratee.is_open()){
    string line;
    while(getline(ratee,line)){
        istringstream iss(line);
        SetConsoleTextAttribute(h, 1);
        cout<<"\n\t\t\t\t\t ISSUE BOOK \n";

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

        SetConsoleTextAttribute(h, 8);
        cout<<" \n\n\t\t\t\t\t you can borrow "<<line<<" books at once ";

        do{
            SetConsoleTextAttribute(h, 7);
            cout<<" \n\n\t\t\t\t\t Enter Borrower id : ";
            cin>>boid;

            ifstream sborrow("barrower.dat");
            if(sborrow.is_open()){
                string lineb;
                SetConsoleTextAttribute(h, 11);
                while(getline(sborrow,lineb)){
                    string idd;
                    istringstream iss(lineb);
                    getline(iss, idd, '\t');

                    if(idd==boid){

```

```

        SetConsoleTextAttribute(h, 2);

        cout << "\n\t\t\tID" << "\tNAME" << "\tJOIN
DATE" << "\tContact Number\n";

        cout << "\n\t\t\t" << lineb << endl;

        sborrow.close();

    }else{
        SetConsoleTextAttribute(h, 0x4F);

        cout << "\n\n\t\t\tBorrower is not in Recode !! ";

        Sleep(2500);

        system("cls");

        librarian();

    }

}

}else{
    cout << "\n\t\t\tNot Opend ! ";

}

SetConsoleTextAttribute(h, 15);

cout << " \n\t\t\t\tEnter book ISBN :";

cin >> is;

ifstream isbook("book.dat");

if(isbook.is_open()){
    string linen;

    SetConsoleTextAttribute(h, 11);

    while(getline(isbook, linen)){

        string isnum;

```



```
issue.open("issuebook.dat", ios::app); //the output file stream
```

```
if(issue.is_open()){
```

```
    issue<<boid<<"\t"<<is<<"\t"<<isdate<<"\t"<<due<<endl;
```

```
    SetConsoleTextAttribute(h, 0x2F);
```

```
    cout<<"\n\n\t\t\t\t\t Issued a book ";
```

```
    SetConsoleTextAttribute(h, 15);
```

```
    issue.close();
```

```
    }else{
```

```
        cout<<"\n\n\t\t\t\t\t File not opend!!";
```

```
    }
```

```
    cout<<" \n\t\t\t\t\t Do you want issue another book (y/n) : ";
```

```
    cin>>i;
```

```
    }while(i=="y");
```

```
    }
```

```
}
```

```
ratee.close();
```

```
Sleep(2000);
```

```
librarian();
```

```
}
```

```
void allissue(){
```

```
    system("cls");
```

```
    HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);
```

```
    SetConsoleTextAttribute(h, 9);
```

```
cout<<"\n\n\t\t\t\t\t ALL ISSUE DETAILS ";

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

SetConsoleTextAttribute(h, 15);


// Open the file in input mode
ifstream allis("issuebook.dat");
if(allis.is_open()){
    string line;
    SetConsoleTextAttribute(h, 11);
    cout << "\n\n\n\n\t\t\tBORROWER ID\tBOOK ID\t ISSUE DATE\tDUE
DATE\n";
    cout <<
"\n\t\t\t\t=====
=====\n";
    while(getline(allis,line)){
        SetConsoleTextAttribute(h, 15);
        //display line
        cout<<"\n'<<"t'<<"t'<<"\t\t " <<line<<endl;
    }
    allis.close();
}
else{
    cout<<"not opened !";
}

cout<<"\n\n\n\t\t\tPress any key to continue.....";

getche();

system("cls");

librarian();
```



```

void returnbook(){

HANDLE h=GetStdHandle(STD_OUTPUT_HANDLE);


system("cls");


system("color 04");
string borrower,rdate ,r;
int day,amount;


fstream isb;
isb.open("issuebook.dat",ios::in);
if(isb.is_open()){
    string line1;
    while(getline(isb,line1)){
        istringstream iss(line1);
        getline(iss, line1, 't');
        SetConsoleTextAttribute(h, 1);
        cout<<"\n\t\t\t\t\t RETURN BOOK \n";

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

        SetConsoleTextAttribute(h, 15);
        cout<<"\n\t\t\t\t\tEnter Borrower ID : ";
    }
}
}

```

```

cin>>borrower;

if(line1==borrower){
    cout<<"\n\n\t\t\tIssue details : \n";
    cout<<"\t\t\t"<<line1<<endl;
    isb.close();

    cout<<"\n\t\t\tEnter Return Date : ";
    cin>>rdate;

    cout<<"\n\t\t\tBook is return on due date or not ? (y/n) : ";
    cin>>r;

    if(r=="n" || r=="N"){
        cout<<"\n\n\t\t\tHow many late days : ";
        cin>>day;

        fstream lim;
        lim.open("rate.dat", ios::in);
        if(lim.is_open()){
            string line;
            while(getline(lim,line)){
                stringstream ss(line);
                int a;
                ss>>a;
                SetConsoleTextAttribute(h, 8);
                cout<<" \n\t\t\tCurrent Library fine rate is :
" << line << endl;

```

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```
Sleep(3000);  
librarian();  
  
}
```

REFERENCES

<https://www.w3schools.com>

www.geeksforgeeks.org/bookshop-management-system-using-file-handling.com