UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA

COMPUTER ENGINEERING DEPARTMENT

PROJECT COMPLETE REPORT

For the Course Of

Computer Programming (CP)

For

Second Semester

Lab: Computer Programming (CP)

INSTRUCTOR: Engr. Shehryar

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Reg. number: 20-CP-47 (Alpha)

PROJECT TITLE:

LIBRARY MANAGEMENT SYSTEM

✡ Introduction:

My name is Umair Aziz of 20-CP-47. We had given an opportunity to make a semester-end project based on C++ programming language to develop our skills of programming and learn more constructs and structures that will entertain us in learning other programing languages as well.

In order to make such a project, that will be helpful in our daily life as well, I had selected a project of Library management system. The reason behind the selection of this project is my love to read more and more books. I often visit library of my college and now in my university also. This project arises in my mind that how such a lot of books get arranged and get record of all books. As we learnt a lot of programming constructs in our Computer Programming (CP) course, so I decided to make such a program that will able to manage all the library books records; display all the books present in the library, sort all the books ascendingly or in descending order, update record of any book etc. As this project can be exceeded to a lot of features but I had restricted my program to some of the features that will be discussed here.

✡ Programming Constructs:

As we had learnt a lot of programming constructs in my Computer Programming Course that's why I tried my best to use all of them. Also, I had used some other constructs as well that I studied from internet. Some of the constructs that I had used are listed below:

Structures
Functions
Arrays
Loops
Global variables
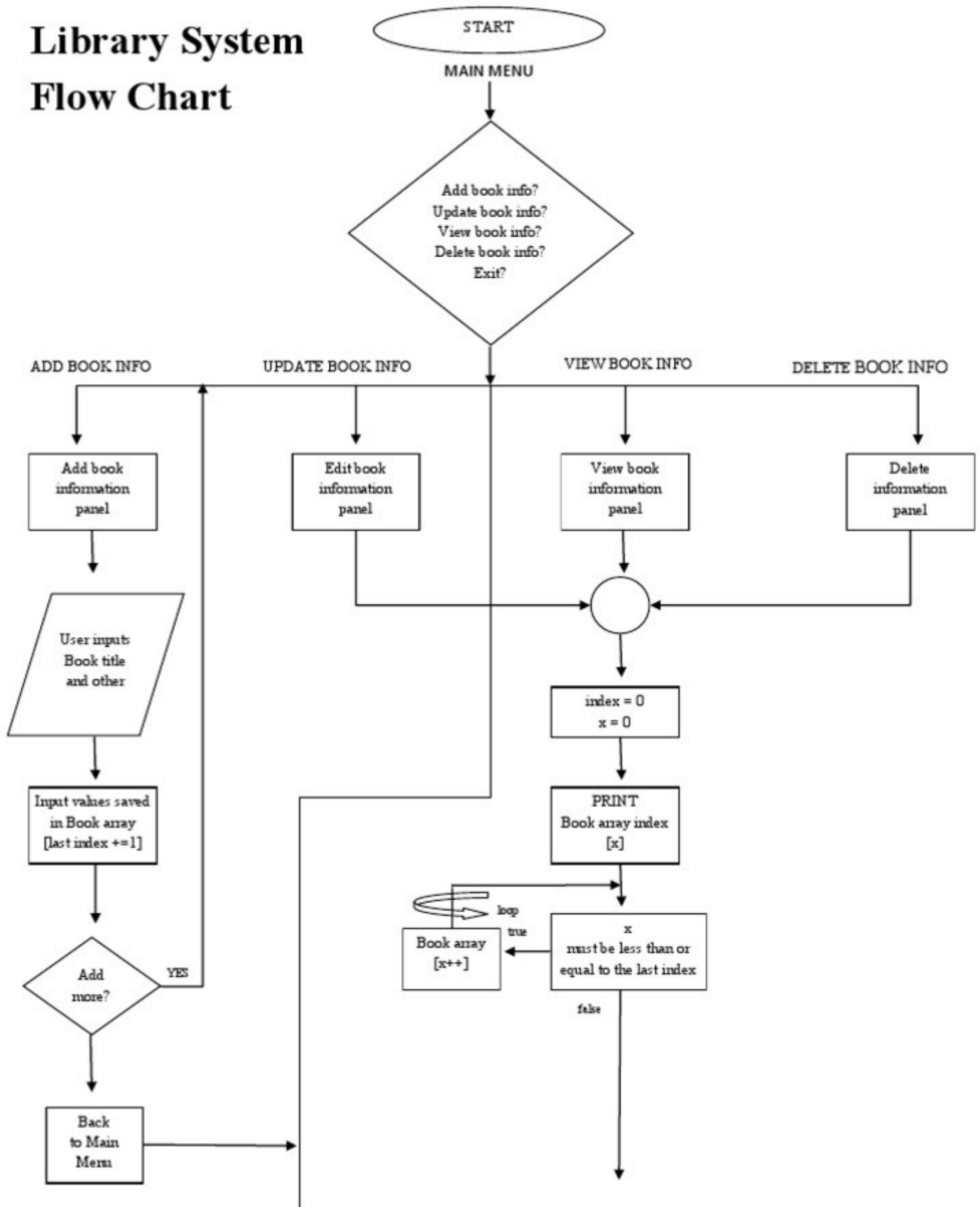Strings
Inline functions and many more.

✡ Tools:

For making such an informative and entertaining project, I decided to use Dev C++ Compiler. As, it is a very handy tool and easily available and downloadable so I prefer this tool for compilation of may project.

✡ Algorithmic Flow Chart:

Library System
Flow Chart

START

MAIN MENU

Add book info?
Update book info?
View book info?
Delete book info?
Exit?

ADD BOOK INFO   UPDATE BOOK INFO   VIEW BOOK INFO   DELETE BOOK INFO

| Add book information panel | Edit book information panel | View book information panel | Delete information panel |

User inputs
Book title
and other

index = 0
x = 0

Input values saved
in Book array
[last index +=1]

PRINT
Book array index
[x]

Add
more?   YES

loop

Book array
[x++]   true   x
must be less than or
equal to the last index

false

Back
to Main
Menu

✡ Features Of Project:

As I had mentioned above that this project can be exceeded to many features, but I had selected some of the features that my program will execute. My program is able to:

→ Add books to library.
→ Sort all books.
→ Search a book.
→ Display all books.
→ Delete a book record.

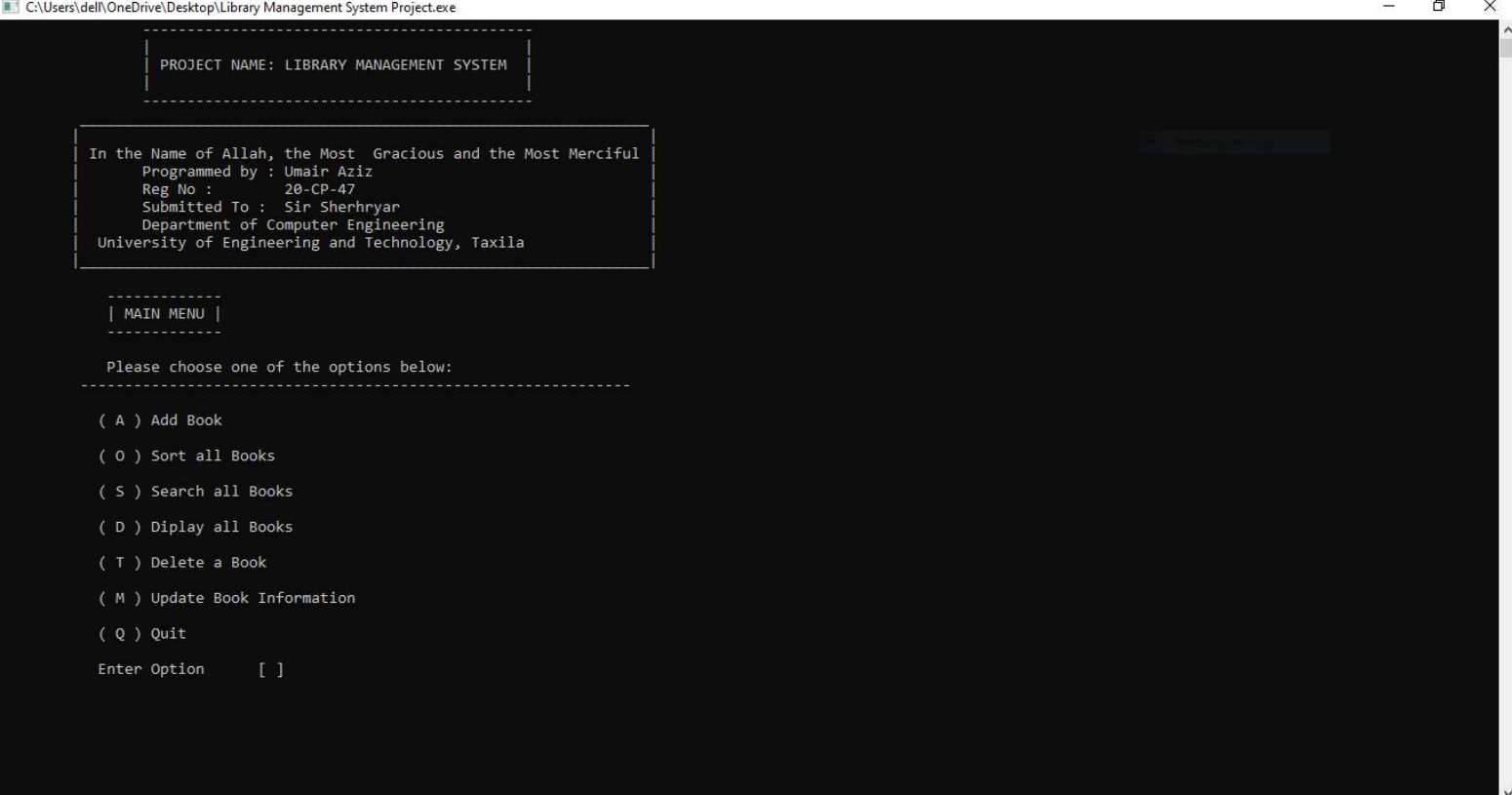Now, I shall show my project code and its output how it works.

❈ Project Code:

My project code is present in Library management System Project.CPP file. I'll show here its output that how it shows its output.

❈ Console Output:

Here I'll show every display of my project:

⋏ Main Menu:

After pressing Compile and Run button, initially this main menu is shown. From here, we had to select what we want to do.

As initially there is no record of books and library has 0 books, so, first of all, we press 'A' or 'a' to Add book. This shows this type if screen:

⚔ Add Book:

C:\Users\dell\OneDrive\Desktop\Library Management System Project.exe

```
In ADD function
Enter Book Name:
```

After entering information regarding books as:

C:\Users\dell\OneDrive\Desktop\Library Management System Project.exe

```
In ADD function
Enter Book Name: Digital Logic Design
Enter Book ID: 389
Enter Author Name: Noshina Ishaque
Enter Book Category: Logic Designing
Enter Publication Company Name: Hsg
Enter Publication Month: 04
Enter Publication Year: 1990
Do you want to add more books? [y/n]
```

It asks the user, whether he wants to add more books or not. After adding books, when we press 'n', we move back to main menu. Afterwards, when we call the display function, it will show our entered books.

⚔ Display of Books:

C:\Users\dell\OneDrive\Desktop\Library Management System Project.exe

```
In display function:
```

"Book ID"	"Book Name"	"Author Name"	"Category"	"Publication Company"	"Month of Publication"	"Year of Publication"
436	Computer Programming	Sheryar Shohail	Programming	Tuys	06	2000
389	Digital Logic Design	Noshina Ishaque	Logic Designing	Hsg	04	1990
123	Maths	Aslam Asif	Mathematics	xyz	03	2002
456	Chemistry	Naqvi Shah	Science Branch	wxy	07	1996

```
Press enter to goto main manu.....
```

It will show all the books that we had entered in the add function.

Now, if we want to sort the books according to ascending or descending order, we press any key from our keyboard that moves to main menu. Now for sorting press 'O'.

➤ Sorting of Books:

```
            In Sort Function
             Please choose one of the options below:
      ------------------------------------------------------------

          ( A ) Sort in Ascending Order

          ( D ) Sort in Descending Order

          Enter Option       [ ]
```

From here, we had to select which order we want to select. After selecting any option, it will ask whether we want to sort according to name, id, category, publication company or publication year.

```
            In Sort Function
             Please choose one of the options below:
      -----------------------------------------------------------------

          ( N ) Sort by name

          ( I ) Sort by Id

          ( T ) Sort by author name

          ( C ) Sort by Category

          ( P ) Sort by Publication Company

          ( Y ) Sort by Publication Year

          Enter Option       [ ]
```

Let's we sort according to book name. For this, we had to enter 'N' , it will show sorting in ascending order by name:

In display function:

"Book ID"	"Book Name"	"Author Name"	"Category"	"Publication Company"	"Month of Publication"	"Year of Publication"
456	Chemistry	Naqvi Shah	Science Branch	wxy	07	1996
436	Computer Programming	Sheryar Shohail	Programming	Tuys	06	2000
389	Digital Logic Design	Noshina Ishaque	Logic Designing	Hsg	04	1990
123	Maths	Aslam Asif	Mathematics	xyz	03	2002

Press enter to goto main manu.....

If we select descending order, then it will show as:

In display function:

"Book ID"	"Book Name"	"Author Name"	"Category"	"Publication Company"	"Month of Publication"	"Year of Publication"
123	Maths	Aslam Asif	Mathematics	xyz	03	2002
389	Digital Logic Design	Noshina Ishaque	Logic Designing	Hsg	04	1990
436	Computer Programming	Sheryar Shohail	Programming	Tuys	06	2000
456	Chemistry	Naqvi Shah	Science Branch	wxy	07	1996

Press enter to goto main manu.....

Now if we want to search a book from a lot of books, and we know any information about the book, then we call the search function from main menu.

▲ Search of Books:

```
          In Search Function
          Please choose one of the options below:
     --------------------------------------------------------

          ( N ) Search by name

          ( I ) Search by Id

          ( T ) Search by author name

          ( C ) Search by Category

          ( P ) Search by Publication Company

          ( Y ) Search by Publication Year

          Enter Option      [ ]
```

From her we select, how we want to search a book by name, id, category or publication year. Suppose we want to search by id, press 'I':

```
Searching by Id of book
Enter the id of book you want to search:
```

After entering id:

```
Searching by Id of book
Enter the id of book you want to search: 456
Record Found!
```

"Book ID"	"Book Name"	"Author Name"	"Category"	"Publication Company"	"Month of Publication"	"Year of Publication"
456	Chemistry	Naqvi Shah	Science Branch	wxy	07	1996

```
Press enter to goto main manu.....
```

We can also search a book by its name or category etc.

⅄ **Delete Books:**

Now, if we want to delete any book record, move back to main menu and press 'T'.

```
            In Delete Function
           Please choose one of the options below:
        ----------------------------------------------------------

            ( N ) Delete by name

            ( I ) Delete by Id

            ( T ) Delete by author name

            ( C ) Delete by Category

            ( P ) Delete by Publication Company

            ( Y ) Delete by Publication Year

            Enter Option      [ ]
```

It will show us option that by which option you will search a book and then delete a book. Let's delete by category:

```
Deleting by category of book
Enter the category of book you want to delete: Mathematics
Press enter to goto main manu.....
```

After entering a category, when we go to main menu and call the display function there is no book of this category.

In display function:

"Book ID"	"Book Name"	"Author Name"	"Category"	"Publication Company"	"Month of Publication"	"Year of Publication"
389	Digital Logic Design	Noshina Ishaque	Logic Designing	Hsg	04	1990
436	Computer Programming	Sheryar Shohail	Programming	Tuys	06	2000
456	Chemistry	Naqvi Shah	Science Branch	wxy	07	1996

Press enter to goto main manu.....

Similarly, it also works for book name, id, and publication year etc.

⤒ Modify Information of Books:

Now, if we want to modify the information of books, we will press 'M' in the main menu.

C:\Users\dell\OneDrive\Desktop\Library Management System Project.exe

```
        In Modify Function
        Please choose one of the options below:
    --------------------------------------------------------

        ( N ) Modify by name

        ( I ) Modify by Id

        ( T ) Modify by author name

        ( C ) Modify by Category

        ( P ) Modify by Publication Company

        ( Y ) Modify by Publication Year

        Enter Option        [ ]
```

Now we had to select what we want to modify. Let's we want to modify name. So, first of all, we want to enter the old name of book and then modify it.

C:\Users\dell\OneDrive\Desktop\Library Management System Project.exe

```
Modifying by name of book
Enter the name of book you want to modify: Chemistry
```

After entering old name, new name is prompted:

C:\Users\dell\OneDrive\Desktop\Library Management System Project.exe

"Book ID"	"Book Name"	"Author Name"	"Category"	"Publication Company"	"Month of Publication"	"Year of Publication"
456	Chemistry	Naqvi Shah	Science Branch	wxy	07	1996

In Modify function
Enter new Book Name: Physics
MODIFIED!
Press enter to goto main manu.....

Now if we call the display function again, it will show as:

Now if we want to Quit the program, simply press 'Q' and enter, we will get out of console window. In this way, my project works.

✡ <u>Summary Of Project:</u>

I had tried to give our complete demo, how my project works by showing the screenshots of my program. In the end, I'll summarize my project by saying that this C++ project consist of code of library management project in which I had used a lot of programming constructs to store the record of books. First of all, we enter the record of book, then we can sort all the books ascendingly or in descending order. We can search any book my its name, id or any category. We can modify the information of book by providing the old information first. And we can delete the information of any book.

At the end, I liked to say that this project had really improved already learned concepts and moreover I also had learned a lot of new things as well. This project really improved my knowledge of programming.

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