



Library Management System

Data Structures and Algorithms

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INTRODUCTION:

Background:

Effect of our project on the society:

Without our project and other similar projects like these, the education field will be unable to keep track of all the data as it is a show case of different terminologies and concepts that ought to be combined and used together for the accomplishment of a certain task. The same thing if implemented manually by workers and inefficient lists alone would take longer to access, but with the idea of our project, it becomes much more efficient and quicker.

Motivation for choosing this project:

We chose this project because all four of us agreed and understood the basic logic of the code and in this project all four of us could contribute equally. Moreover, the objective and motivation was to generate a project that increases the efficiency and provides **quicker access** in lesser time which is the first and the foremost objective of DSA. In conclusion, we chose a project which was **challenging** but not **overwhelming**.

Problem Description

Problem solving is the **core** of computer science. We must first understand how a human solves a problem, then we can understand how to translate this "**algorithm**" into something a computer can do. Thus, our project solves the complex problem of keeping track of data and saves both **time and space**. Moreover, it provides greater **efficiency** for our users than manual implementation.

1.1 Aims and Objectives

Objectives:

- We Created such a system, that allows you to access, search and add different books along with the **feasibility** of issuing books, displaying book records as well as replacement of preliminary books.

- Implementation of methods that increases the **efficiency** and provides quicker access in lesser time which is the first and the foremost objective of DSA.
- It includes the conjunction of different **concepts, lists** and **terminologies**.

Functionalities:

❖ **ADMIN:**

- ✚ Issuing books
- ✚ Displaying the records of all books available
- ✚ Replacing old books with new books
- ✚ Displaying the total price
- ✚ User Authentication when logging in as admin
- ✚ Displaying the details of all books bought.

❖ **ACCESS:**

- ✚ Issue a book
- ✚ Display records
- ✚ Displaying of book details after issuing

❖ **CODE IMPLEMENTATION:**

Overview

In this section we will discuss about the software implementation and the software application which are being used to code the hardware. Three mainly software applications are used in our project:

- C++ is designed to be a compiled language, meaning that it is generally translated into machine language that can be understood directly by the system, making the generated program highly efficient. For that, a set of tools are needed, known as the **development toolchain**.

CONCLUSION:

Overview

1. The Project is basically based on **stacks, queues, link list and tree**; the significance is simply that it provides a faster access with lesser time complexity.
2. The same thing if implemented by array alone would take longer to access, but with the inclusion of lists and other abstract data types, it becomes much more efficient and quicker.
3. Other than that it is a show case of different terminologies and concepts that ought to be combined and used together for the accomplishment of a certain task.

Thus, in the future all seven of us would try to make a better version of this project under the guidance of our teachers as improvement and modification is the key.

REFERENCES:

Most of the code was written by us but we took some concepts from:

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