

PROJECT REPORT

DATA STRUCTURE

AND

ALGORITHM

Project Name:

Book Management system

Presented by:

Ahmed Khan (37635)

&

Esham Qureshi (36511)

Course Instructors:

Prof.Usama Imtiaz

&

Sir Waheed Ahmed



Faculty of Computing

Introduction:

This project is based on a book/library management system as per the library works in our society or in daily lifestyle, in the same manner, our project does where one can add his/her data in the system and can borrow the book. On the other hand, it is the system that reduces the paperwork in the library, the librarian can add \ update book and person data, can view all person data, can view all the books available, can view borrowed books, can update person data if require and much more work systematically.

Project aim and objective:

The main aim of our project (library management system) is to implement all the data structure's that we have studied in our course in a real-life example we have implemented real-life examples through that data structures and tried to get how and where can these data structures be useful; we will get to know the importance of these data structures in real life manner.

Functionality:

The functionality of our project is as follows.

- First **admin login** is required; the admin will log in to the system using a password.
- When a system is successfully login the user can go to the book section or in-person section.

Book service:

- User can add books, borrow books using personal id (required for the person to be registered) update book category, genre and title, search books using book id or book title, or can display all books and, available books.
- The book record which is added will also be written in the file and will be stored until the user deletes the file.
- We can also view all the book's records from the file later if needed.

Person service:

- In this section User can add a new person, and update user information like phone no, and name can search person using their ID or name, user can also view all the person's records, can also view the last borrowed books of a specific person using id, and will return the borrow books by the person in this section.
- The person record which is added will also be written in the file and will be stored until the user deletes the file.
- We can also view all the person's records in the file later if needed.

Real-life implementation:

Our project can be used by the libraries for their online / E-book system. It will help the library management to have an online platform for their library. It will be beneficial for them to maintain their record online as well. There will be a facility for everyone to issue the book online so that it will be a very comfortable platform for the user to have access to the library from anywhere and will have a return date for the book as well. The librarian will be able to have an overall record of a person who borrows a book and will also have a record of the persons who return the book. The library management panel will have many more facilities in it like they can update the book can add new books on their online platform then Users can view all the other new books as well, can view the person record can update the person record, and many more facilities are available in our project for the librarian.

Data structure's involved:

After the completion of the project, the data structure used in it is the followings:

- Arrays.
- Stack.
- Queue.
- Link-list

Additional:

- File handling.
- Error handling.
- Goto Statement.
- Sleep function.
- getchar ().

Libraries used:

```
#include <iostream>

#include <string>

#include <conio.h>

#include <cstring>

#include <unistd.h>

#include <fstream>
```

Conclusion:

- Through this project we get to know the importance of link list and other data structures in the real life.
- Get to know how these data structures can be a handful to be used in different conditions.
- We get to know how you can relate anything in daily life to the data structure such as:
 1. Arranging chocolate candy in a box and naming them is the same as an **array** where you store a similar element of the same data type.
 2. Arranging books in a rack will be the same as a **stack**.
 3. You can have a train as an example of the **link list**.
 4. Standing in a line represents the **queue**.
 5. Family hierarchy will be represented in **trees and graphs**.

And many more examples.