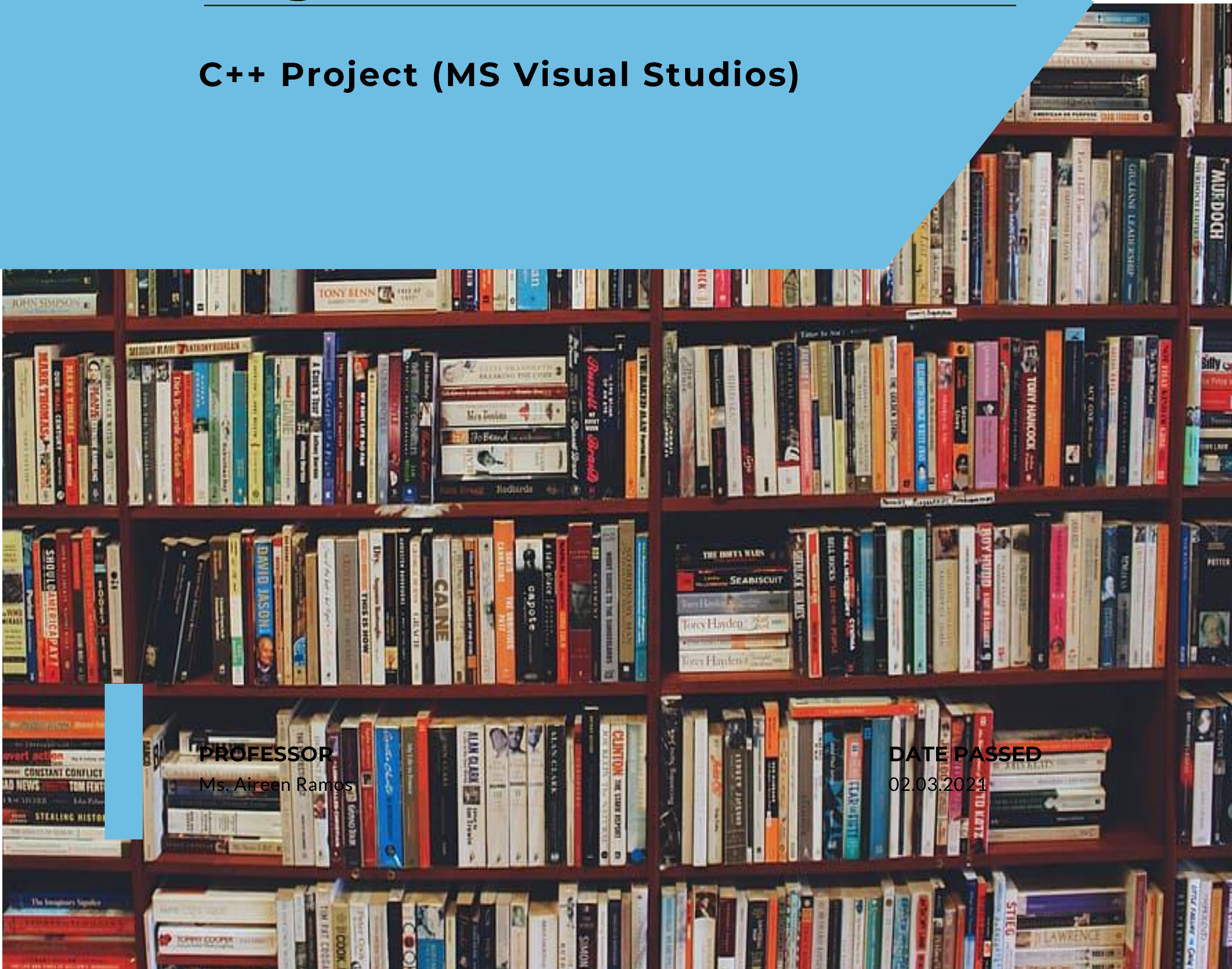
WALDORF CHRISTIAN MANALILI

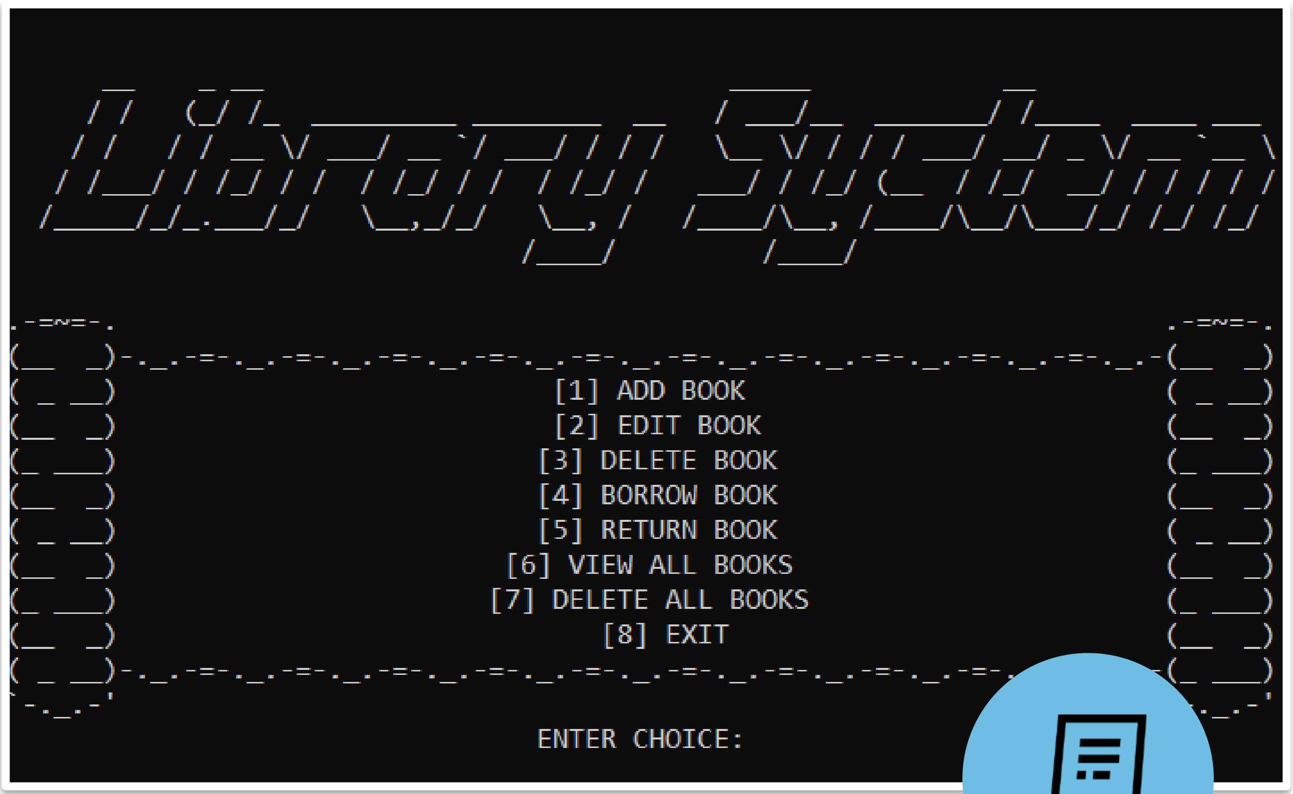
Library System

C++ Project (MS Visual Studios)



PROFESSOR
Ms. Aireen Ramos

DATE PASSED
02.03.2021



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(__  _)-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-(__  _)
( _ __)                       [1] ADD BOOK                              ( _ __)
(__  _)                       [2] EDIT BOOK                             (__  _)
(_ ___)                      [3] DELETE BOOK                            (_ ___)
(__  _)                      [4] BORROW BOOK                            (__  _)
( _ __)                      [5] RETURN BOOK                            ( _ __)
(__  _)                    [6] VIEW ALL BOOKS                           (__  _)
(_ ___)                   [7] DELETE ALL BOOKS                          (_ ___)
(__  _)                         [8] EXIT                                (__  _)
( _ __)-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-( _ __)
`-._.-'                                                                 `-._.-'

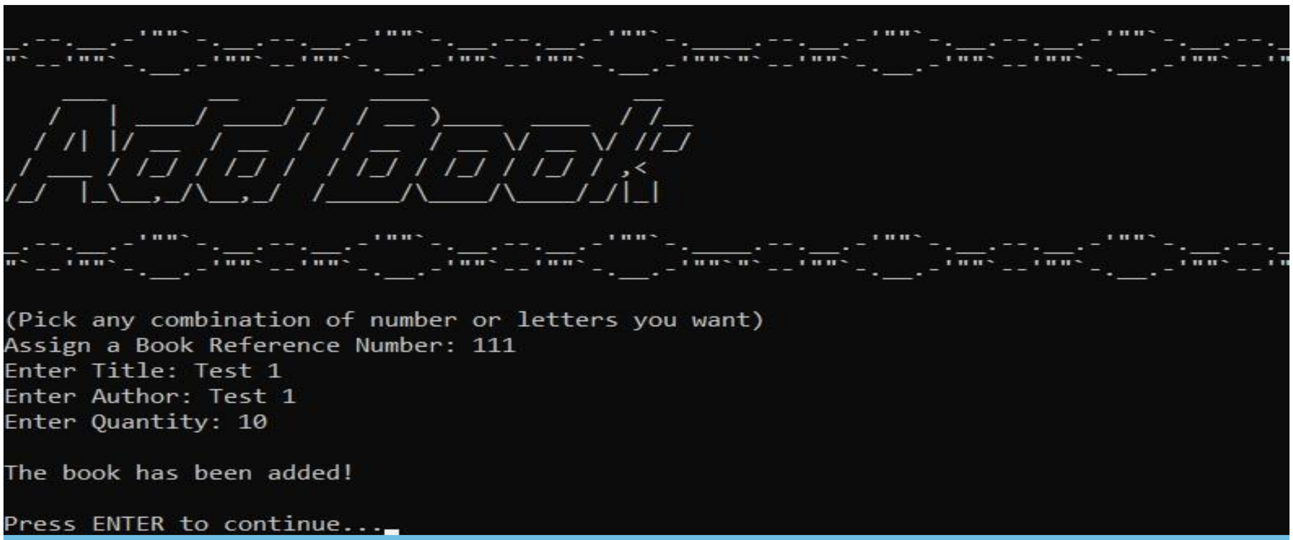
                           ENTER CHOICE:
```

Functions

The program starts by asking the user for a username (case-sensitive).

1. ***Add Book*** – Ask for a combination of number or letters to assign to the book and input required details regarding the book. Consequently, a text file with the book's reference number is created and it is added in Book Records.
2. ***Edit Book*** – Edit any book's title, author, or quantity provided you have the reference number. The book reference number cannot be changed.
3. ***Delete Book*** – After inputting the book reference number, it will delete the book, its text file, and its entry in Book Records.
4. ***Borrow Book*** – Enter the book reference number and borrow the number of books desired, provided that the library can lend the number of copies requested.
5. ***Return Book*** – Return the desired number of books back to the library, provided that you have enough of the amount you are returning.
6. ***View All Books*** – View the Book Record text file to see all book entries.
7. ***Delete All Books*** – This will delete all book entries if the user agrees.
8. ***Exit*** – Exit from the program

Add Book Testing

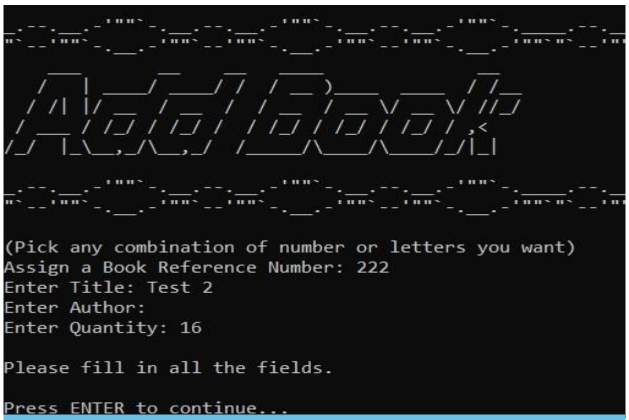


```
(Pick any combination of number or letters you want)
Assign a Book Reference Number: 111
Enter Title: Test 1
Enter Author: Test 1
Enter Quantity: 10

The book has been added!

Press ENTER to continue...
```

SUCCESSFUL RUN

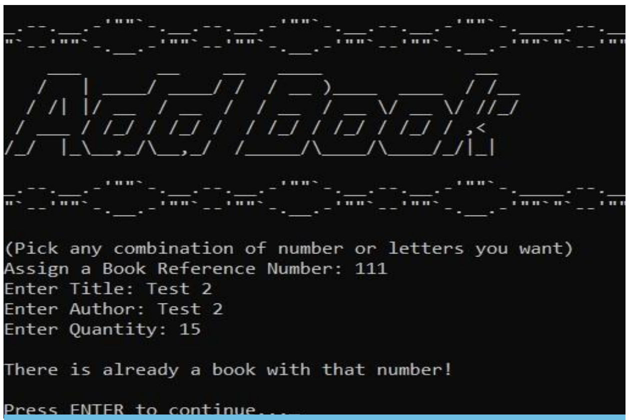


```
(Pick any combination of number or letters you want)
Assign a Book Reference Number: 222
Enter Title: Test 2
Enter Author:
Enter Quantity: 16

Please fill in all the fields.

Press ENTER to continue...
```

DID NOT FILL ALL FIELDS

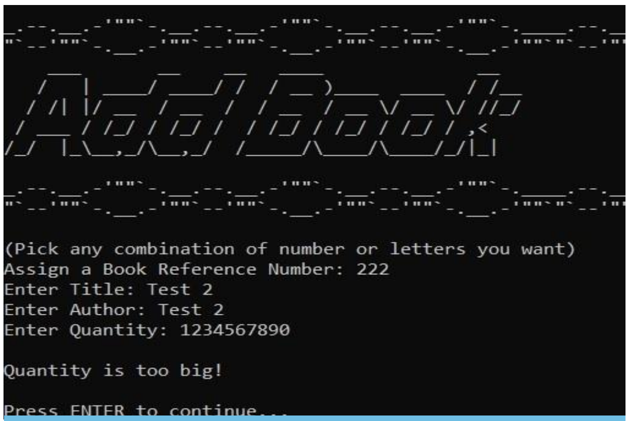


```
(Pick any combination of number or letters you want)
Assign a Book Reference Number: 111
Enter Title: Test 2
Enter Author: Test 2
Enter Quantity: 15

There is already a book with that number!

Press ENTER to continue...
```

SAME REF NO. WITH AN ENTRY

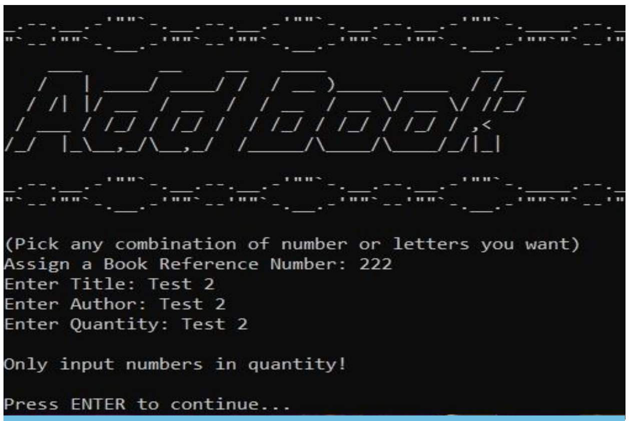


```
(Pick any combination of number or letters you want)
Assign a Book Reference Number: 222
Enter Title: Test 2
Enter Author: Test 2
Enter Quantity: 1234567890

Quantity is too big!

Press ENTER to continue...
```

QUANTITY LONGER THAN 9 DIGITS



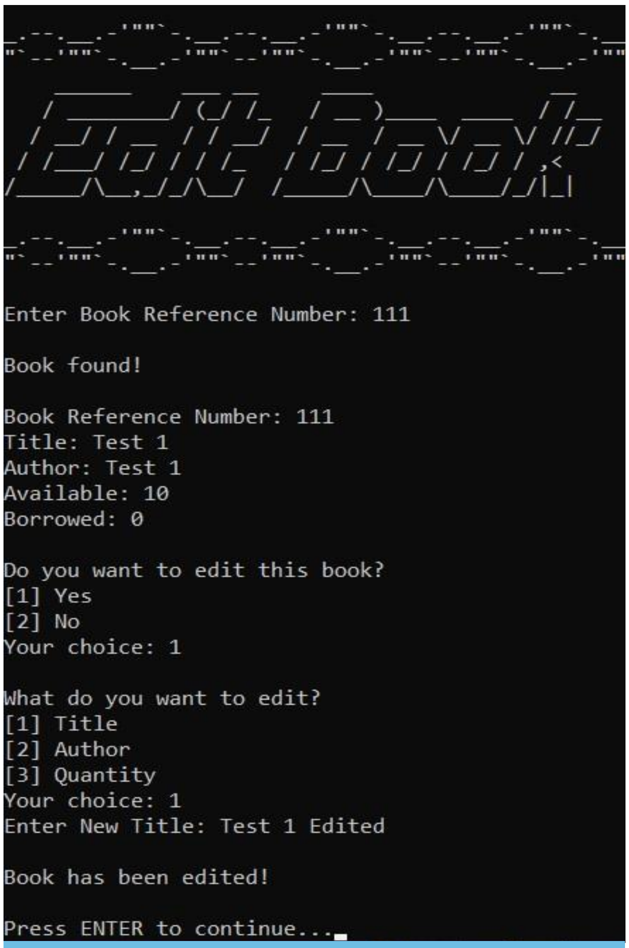
```
(Pick any combination of number or letters you want)
Assign a Book Reference Number: 222
Enter Title: Test 2
Enter Author: Test 2
Enter Quantity: Test 2

Only input numbers in quantity!

Press ENTER to continue...
```

PUTTING LETTERS IN QUANTITY

Edit Book Testing



```
        .-'""`-.          .-'""`-.          .-'""`-.
_.--._.-'        `-._.--._.-'        `-._.--._.-'        `-._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`

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/_____/\__,_/_/\__/  /_____/\____/\____/_/|_|

        .-'""`-.          .-'""`-.          .-'""`-.
_.--._.-'        `-._.--._.-'        `-._.--._.-'        `-._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`

Enter Book Reference Number: 111

Book found!

Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 10
Borrowed: 0

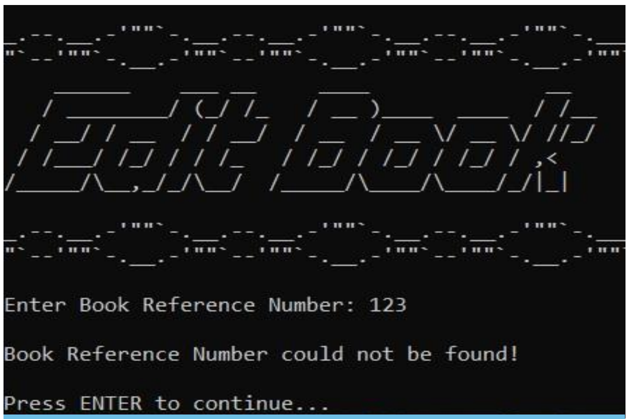
Do you want to edit this book?
[1] Yes
[2] No
Your choice: 1

What do you want to edit?
[1] Title
[2] Author
[3] Quantity
Your choice: 1
Enter New Title: Test 1 Edited

Book has been edited!

Press ENTER to continue...
```

EDIT BOOK SUCCESS



```
        .-'""`-.          .-'""`-.          .-'""`-.
_.--._.-'        `-._.--._.-'        `-._.--._.-'        `-._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`

    ______    ___ __     ____              __
   / ____/___/ (_) /_   / __ )____  ____  / /__
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/_____/\__,_/_/\__/  /_____/\____/\____/_/|_|

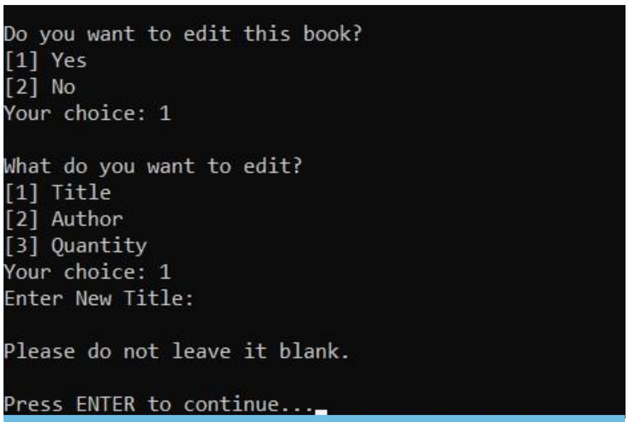
        .-'""`-.          .-'""`-.          .-'""`-.
_.--._.-'        `-._.--._.-'        `-._.--._.-'        `-._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`

Enter Book Reference Number: 123

Book Reference Number could not be found!

Press ENTER to continue...
```

BOOK NUM. NOT IN RECORDS



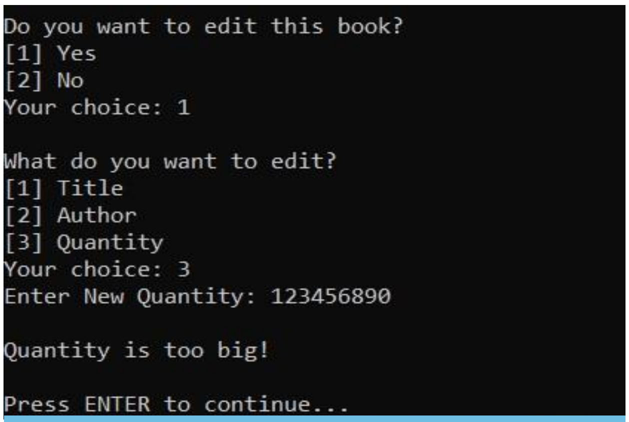
```
Do you want to edit this book?
[1] Yes
[2] No
Your choice: 1

What do you want to edit?
[1] Title
[2] Author
[3] Quantity
Your choice: 1
Enter New Title:

Please do not leave it blank.

Press ENTER to continue...
```

LEFT IT BLANK



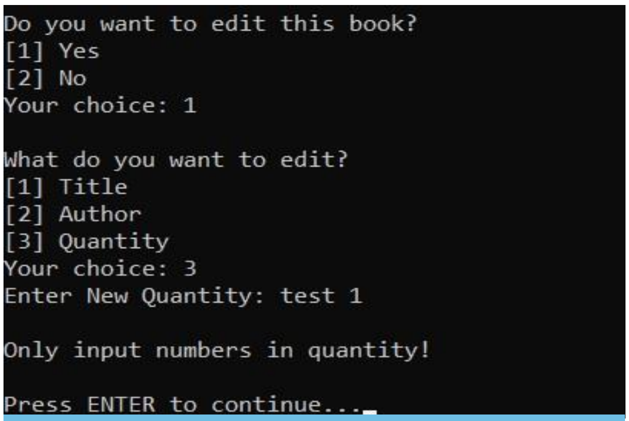
```
Do you want to edit this book?
[1] Yes
[2] No
Your choice: 1

What do you want to edit?
[1] Title
[2] Author
[3] Quantity
Your choice: 3
Enter New Quantity: 123456890

Quantity is too big!

Press ENTER to continue...
```

QUANTITY LONGER THAN 9 DIGITS



```
Do you want to edit this book?
[1] Yes
[2] No
Your choice: 1

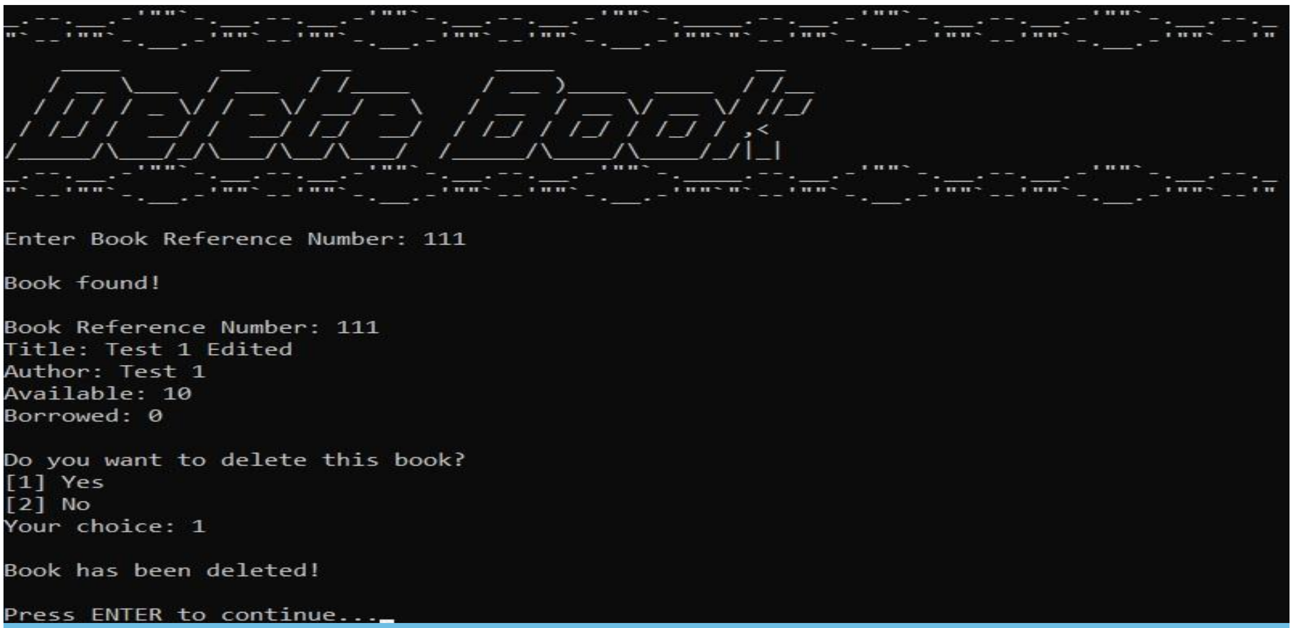
What do you want to edit?
[1] Title
[2] Author
[3] Quantity
Your choice: 3
Enter New Quantity: test 1

Only input numbers in quantity!

Press ENTER to continue...
```

PUTTING LETTERS IN QUANTITY

Delete Book Testing



```
Enter Book Reference Number: 111

Book found!

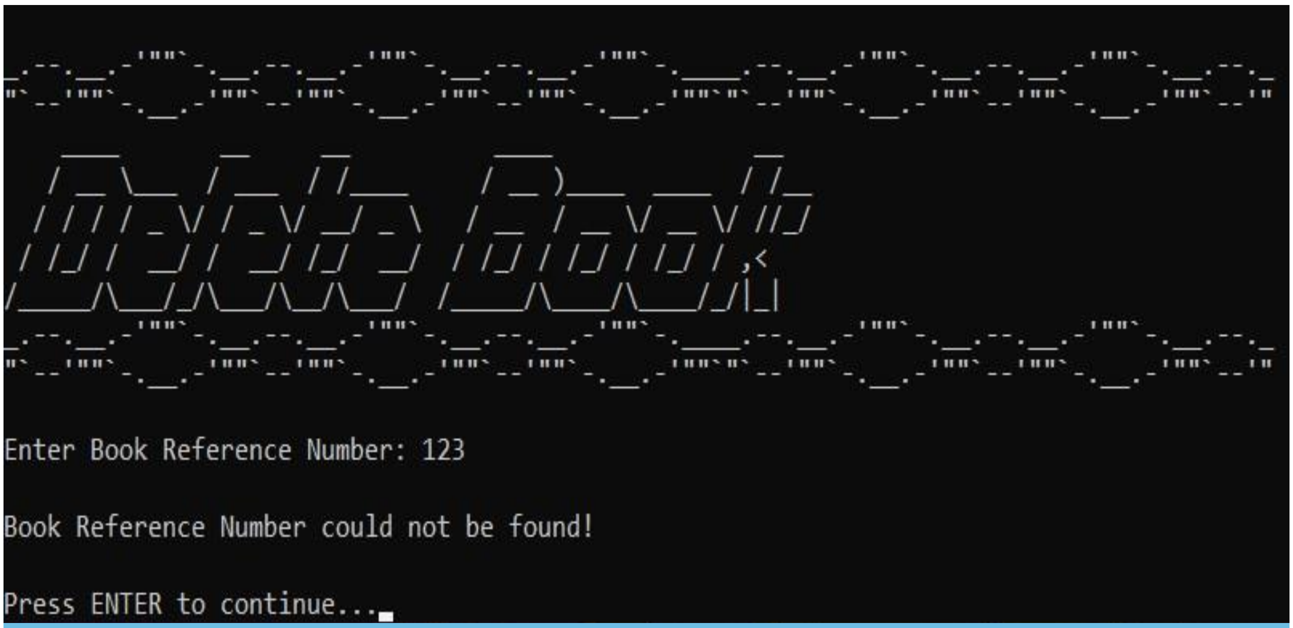
Book Reference Number: 111
Title: Test 1 Edited
Author: Test 1
Available: 10
Borrowed: 0

Do you want to delete this book?
[1] Yes
[2] No
Your choice: 1

Book has been deleted!

Press ENTER to continue...
```

SUCCESSFUL RUN



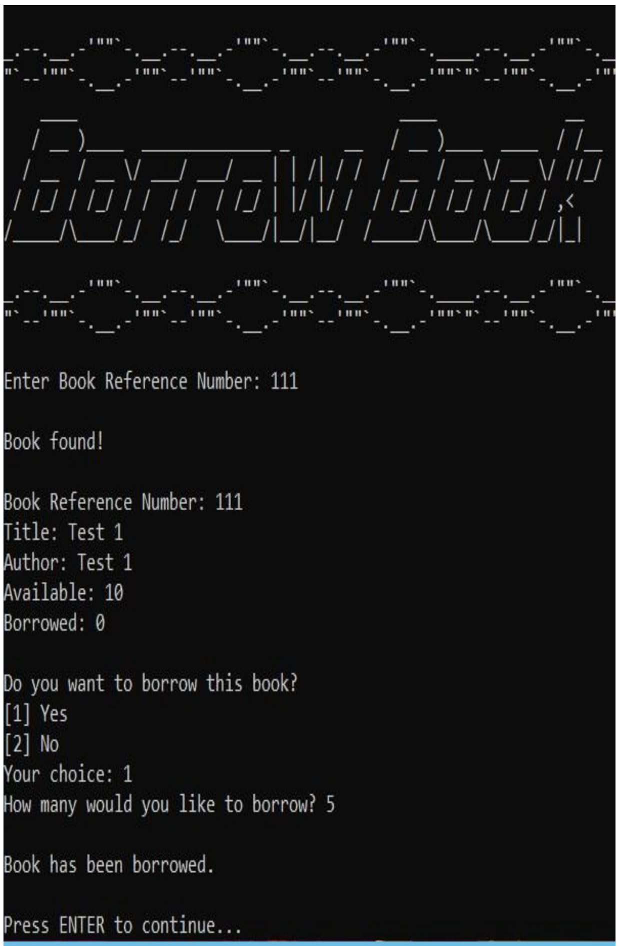
```
Enter Book Reference Number: 123

Book Reference Number could not be found!

Press ENTER to continue...
```

CANNOT FIND BOOK REFERENCE NUMBER

Borrow Book Testing



```
Enter Book Reference Number: 111

Book found!

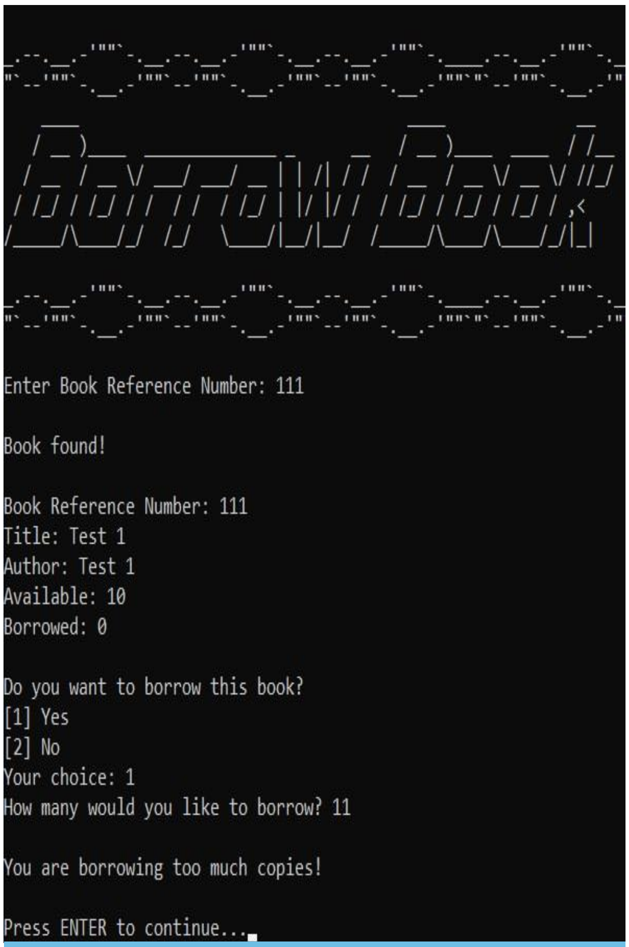
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 10
Borrowed: 0

Do you want to borrow this book?
[1] Yes
[2] No
Your choice: 1
How many would you like to borrow? 5

Book has been borrowed.

Press ENTER to continue...
```

SUCCESSFUL RUN



```
Enter Book Reference Number: 111

Book found!

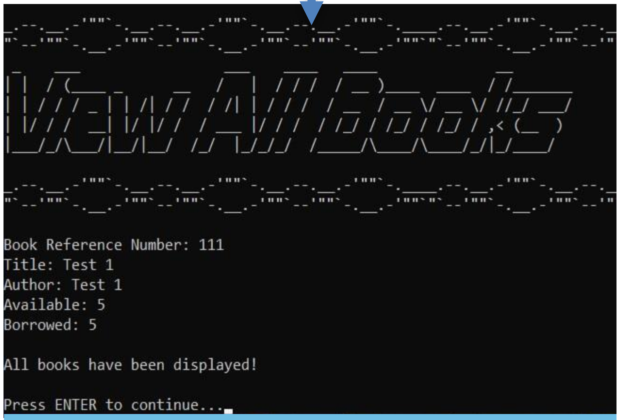
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 10
Borrowed: 0

Do you want to borrow this book?
[1] Yes
[2] No
Your choice: 1
How many would you like to borrow? 11

You are borrowing too much copies!

Press ENTER to continue...
```

BORROWING TOO MUCH

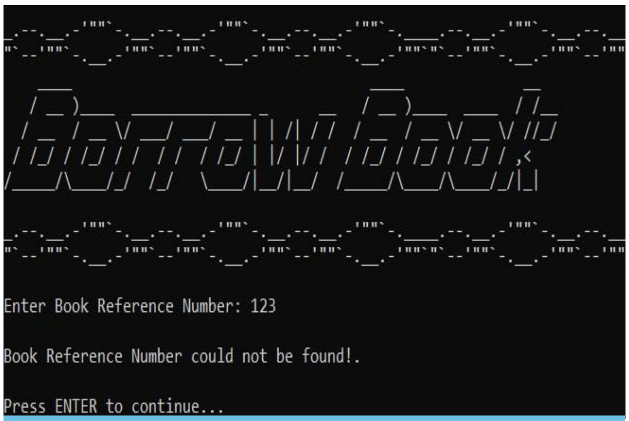


```
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 5
Borrowed: 5

All books have been displayed!

Press ENTER to continue...
```

SUCCESSFUL RUN RESULT

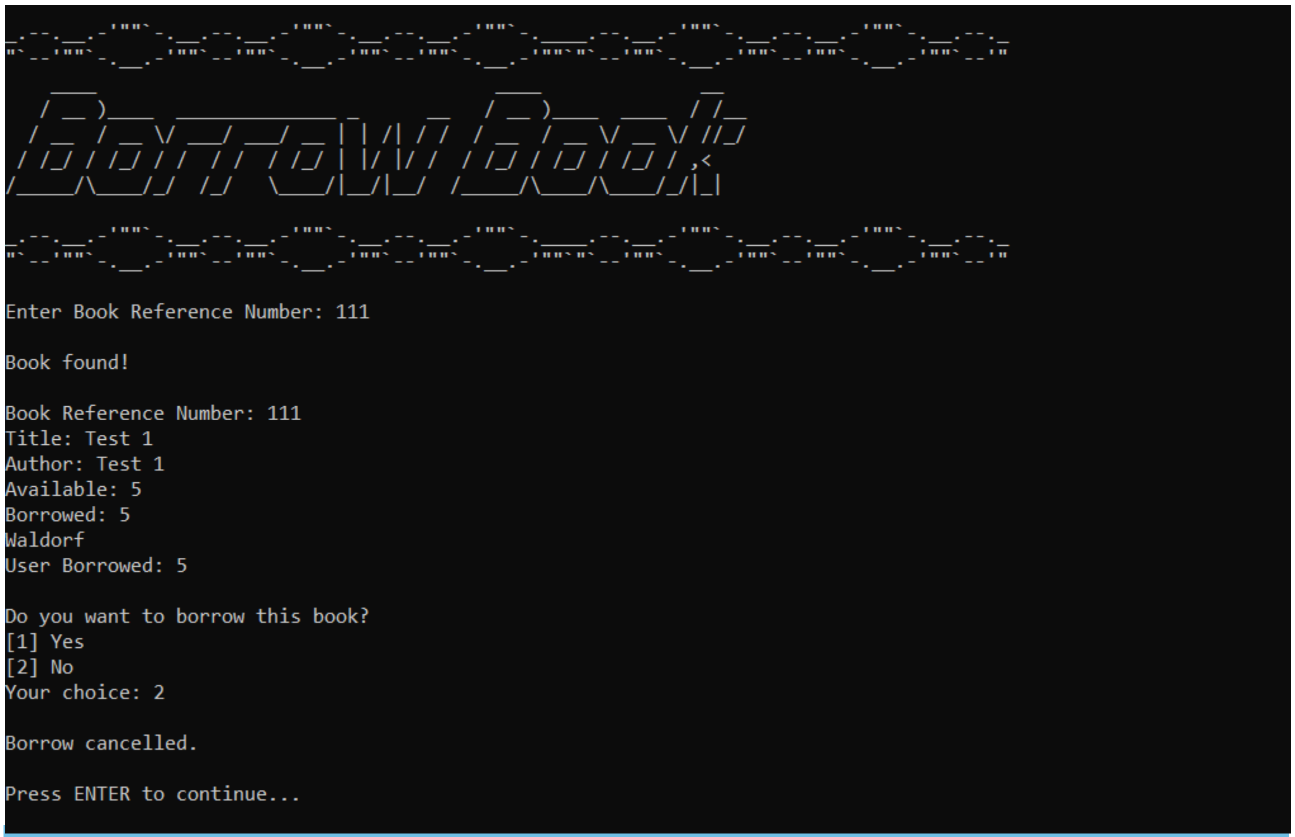


```
Enter Book Reference Number: 123

Book Reference Number could not be found!.

Press ENTER to continue...
```

BOOK REF NUM FAILED TO FIND



```
Enter Book Reference Number: 111

Book found!

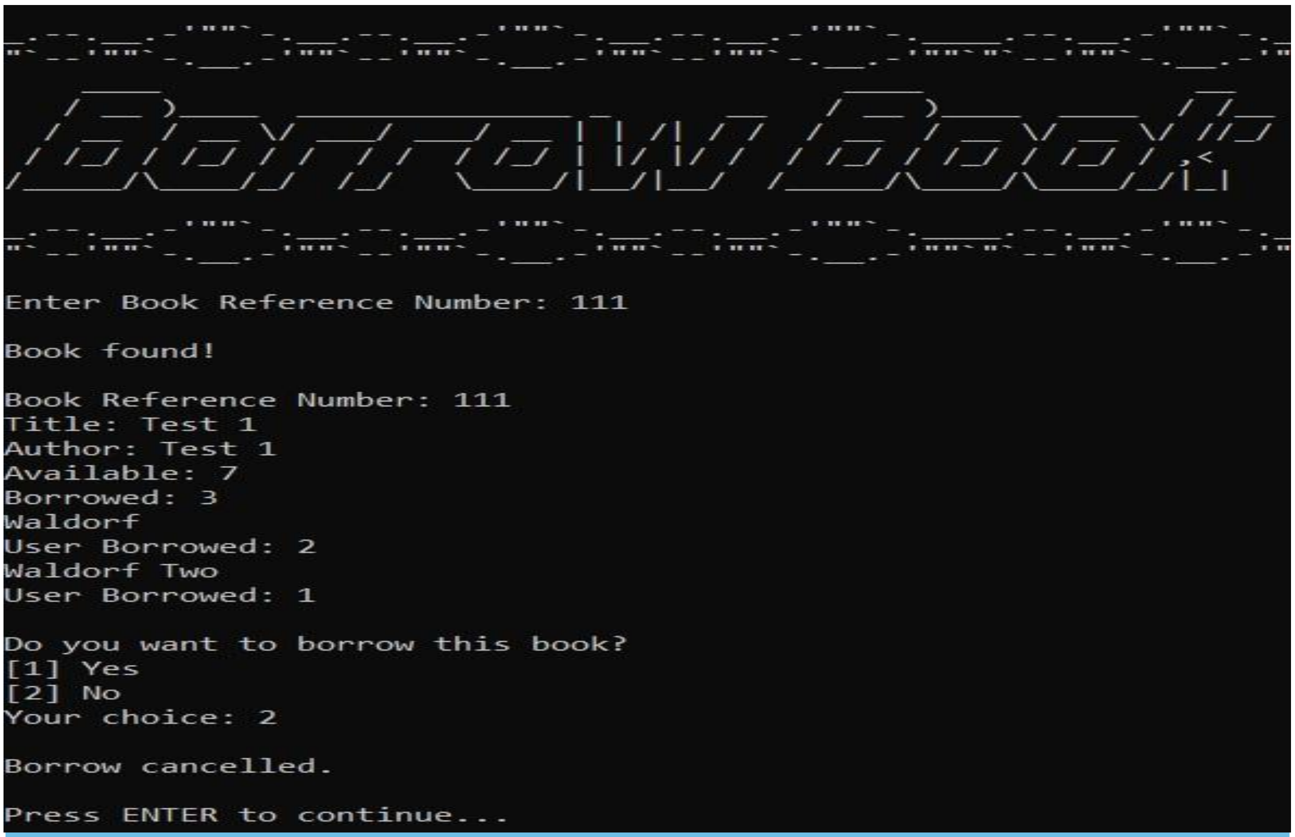
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 5
Borrowed: 5
Waldorf
User Borrowed: 5

Do you want to borrow this book?
[1] Yes
[2] No
Your choice: 2

Borrow cancelled.

Press ENTER to continue...
```

USER WHO BORROWED CAN NOW BE SEEN



```
Enter Book Reference Number: 111

Book found!

Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 7
Borrowed: 3
Waldorf
User Borrowed: 2
Waldorf Two
User Borrowed: 1

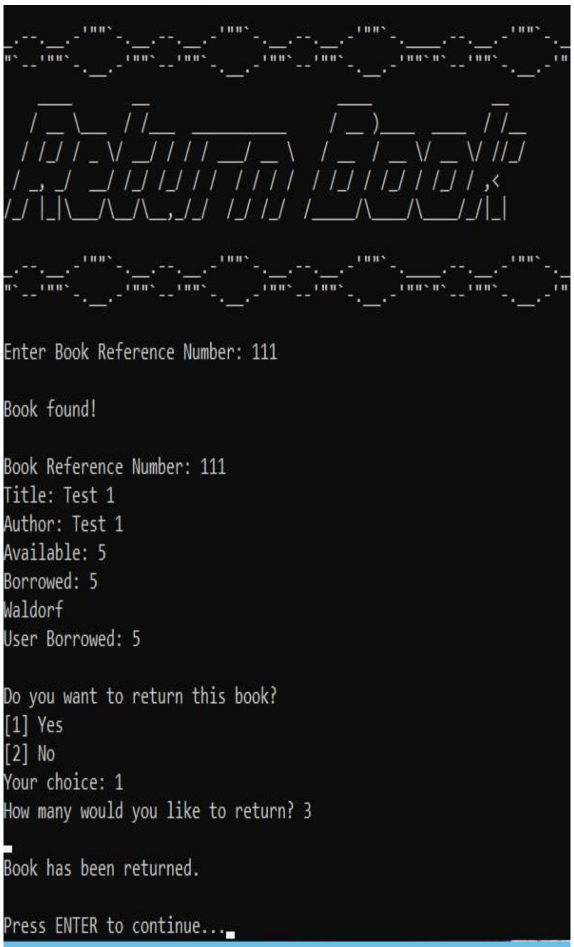
Do you want to borrow this book?
[1] Yes
[2] No
Your choice: 2

Borrow cancelled.

Press ENTER to continue...
```

MORE THAN ONE USER CAN BORROW

Return Book Testing



```
Enter Book Reference Number: 111

Book found!

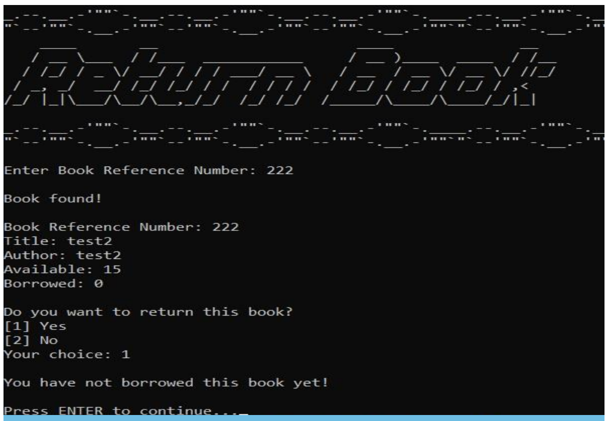
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 5
Borrowed: 5
Waldorf
User Borrowed: 5

Do you want to return this book?
[1] Yes
[2] No
Your choice: 1
How many would you like to return? 3

Book has been returned.

Press ENTER to continue...
```

SUCCESSFUL RUN



```
Enter Book Reference Number: 222

Book found!

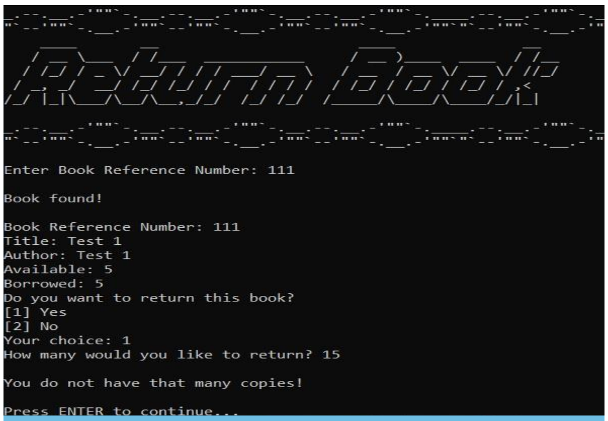
Book Reference Number: 222
Title: test2
Author: test2
Available: 15
Borrowed: 0

Do you want to return this book?
[1] Yes
[2] No
Your choice: 1

You have not borrowed this book yet!

Press ENTER to continue...
```

NOT BORROWED YET



```
Enter Book Reference Number: 111

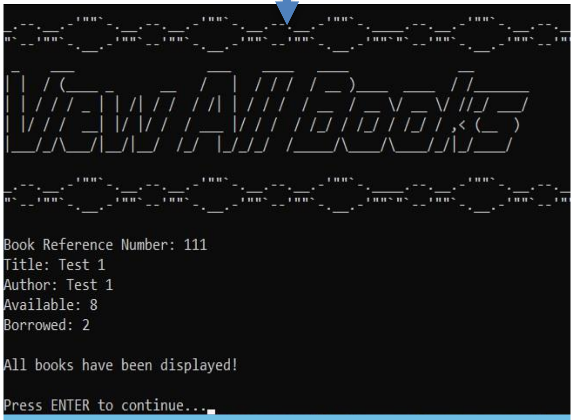
Book found!

Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 5
Borrowed: 5
Do you want to return this book?
[1] Yes
[2] No
Your choice: 1
How many would you like to return? 15

You do not have that many copies!

Press ENTER to continue...
```

RETURN MORE THAN BORROWED

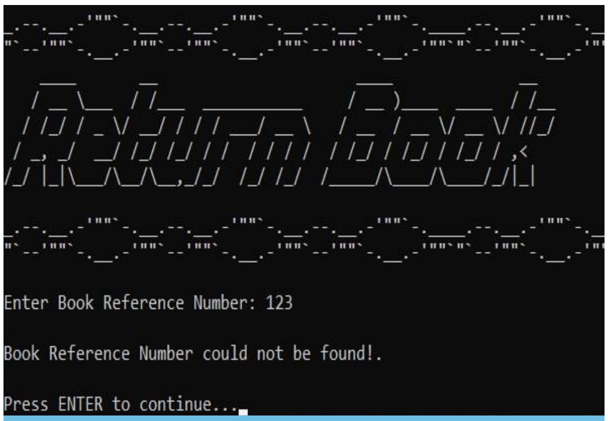


```
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 8
Borrowed: 2

All books have been displayed!

Press ENTER to continue...
```

SUCCESSFUL RUN RESULT

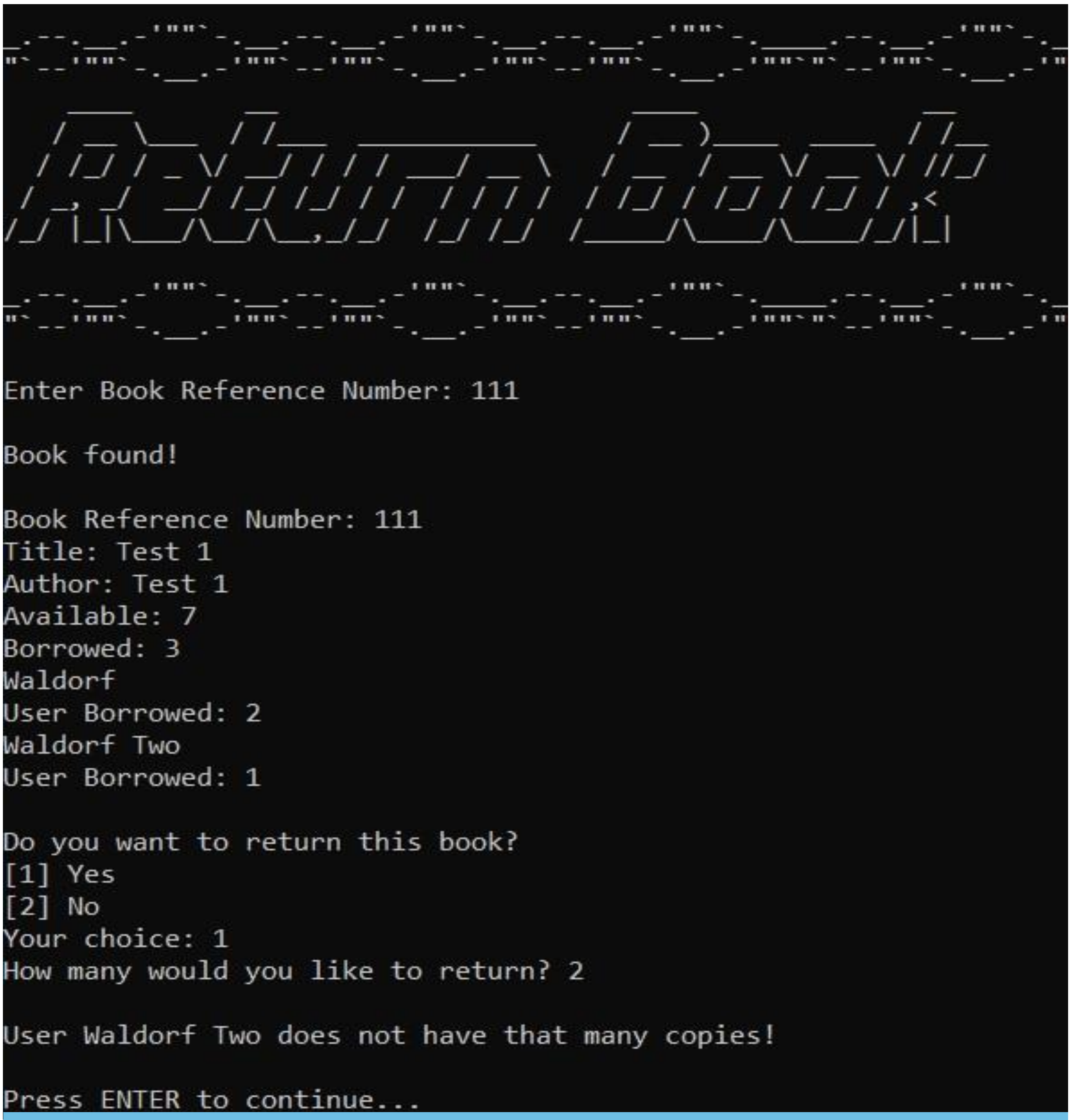


```
Enter Book Reference Number: 123

Book Reference Number could not be found!.

Press ENTER to continue...
```

BOOK REF NUM FAILED TO FIND



```
              ,""`.              ,""`.              ,""`.              ,""`.
_.--.___.-'       `-.___.--.___.-'       `-.___.--.___.-'       `-._____.--.___.-'       `-._
"` --'""`-.___.-'""` --'""`-.___.-'""` --'""`-.___.-'""`"` --'""`-.___.-'"

    ____       __                     ____              __
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/_/ |_|\___/\__/\__,_/_/  /_/ /_/ /_____/\____/\____/_/|_|

              ,""`.              ,""`.              ,""`.              ,""`.
_.--.___.-'       `-.___.--.___.-'       `-.___.--.___.-'       `-._____.--.___.-'       `-._
"` --'""`-.___.-'""` --'""`-.___.-'""` --'""`-.___.-'""`"` --'""`-.___.-'"

Enter Book Reference Number: 111

Book found!

Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 7
Borrowed: 3
Waldorf
User Borrowed: 2
Waldorf Two
User Borrowed: 1

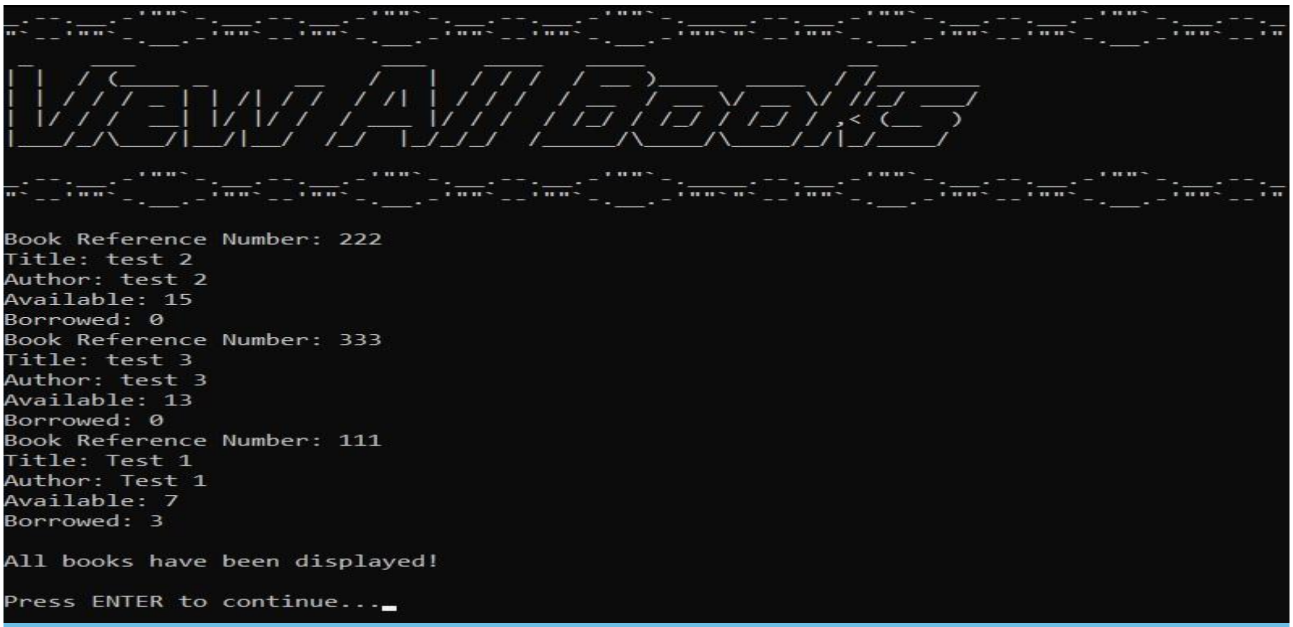
Do you want to return this book?
[1] Yes
[2] No
Your choice: 1
How many would you like to return? 2

User Waldorf Two does not have that many copies!

Press ENTER to continue...
```

SPECIFIC USER RETURNING TOO MUCH THAN BORROWED

View All Books Testing

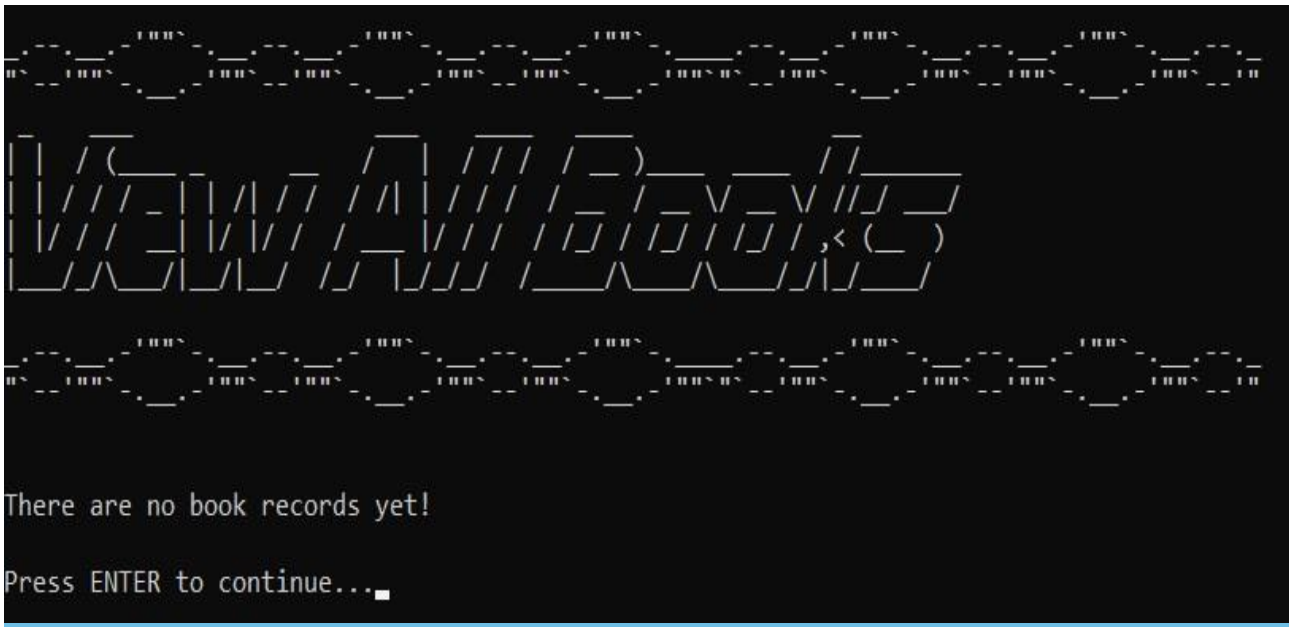


```
Book Reference Number: 222
Title: test 2
Author: test 2
Available: 15
Borrowed: 0
Book Reference Number: 333
Title: test 3
Author: test 3
Available: 13
Borrowed: 0
Book Reference Number: 111
Title: Test 1
Author: Test 1
Available: 7
Borrowed: 3

All books have been displayed!

Press ENTER to continue...
```

SUCCESSFUL RUN

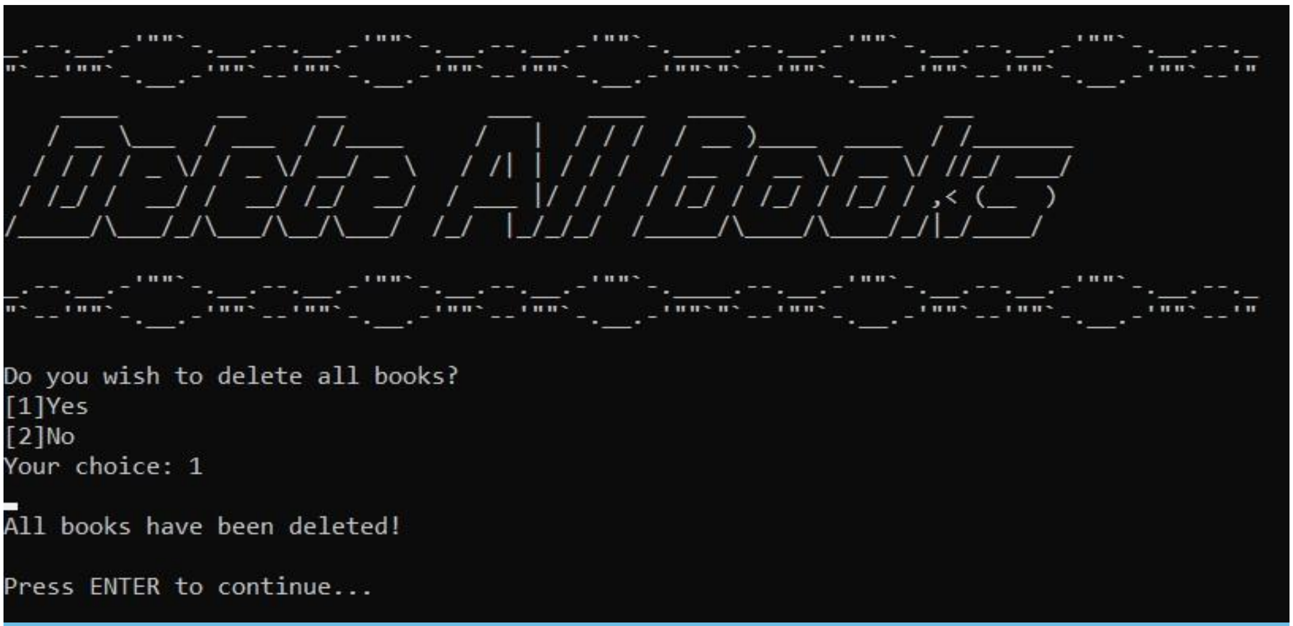


```
There are no book records yet!

Press ENTER to continue...
```

NO BOOKS YET

Delete All Books Testing

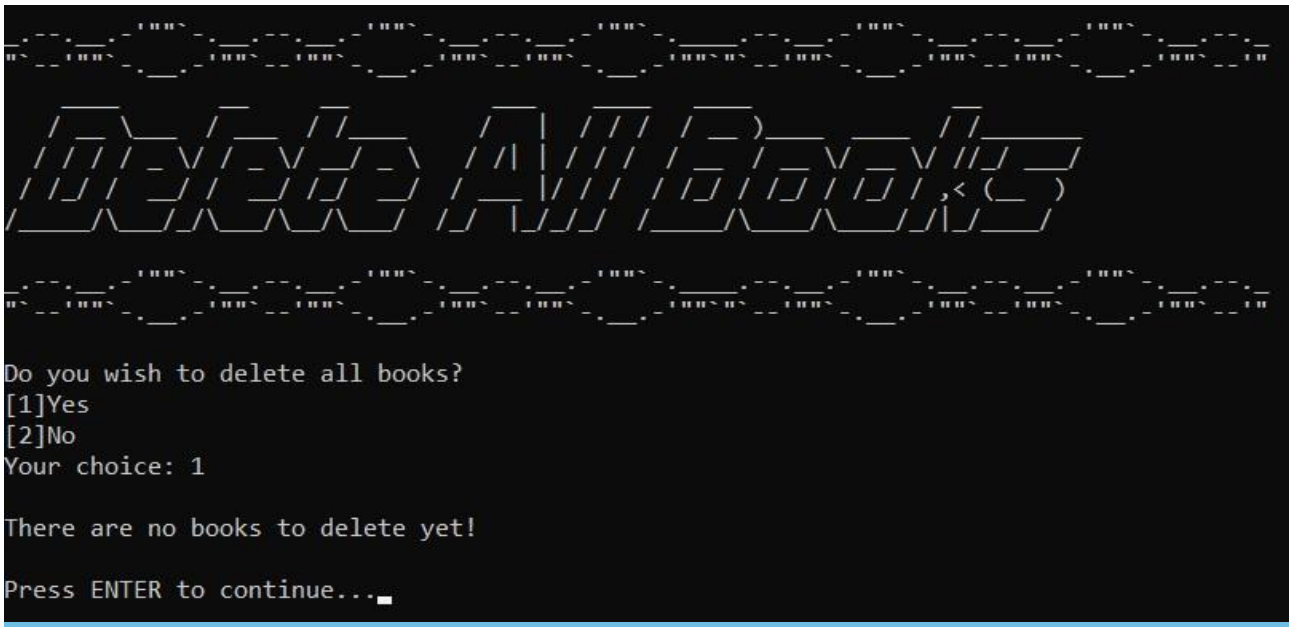


```
Do you wish to delete all books?
[1]Yes
[2]No
Your choice: 1

All books have been deleted!

Press ENTER to continue...
```

SUCCESSFUL RUN (DELETES ALL TEXT FILES)



```
Do you wish to delete all books?
[1]Yes
[2]No
Your choice: 1

There are no books to delete yet!

Press ENTER to continue...
```

NO BOOKS YET

Source Code

```
#include <iostream>
#include <string>
#include <fstream>

using namespace std;
string bookNum, title, author, available, borrowed, searchNum, userName;
int login = 1;

//FUNCTIONS
void addBook();
void editBook();
void deleteBook();
void borrowBook();
void returnBook();
void viewAllBooks();
void deleteAllBooks();
void clearScreen();
void pressKey();

//DESIGN
void librarySystemDesign();
void libraryMenuDesign();
void addBookDesign();
void editBookDesign();
void deleteBookDesign();
void borrowBookDesign();
void returnBookDesign();
void viewAllBookDesign();
void deleteAllBookDesign();

void loginScreen() {
    clearScreen();
    librarySystemDesign();
    cout << "\n(Case-sensitive)\n Enter Username: ";
    getline(cin, userName);
    if (userName.empty() == true) {
        cout << "\nPlease put a username.";
        pressKey();
        clearScreen();
        loginScreen();
    }
    login = 0;
}

//MENU
int main(){
    int choice;
    if (login == 1)
        loginScreen();
    clearScreen();
    librarySystemDesign();
    libraryMenuDesign();

    cout << "                                 ENTER CHOICE: ";
    cin >> choice;

    while (!cin){
        cin.clear();                    //reset cin
        cin.ignore (100, '\n');        //clear user input
        cout << "\n                               ENTER CHOICE (1-8): ";
        cin >> choice;
    }

    getchar();
    clearScreen();

    switch (choice){
        case 1:
            addBook();
            break;
        case 2:
            editBook();
            break;
        case 3:
            deleteBook();
            break;
        case 4:
            borrowBook();
            break;
        case 5:
            returnBook();
            break;
        case 6:
            viewAllBooks();
            break;
        case 7:
            deleteAllBooks();
            break;
        case 8:
            exit(0);
            break;
        default:
            main();
            break;
    }
```

```cpp
    return 0;
}

bool isDigit(char ch) {
    if (ch >= '0' && ch <= '9')
        return true;
    else
        return false;
}

void clearScreen(){     //Do not want to use system("CLS");
    int n;
    for (n = 0; n < 10; n++)
        printf( "\n\n\n\n\n\n\n\n\n\n" );
}

void pressKey(){
    do
    {
        cout << '\n' << "\nPress ENTER to continue...";
    } while (cin.get() != '\n');
}


void addBook(){
    addBookDesign();
    cout << "(Pick any combination of number or letters you want)\nAssign a Book Re
ference Number: ";
    getline(cin, bookNum);
    cout << "Enter Title: ";
    getline(cin, title);
    cout << "Enter Author: ";
    getline(cin, author);
    cout << "Enter Quantity: ";
    getline(cin, available);
    for (int i = 0; i < available.length(); i++) {
        if (isDigit(available[i]) == true) {
            if (available.length() < 9)
                continue;
            else
                cout << "\nQuantity is too big!";
                pressKey();
                main();
        } else {
            cout << "\nOnly input numbers in quantity!";
            pressKey();
            main();
        }
    }
    if (bookNum.empty() == true || title.empty() == true || author.empty() == true
|| available.empty() == true) {
        cout << "\nPlease fill in all the fields.";
        pressKey();
        clearScreen();
        main();
    }

    string bookNumTxt = bookNum + ".txt";
    if (ifstream(bookNumTxt)) {
        cout << "\nThere is already a book with that number!";
        pressKey();
        main();
    } else {
        ofstream bookSingle(bookNumTxt, ios::app);
        bookSingle << "Book Reference Number: " << bookNum << "\nTitle: " << title
<< "\nAuthor: " << author << "\nAvailable: " << available << "\nBorrowed: 0\n";
        bookSingle.close();
        ofstream bookRec("Book Records.txt", ios::app);
        bookRec << "Book Reference Number: " << bookNum << "\nTitle: " << title <<
"\nAuthor: " << author << "\nAvailable: " << available << "\nBorrowed: 0\n";
        bookRec.close();
        cout << "\nThe book has been added!";
        pressKey();
        main();
    }
}

void deleteBook(){
    string bookEntry;
    int choice;
    deleteBookDesign();
    cout << "Enter Book Reference Number: ";
    getline(cin, searchNum);

    ifstream bookSearch(searchNum + ".txt");
    if (bookSearch.is_open()) {
        cout << "\nBook found!\n\n" << bookSearch.rdbuf() << endl;
        bookSearch.close();
        cout << "Do you want to delete this book?\n[1] Yes\n[2] No\nYour choice: ";
        cin >> choice;

        if (choice == 1) {
            //GET INFO AND DELETE SINGLE BOOK
            string line;
            string searchNumTxt = searchNum + ".txt";
            ifstream openFile(searchNumTxt);
            getline(openFile, bookNum); //gets first line, stores in bookNum
            getline(openFile, title);
            getline(openFile, author);
            getline(openFile, available);
            getline(openFile, borrowed);
            openFile.close();
            remove(searchNumTxt.c_str()); //convert string into const char[] for re
move() to work

            //EDIT BOOK RECORD
            ifstream bookRecord("Book Records.txt");
            if( !bookRecord.is_open()) {
                cout << "File failed to open.";
                pressKey();
                main();
            }
            ofstream bookTemp("temp.txt");
            string del = bookNum;
            while (getline(bookRecord, line)) {
                if ( del == line )
                    for (int i = 0; i < 4; i++)
                        getline(bookRecord, line);
                else
                    bookTemp << line << endl;
            }

            bookRecord.close();
            bookTemp.close();
            remove("Book Records.txt");
            rename("temp.txt","Book Records.txt");

            getchar();
            cout << "\nBook has been deleted!";
            pressKey();
            main();
        } else {
            getchar();
            cout << "\nDelete cancelled.";
            pressKey();
            main();
        }
    }
    else
        cout << "\nBook Reference Number could not be found!";
        pressKey();
        main();
}

void revertEdit() {
    ofstream bookSingle(searchNum + ".txt", ios::app);
    bookSingle << bookNum << "\n" << title << "\n" << author << "\n" << available <
< "\n" << borrowed << "\n";
    bookSingle.close();
    ofstream bookRec("Book Records.txt", ios::app);
    bookRec << bookNum << "\n" << title << "\n" << author << "\n" << available << "
\n" << borrowed << "\n";
    bookRec.close();
}

void editBook(){
    string bookEntry;
    int choice;
    editBookDesign();
    cout << "Enter Book Reference Number: ";
    getline(cin, searchNum);

    ifstream bookSearch(searchNum + ".txt");
    if (bookSearch.is_open()) {
        cout << "\nBook found!\n\n" << bookSearch.rdbuf() << endl;
        bookSearch.close();
        cout << "Do you want to edit this book?\n[1] Yes\n[2] No\nYour choice: ";
        cin >> choice;

        if (choice == 1) {
            //GET INFO AND DELETE SINGLE BOOK
            string line;
            string searchNumTxt = searchNum + ".txt";
            ifstream openFile(searchNumTxt);
            getline(openFile, bookNum); //gets first line, stores in bookNum
            getline(openFile, title);
            getline(openFile, author);
            getline(openFile, available);
            getline(openFile, borrowed);
            openFile.close();
            remove(searchNumTxt.c_str()); //convert string into const char[] for re
move() to work

            //EDIT BOOK RECORD
            ifstream bookRecord("Book Records.txt");
            if( !bookRecord.is_open()) {
                cout << "File failed to open.";
                pressKey();
                main();
            }
            ofstream bookTemp("temp.txt");
            string del = bookNum;
            while (getline(bookRecord, line)) {
                if ( del == line )
                    for (int i = 0; i < 4; i++)
                        getline(bookRecord, line);
                else
                    bookTemp << line << endl;
            }
            bookRecord.close();
            bookTemp.close();
            remove("Book Records.txt");
            rename("temp.txt","Book Records.txt");

            //ASK WHICH PART TO BE EDITED
            string title2, author2, available2;
            cout << "\nWhat do you want to edit?\n[1] Title\n[2] Author\n[3] Quanti
ty\nYour choice: ";
            cin >> choice;
            getchar();
            switch (choice){
                case 1:
                    cout << "Enter New Title: ";
                    getline(cin, title2);
                    if (title2.empty() == true) {
                        cout << "\nPlease do not leave it blank.";
                        revertEdit();
                        pressKey();
                        main();
                    }
                    break;
                case 2:
                    cout << "Enter New Author: ";
                    getline(cin, author2);
                    if (author2.empty() == true) {
                        cout << "\nPlease do not leave it blank.";
                        revertEdit();
                        pressKey();
                        main();
                    }
                    break;
                case 3:
                    cout << "Enter New Quantity: ";
                    getline(cin, available2);
                    for (int i = 0; i < available2.length(); i++) {
                        if (isDigit(available2[i]) == true) {
                            if (available2.length() < 9)
                                continue;
                            else
                                cout << "\nQuantity is too big!";
                                revertEdit();
                                pressKey();
                                main();
                        } else {
                            cout << "\nOnly input numbers in quantity!";
                            revertEdit();
                            pressKey();
                            main();
                        }
                    }
                    if (available2.empty() == true) {
                        cout << "\nPlease do not leave it blank.";
                        revertEdit();
                        pressKey();
                        main();
                    }
                    break;
                default:
                    cout << "\nInput 1-3 based on your choice!";
                    revertEdit();
                    pressKey();
                    main();
            }

            switch (choice){
                case 1:
                {
                    string searchNumTxt = searchNum + ".txt";
                    ofstream bookSingle(searchNumTxt, ios::app);
                    bookSingle << bookNum << "\nTitle: " << title2 << "\n" << autho
r << "\n" << available << "\n" << borrowed << "\n";
                    bookSingle.close();
                    ofstream bookRec("Book Records.txt", ios::app);
                    bookRec << bookNum << "\nTitle: " << title2 << "\n" << author <
< "\n" << available << "\n" << borrowed << "\n";
                    bookRec.close();
                    break;
                }
                case 2:
                {
                    string searchNumTxt = searchNum + ".txt";
                    ofstream bookSingle(searchNumTxt, ios::app);
                    bookSingle << bookNum << "\n" << title << "\nAuthor: " << autho
r2 << "\n" << available << "\n" << borrowed << "\n";
                    bookSingle.close();
                    ofstream bookRec("Book Records.txt", ios::app);
                    bookRec << bookNum << "\n" << title << "\nAuthor: " << author2
<< "\n" << available << "\n" << borrowed << "\n";
                    bookRec.close();
                    break;
                }
                case 3:
                {
                    string searchNumTxt = searchNum + ".txt";
                    ofstream bookSingle(searchNumTxt, ios::app);
                    bookSingle << bookNum << "\n" << title << "\n" << author << "\n
Available: " << available2 << "\n" << borrowed << "\n";
                    bookSingle.close();
```

```
                    ofstream bookRec("Book Records.txt", ios::app);
                    bookRec << bookNum << "\n" << title << "\n" << author << "\nAva
ilable: " << available2 << "\n" << borrowed << "\n";
                    bookRec.close();
                    break;
                }
            }

            cout << "\nBook has been edited!";
            pressKey();
            main();
        } else {
            getchar();
            cout << "\nEdit cancelled.";
            pressKey();
            main();
        }
    }
    else
        cout << "\nBook Reference Number could not be found!";
        pressKey();
        main();
}

void borrowBook(){
    string bookEntry, checkLine, getUserBorrow = "0";
    int choice, borrowTotalUser;
    borrowBookDesign();
    cout << "Enter Book Reference Number: ";
    getline(cin, searchNum);

    ifstream bookSearch(searchNum + ".txt");
    if (bookSearch.is_open()) {
        cout << "\nBook found!\n\n" << bookSearch.rdbuf() << endl;
        bookSearch.close();
        cout << "Do you want to borrow this book?\n[1] Yes\n[2] No\nYour choice: ";
        cin >> choice;

        if (choice == 1) {
            string searchNumTxt = searchNum + ".txt";
            ifstream openFile(searchNumTxt);
            getline(openFile, bookNum);
            getline(openFile, title);
            getline(openFile, author);
            getline(openFile, available);
            getline(openFile, borrowed);
            while (getline(openFile, checkLine)){
                if (checkLine == userName){
                    getline(openFile, checkLine);
                    getUserBorrow = checkLine;
                    getUserBorrow.erase (0, 15);
                }
            }
            openFile.close();
            available.erase (0, 11); //erase 11 characters from "Available: x" star
ting at position 0
            borrowed.erase (0, 10);
            int availableInt = stoi(available), borrowedInt = stoi(borrowed), borro
w, borrowTotalUser = stoi(getUserBorrow); //convert string into integers
            cout << "How many would you like to borrow? ";
            cin >> borrow;
            if (borrow < 0){
            cout << "\nYou cannot borrow negative books!";
            getchar();
            pressKey();
            main();
            }
            availableInt -= borrow;
            if (availableInt < 0){
                cout << "\nYou are borrowing too much copies!";
                getchar();
                pressKey();
                main();
            }
            int borrowTotal = borrow + borrowedInt;
            borrowTotalUser += borrow;
            string available2 = "Available: " + to_string(availableInt);

            //EDIT SINGLE BOOK AND BORROW RECORD
            string line;
            bookNum.erase (0, 23);
            ifstream bookSingleRead(bookNum + ".txt");
            if( !bookSingleRead.is_open()){
                cout << "\nFile failed to open.";
                pressKey();
                main();
            }
            ofstream bookSingle("temp.txt", ios::app);
            bookNum = "Book Reference Number: " + bookNum;
            bookSingle << bookNum << "\n" << title << "\n" << author << "\n" << ava
ilable2 << "\nBorrowed: " << borrowTotal << "\n";
            for (int i = 0; i < 5; i++)
                    getline(bookSingleRead, line);
            while(getline(bookSingleRead, line)) {
                if (line == userName)
                    getline(bookSingleRead, line);
                else
                    bookSingle << line << endl;
            }
            bookSingle << userName << "\nUser Borrowed: " << borrowTotalUser << "\n
";
            bookSingleRead.close();
            bookSingle.close();
            remove(searchNumTxt.c_str());
            rename("temp.txt", searchNumTxt.c_str());

            //EDIT BOOK RECORD
            ifstream bookRecord("Book Records.txt");
            if( !bookRecord.is_open()) {
                cout << "\nFile failed to open.";
                pressKey();
                main();
            }
            ofstream bookTemp("temp.txt");
            string del = bookNum;
            while (getline(bookRecord, line)) {
                if ( del == line )
                    for (int i = 0; i < 4; i++)
                        getline(bookRecord, line);
                else
                    bookTemp << line << endl;
            }

            bookRecord.close();
            bookTemp.close();
            remove("Book Records.txt");
            rename("temp.txt","Book Records.txt");
            ofstream bookBorrowed("Book Records.txt", ios::app);
            bookBorrowed << bookNum << "\n" << title << "\n" << author << "\n" << a
vailable2 << "\nBorrowed: " << borrowTotal << "\n";
            bookBorrowed.close();

            getchar();
            cout << "\nBook has been borrowed.";
            pressKey();
            main();
        } else {
            getchar();
            cout << "\nBorrow cancelled.";
            pressKey();
            main();
        }
    } else
        cout << "\nBook Reference Number could not be found!.";
    pressKey();
    main();
}

void returnBook(){
    string bookEntry, checkLine, getUserBorrow;
    int choice, checkRecord = 1;
    returnBookDesign();
    cout << "Enter Book Reference Number: ";
    getline(cin, searchNum);

    ifstream bookSearch(searchNum + ".txt");
    if (bookSearch.is_open()) {
        cout << "\nBook found!\n\n" << bookSearch.rdbuf() << endl;
        bookSearch.close();
        cout << "Do you want to return this book?\n[1] Yes\n[2] No\nYour choice: ";
        cin >> choice;

        if (choice == 1) {
            string searchNumTxt = searchNum + ".txt";
            ifstream openFile(searchNumTxt);
            getline(openFile, bookNum);
            getline(openFile, title);
            getline(openFile, author);
            getline(openFile, available);
            getline(openFile, borrowed);
            while (getline(openFile, checkLine)){
                if (checkLine == userName){
                    getline(openFile, checkLine);
                    getUserBorrow = checkLine;
                    getUserBorrow.erase (0, 15);
                    checkRecord = 0;
                }
            }
            if (checkRecord == 1){
                cout << "\nUser " << userName << " has not borrowed yet!";
                getchar();
                pressKey();
                main();
            }
            openFile.close();
            available.erase (0, 11);
            borrowed.erase (0, 10);
            int availableInt = stoi(available), borrowedInt = stoi(borrowed), retur
nBook, borrowTotalUser = stoi(getUserBorrow);;
            if (borrowedInt == 0){
                cout << "\nYou have not borrowed this book yet!";
                getchar();
                pressKey();
                main();
            }
            cout << "How many would you like to return? ";
            cin >> returnBook;
            if (returnBook < 0){
            cout << "\nYou cannot return negative books!";
            getchar();
            pressKey();
            main();
            }
            availableInt += returnBook;
            borrowedInt -= returnBook;
            if (borrowedInt < 0){
                cout << "\nYou do not have that many copies!";
                getchar();
                pressKey();
                main();
            }
            borrowTotalUser -= returnBook;
            if (borrowTotalUser < 0){
                cout << "\nUser " << userName << " does not have that many copies!"
;
                getchar();
                pressKey();
                main();
            }
            string available2 = "Available: " + to_string(availableInt);

            //EDIT BOOK AND BORROW RECORD
            string line;
            bookNum.erase (0, 23);
            ifstream bookSingleRead(bookNum + ".txt");
            if( !bookSingleRead.is_open()){
                cout << "\nFile failed to open.";
                pressKey();
                main();
            }

            ofstream bookSingle("temp.txt", ios::app);
            bookNum = "Book Reference Number: " + bookNum;
            bookSingle << bookNum << "\n" << title << "\n" << author << "\n" << ava
ilable2 << "\nBorrowed: " << borrowedInt << "\n";
            for (int i = 0; i < 5; i++)
                    getline(bookSingleRead, line);
            while(getline(bookSingleRead, line)) {
                if (line == userName)
                    getline(bookSingleRead, line);
                else
                    bookSingle << line << endl;
            }
            if (borrowTotalUser != 0){
                bookSingle << userName << "\nUser Borrowed: " << borrowTotalUser <<
 "\n";
            }
            bookSingleRead.close();
            bookSingle.close();
            remove(searchNumTxt.c_str());
            rename("temp.txt", searchNumTxt.c_str());

            //EDIT BOOK RECORD
            ifstream bookRecord("Book Records.txt");
            if( !bookRecord.is_open()) {
                cout << "\nFile failed to open.";
                pressKey();
                main();
            }
            ofstream bookTemp("temp.txt");
            string del = bookNum;
            while (getline(bookRecord, line)) {
                if ( del == line )
                    for (int i = 0; i < 4; i++)
                        getline(bookRecord, line);
                else
                    bookTemp << line << endl;
            }

            bookRecord.close();
            bookTemp.close();
            remove("Book Records.txt");
            rename("temp.txt","Book Records.txt");
            ofstream bookBorrowed("Book Records.txt", ios::app);
            bookBorrowed << bookNum << "\n" << title << "\n" << author << "\n" << a
vailable2 << "\nBorrowed: " << borrowedInt<< "\n";
            bookBorrowed.close();

            getchar();
            cout << "\nBook has been returned.";
            pressKey();
            main();
        } else {
            getchar();
            cout << "\nReturn cancelled.";
            pressKey();
            main();
        }
    } else
        cout << "\nBook Reference Number could not be found!.";
    pressKey();
    main();
}

void viewAllBooks(){
    viewAllBookDesign();
    ifstream allData("Book Records.txt");
    if (allData.is_open()) //is_open is from fstream
        cout << allData.rdbuf() << "\nAll books have been displayed!";
```

```cpp
    else
        cout << "\nThere are no book records yet!";

    allData.close();
    pressKey();
    main();
}

void deleteAllBooks(){
    int choice;
    ifstream allData ("Book Records.txt");
    deleteAllBookDesign();
    cout << "Do you wish to delete all books?\n[1]Yes\n[2]No\nYour choice: ";
    cin >> choice;
    if (choice == 1) {
        if (allData.is_open()) {
            while (getline(allData, bookNum)) {
                bookNum.erase (0, 23);
                string bookNumTxt = bookNum + ".txt";
                remove(bookNumTxt.c_str());
                for (int i = 0; i < 4; i++)
                    getline(allData, bookNum);
            }
            allData.close();
            remove("Book Records.txt");
            cout << "\nAll books have been deleted!";
            getchar();
            pressKey();
            main();
        } else
            allData.close();
            getchar();
            cout << "\nThere are no books to delete yet!";
    } else {
        getchar();
        cout << "\nDelete all books cancelled.";
    }
    pressKey();
    main();
}

//DESIGN SECTION (UNRELATED TO CODE)
void librarySystemDesign() {
    cout << R"(
      __    _ __                              _____            __
     / /   (_) /_  _________ ________  __    / ___/__  _______/ /____  ____ ___
    / /   / / __ \/ ___/ __ `/ ___/ / / /    \__ \/ / / / ___/ __/ _ \/ __ `__ \
   / /___/ / /_/ / /  / /_/ / /  / /_/ /    ___/ / /_/ (__  / /_/  __/ / / / / /
  /_____/_/_.___/_/   \__,_/_/   \__, /    /____/\__, /____/\__/\___/_/ /_/ /_/
```

```
                                /____/         /____/

    )" << '\n';
}

void libraryMenuDesign() {
    cout << ".-=~=-
.                                                                 .-=~=-.\n";
    cout << "(__  _)-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-
._.-(__  _)\n";
    cout << "( _ __)                           [1] ADD BOOK
  ( _ __)\n";
    cout << "(__  _)                           [2] EDIT BOOK
  (__  _)\n";
    cout << "(_ ___)                          [3] DELETE BOOK
  (_ ___)\n";
    cout << "(__  _)                          [4] BORROW BOOK
  (__  _)\n";
    cout << "( _ __)                          [5] RETURN BOOK
  ( _ __)\n";
    cout << "(__  _)                        [6] VIEW ALL BOOKS
  (__  _)\n";
    cout << "(_ ___)                       [7] DELETE ALL BOOKS
  (_ ___)\n";
    cout << "(__  _)                              [8] EXIT
  (__  _)\n";
    cout << "( _ __)-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-._.-=-
._.-(_ ___)\n";
    cout << "`-._.-
'                                                                 `-._.-'\n";
}

void addBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"

    ___       __    __   ____              __
   /   | ____/ ____/ /  / __ )____  ____  / /__
  / /| |/ __  / __  /  / __  / __ \/ __ \/ //_/
 / ___ / /_/ / /_/ /  / /_/ / /_/ / /_/ / ,<
/_/  |_\__,_/\__,_/  /_____/\____/\____/_/|_|

_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"
    )" << '\n';
}
```

```
void editBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"

    ______    ___ __     ____              __
   / ________/ (_/ /_   / __ )____  ____  / /__
  / __/ / __  / / __/  / __  / __ \/ __ \/ //_/
 / /___/ /_/ / / /_   / /_/ / /_/ / /_/ / ,<
/_____/\__,_/_/\__/  /_____/\____/\____/_/|_|

_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"
    )" << '\n';
}

void deleteBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"

    ____       __     __          ____              __
   / __ \___  / ___  / /____     / __ )____  ____  / /__
  / / / / _ \/ / _ \/ __/ _ \   / __  / __ \/ __ \/ //_/
 / /_/ /  __/ /  __/ /_/  __/  / /_/ / /_/ / /_/ / ,<
/_____/\___/_/\___/\__/\___/  /_____/\____/\____/_/|_|
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"
    )" << '\n';
}

void borrowBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"

    ____                                 ____              __
   / __ )____  ______________ _      __  / __ )____  ____  / /__
  / __  / __ \/ ___/ ___/ __ | | /| / /  / __  / __ \/ __ \/ //_/
 / /_/ / /_/ / /  / /  / /_/ | |/ |/ /  / /_/ / /_/ / /_/ / ,<
/_____/\____/_/  /_/   \____/|__/|__/  /_____/\____/\____/_/|_|
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"
    )" << '\n';
}

void returnBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
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_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"
    )" << '\n';
}

void viewAllBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"

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_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"
    )" << '\n';
}

void deleteAllBookDesign() {
    cout << R"(
_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
```

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"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--'"

    ____       __      __          ___    ____   ____              __
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  / / / / _ \/ / _ \/ __/ _ \   / /| | / / /  / __  / __ \/ __ \/ //_/ ___/
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_.--.__.-'""`-.__.--.__.-'""`-.__.--.__.-'""`-.____.--.__.-'""`-.__.--.__.-'""`-
.__.--._
"`--'""`-.__.-'""`--'""`-.__.-'""`--'""`-.__.-'""`"`--'""`-.__.-'""`--'""`-.__.-
'""`--
'"
    )" << '\n';
}
```

Thank You

This is the end of the project.

CREATED USING
Visual Studio Code C++

Waldorf Manalili