**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

## ASSIGNMENT No. 3
## Complex Computing Problem

Course Title: Computer programming
Course Code: CSC-113
Class:  BS (CS)-1A,B                            Submission deadline: 11-June -23
Course Instructor: Azeema Sadia                 Marks: 10

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## *Instructions*

1. Students will perform this assignment individually.
2. Assignment should be done only on A4 size paper and will also be uploaded on LMS
3. Deadline will not be extended for any reason.
4. Copied assignments will be marked zero
5. Make a single pdf as both soft copies and hard copy

| Characteristics | Problem Solving description |
|---|---|
| Depth of analysis required | Has no obvious solution, and requires conceptual thinking and innovative analysis to formulate suitable abstract models |
| Depth of knowledge required | A solution requires the use of in-depth Computer Programming knowledge provided in class & lab sessions. |

6. Solution must be designed by applying the following characteristics

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### Scenario/Problem

Develop a menu driven program in C++ for school library system that facilitates the school students and staff. Students can borrow books from library. The system enable the library staff to keep record of books by entering the correct credentials (login id and password).Your application must prompt a message in case of wrong credential entered. The staff can enter the book in a system with following information one by one.

- Book ID,
- Book Title, and
- Author Name

One book can be issued to the students at most for a month. Students must be 16 years old or above. While issuing a book to the students following information must be stored in a system.

- Student id,
- Name,
- Age,
- Book title,
- Book ISBN
- Duration.

### Deliverables

A menu driven program with following functions.                    [CLO3, PLO4, BTL C3]

    i.   User login
   ii.   Taking book record (store into a text file)
  iii.   Display particular book information(read from text file and then search specific book)
  iv.   Display all books(read from text file)
   v.   Issue book to a student(takes reader's information and will store it into a text file)

Add screen shots of your program and output in your solution file

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**Evaluation Criteria**

| Deliverables | Evaluation Criteria | Target CLOs |
|---|---|---|
| Application for school library (methods and operations) | 40% | [CLO3, PLO4, BTL C3] |
| File Handling | 40% | [CLO3, PLO4, BTL C3] |
| Viva | 20% | [CLO2, PLO4, BTL C2] |
| | | |

```cpp
//username:xyz
//passowrd:abc


#include <iostream>
#include <string>
#include <fstream>
#include<ctime>
using namespace std;
string username = "xyz", password = "abc";
string un, pas;
struct staff
{
    string  booktitle, authorname;
    int bookid = 0;
}; staff y;
struct student
{
    string name, booktitle;
    int age = 0, studentid = 0, isbn = 0, duration = 0, bookid2 = 0;

}; student x;
void inputstaff()
{
    cout << "Enter title of the book" << endl;
    cin >> y.booktitle;
    cout << "Enter Authors name" << endl;
    cin >> y.authorname;
    cout << "Enter book id" << endl;
    cin >> y.bookid;
    fstream myfile;
    myfile.open("staff.txt", ios::app);
    if (myfile.is_open())
    {
        myfile << "Book ID: " << y.bookid << endl;
        myfile << "Authors name " << y.authorname << endl;
        myfile << "Title of the book: " << y.booktitle << endl;

        myfile.close();

    }
    else
    {
        cout << "Could not open file" << endl;
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```cpp
        }
    }
    void check2()
    {
        int bookid1;
        cout << "Enter the ID of the book to see its details: ";
        cin >> bookid1;
        ifstream myfile;
        myfile.open("staff.txt");
        if (myfile.is_open())
        {
            string line;
            bool found = false;
            while (getline(myfile, line))
            {
                if (line.find("Book ID: " + to_string(bookid1)) != string::npos)
                {
                    cout << line << endl;
                    cout << "Book is present" << endl;
                    found = true;
                    break;
                }

            }
            if (!found)
            {
                cout << "Book is not present in liabrary." << endl;
            }
        }
        else
        {
            cout << "Could not open the file." << endl;
        }
        myfile.close();
    }
    void read()
    {
        ifstream myfile;
        myfile.open("staff.txt");
        if (myfile.is_open())
        {
            string line;
            while (getline(myfile, line))
            {
                cout << line << endl;
            }
        }
        else
        {
            cout << "Could not open file" << endl;
        }
    }
    void bookinfo()
    {
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```cpp
        int bookid1;
        cout << "Enter the ID of the book to see its details: ";
        cin >> bookid1;
        ifstream myfile;
        myfile.open("staff.txt");
        if (myfile.is_open())
        {
            string line;
            bool found = false;
            while (getline(myfile, line))
            {
                if (line.find("Book ID: " + to_string(bookid1)) != string::npos)
                {
                    cout << line << endl;
                    getline(myfile, line);
                    cout << line << endl;
                    getline(myfile, line);
                    cout << line << endl;
                    found = true;
                    break;
                }

            }
            if (!found)
            {
                cout << "Could not find the book." << endl;
            }
        }
        else
        {
            cout << "Could not open the file." << endl;
        }
        myfile.close();
    }



    void inputstudent()
    {
        cout << "Enter the following details" << endl;
        cout << "Age" << endl;
        cin >> x.age;

        if (x.age >= 16)
        {

            cout << "Title of the book: ";
            cin.ignore();
            getline(cin, x.booktitle);

            cout << "Name: ";
            getline(cin, x.name);
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```cpp
        cout << "Student id: ";
        cin >> x.studentid;
        cin.ignore();

        cout << "ISBN: ";
        cin >> x.isbn;
        cin.ignore();



        fstream myfile;
        myfile.open("student.txt", ios::app);
        if (myfile.is_open())
        {
            myfile << "Name: " << x.name << endl;
            myfile << "Student ID: " << x.studentid << endl;
            myfile << "Title of the book: " << x.booktitle << endl;
            myfile << "Time you are taking book for (in days): " << x.duration <<
endl;

            myfile << "ISBN: " << x.isbn << endl;
            cout << "Book issued" << endl;
            myfile.close();

        }
        else
        {
            cout << "Could not open file" << endl;
        }


    }
    else
    {
        cout << "You are not eligible" << endl;
    }
}
void main()
{

    int j = 0;

    do {

        int m = 0, n = 0, b = 0, v = 0;
        string choice;

        cout << "Enter username:" << endl;
        cin >> un;
        cout << "Enter Password:" << endl;
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```cpp
        cin >> pas;
        if (un == username && pas == password)
        {
            cout << "Staff or Student" << endl;
            cin >> choice;
            if (choice == "staff")
            {

                while (n < 4)
                {
                    cout << "Press 1 to enter details" << endl << "Press 2 to diplay
all the books" << endl << "press 3 to display information of specidic book" <<
endl;
                    cin >> n;
                    while (n == 1)
                    {
                        while (m == 0)
                        {
                            inputstaff();
                            cout << "press 1 to stop entring data and press 0 to
continue" << endl;

                            cin >> m;

                        }
                        cout << "Press 1 to enter details" << endl << "Press 2 to
diplay all the books" << endl << "press 3 to display information of specidic
book" << endl;
                        cin >> n;
                    }
                    while (n == 2)
                    {
                        read();
                        break;
                    }
                    while (n == 3)
                    {

                        bookinfo();
                    }
                }
            }
            else if (choice == "student")
            {
                cout << "you can have book for maximum 1 month" << endl;

                while (n < 4)
                {
                    int bookid1;
                    cout << "Enter the ID of the book to see if its present or not:
";
                    cin >> bookid1;
                    ifstream myfile;
                    myfile.open("staff.txt");
                    if (myfile.is_open())
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```cpp
{
    string line;
    bool found = false;
    while (getline(myfile, line))
    {
        if (line.find("Book ID: " + to_string(bookid1)) !=
string::npos)
        {
            cout << line << endl;
            cout << "Book is present" << endl;
            found = true;



            cout << "Press 1 to select a book" << endl << "Press 2
to diplay all the books" << endl << "press 3 to display information of specidic
book" << endl;
            cin >> n;
            while (n == 1)
            {

                inputstudent();
                cout << "Press 1 to select a book" << endl <<
"Press 2 to diplay all the books" << endl << "press 3 to display information of
specidic book" << endl;
                cin >> n;
            }



            while (n == 2)
            {
                read();
                break;
                cout << "Press 1 to select a book" << endl <<
"Press 2 to diplay all the books" << endl << "press 3 to display information of
specidic book" << endl;
                cin >> n;
            }
            while (n == 3)
            {

                bookinfo();
                break;
                cout << "Press 1 to select a book" << endl <<
"Press 2 to diplay all the books" << endl << "press 3 to display information of
specidic book" << endl;
                cin >> n;
            }
        }
    }
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```cpp
                    if (!found)
                    {
                        cout << "Book is not present in liabrary." << endl;
                    }
                }
                else
                {
                    cout << "Could not open the file." << endl;
                }
                myfile.close();



            }
        }


    }
    else if (un != username && pas == password)
    {
        cout << "Incorrect Username" << endl;
    }
    else if (un == username && pas != password)
    {
        cout << "Incorrect password" << endl;
    }
    else if (un != username && pas != password)
    {
        cout << "Both password and username are incorrect" << endl;
    }
    cout << "Press 0 to exit press 1 to continue" << endl;
    cin >> j;
} while (j == 1);
}
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```
C:\Users\DeLL\source\repos\cp assg 3\x64\Debug\cp assg 3.exe
Enter username:
xyz
Enter Password:
abc
Staff or Student
staff
Press 1 to enter details
Press 2 to diplay all the books
press 3 to display information of specidic book
1
Enter title of the book
abc
Enter Authors name
hhf
Enter book id
425625
press 1 to stop entring data and press 0 to continue
1
Press 1 to enter details
Press 2 to diplay all the books
press 3 to display information of specidic book
2
Book ID: 36363
Authors name key
Title of the book: acha
Book ID: 4242
Authors name gag
Title of the book: ggf
Book ID: 4242
Authors name ggs
Title of the book: fa
Book ID: 53
Authors name ggs
Title of the book: faga
Book ID: 4242
Authors name gag
Title of the book: 1
Book ID: 4242
Authors name gsaga
Title of the book: daf
Book ID: 6353
Authors name faf
Title of the book: wa
Book ID: 424525
Authors name gasga
Title of the book: moe
Book ID: 425625
Authors name hhf
Title of the book: abc
Press 1 to enter details
Press 2 to diplay all the books
press 3 to display information of specidic book
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```
press 3 to display information of specidic book
3
Enter the ID of the book to see its details: 6353
Book ID: 6353
Authors name faf
Title of the book: wa
Enter the ID of the book to see its details:
```

C:\Users\DeLL\source\repos\cp assg 3\x64\Debug\cp assg 3.exe — □ ×

```
Enter username:
xyz
Enter Password:
abc
Staff or Student
student
you can have book for maximum 1 month
Enter the ID of the book to see if its present or not: 53
Book ID: 53
Book is present
Press 1 to select a book
Press 2 to diplay all the books
press 3 to display information of specidic book
```

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```
C:\Users\DeLL\source\repos\cp assg 3\x64\Debug\cp assg 3.exe
Enter username:
xyz
Enter Password:
abc
Staff or Student
student
you can have book for maximum 1 month
Enter the ID of the book to see if its present or not: 53
Book ID: 53
Book is present
Press 1 to select a book
Press 2 to diplay all the books
press 3 to display information of specidic book
1
Enter the following details
Age
18
Title of the book: gaga
Name: gehse
Student id: 4242
ISBN: 5252
Book issued
Press 1 to select a book
Press 2 to diplay all the books
press 3 to display information of specidic book
2
Book ID: 36363
Authors name key
Title of the book: acha
Book ID: 4242
Authors name gag
Title of the book: ggf
Book ID: 4242
Authors name ggs
Title of the book: fa
Book ID: 53
Authors name ggs
Title of the book: faga
Book ID: 4242
Authors name gag
Title of the book: 1
Book ID: 4242
Authors name gsaga
Title of the book: daf
Book ID: 6353
Authors name faf
Title of the book: wa
Book ID: 424525
Authors name gasga
Title of the book: moe
Book ID: 425625
Authors name hhf
Title of the book: abc
Enter the ID of the book to see if its present or not: _
```
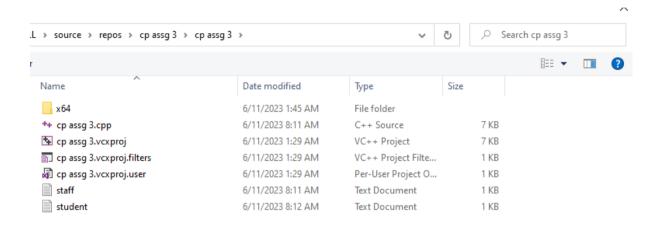
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**Enrollment: 02-134231-035**

L > source > repos > cp assg 3 > cp assg 3 >          Search cp assg 3

| Name | Date modified | Type | Size |
|---|---|---|---|
| x64 | 6/11/2023 1:45 AM | File folder | |
| cp assg 3.cpp | 6/11/2023 8:11 AM | C++ Source | 7 KB |
| cp assg 3.vcxproj | 6/11/2023 1:29 AM | VC++ Project | 7 KB |
| cp assg 3.vcxproj.filters | 6/11/2023 1:29 AM | VC++ Project Filte... | 1 KB |
| cp assg 3.vcxproj.user | 6/11/2023 1:29 AM | Per-User Project O... | 1 KB |
| staff | 6/11/2023 8:11 AM | Text Document | 1 KB |
| student | 6/11/2023 8:12 AM | Text Document | 1 KB |

**Name:Mohammad Ur Rehman**
**Enrollment: 02-134231-035**

```
student.txt  ⊕ ✕  cp assg 3.cpp
    1    Name: oe
    2    Student ID: 0
    3    Title of the book:
    4    Time you are taking book for: 0
    5    ISBN: 0
    6    Name: sdhshshsh
    7    Student ID: 0
    8    Title of the book:
    9    Time you are taking book for: 0
   10    ISBN: 0
   11    Name: ol
   12    Student ID: 0
   13    Title of the book:
   14    Time you are taking book for: 0
   15    ISBN: 0
   16    Name: mohammad
   17    Student ID: 5252
   18    Title of the book: moe
   19    Time you are taking book for: 60
   20    ISBN: 5262
   21    Name: mohammad
   22    Student ID: 5252
   23    Title of the book: moe
   24    Time you are taking book for: 60
   25    ISBN: 6262
   26    Name: mohammad
   27    Student ID: 53
   28    Title of the book: moe
   29    Time you are taking book for: 50
   30    ISBN: 63463
   31    Name: mohammad
   32    Student ID: 5252
   33    Title of the book: gsg
   34    Time you are taking book for: 50
   35    ISBN: 5252
120 %  ▾   ✓ No issues found
```

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**Enrollment: 02-134231-035**

```
staff.txt  ⊟ X  cp assg 3.cpp
     1          Book ID: 36363
     2          Authors name key
     3          Title of the book: acha
     4          Book ID: 4242
     5          Authors name gag
     6          Title of the book: ggf
     7          Book ID: 4242
     8          Authors name ggs
     9          Title of the book: fa
    10          Book ID: 53
    11          Authors name ggs
    12          Title of the book: faga
    13          Book ID: 4242
    14          Authors name gag
    15          Title of the book: 1
    16          Book ID: 4242
    17          Authors name gsaga
    18          Title of the book: daf
    19          Book ID: 6353
    20          Authors name faf
    21          Title of the book: wa
    22          Book ID: 424525
    23          Authors name gasga
    24          Title of the book: moe
    25          Book ID: 425625
    26          Authors name hhf
    27          Title of the book: abc
    28
```