Data Structures & Algorithms

(CS-250)

OPEN-ENDED LAB

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User Manual

BookTrack Nexus

Library

Management System

A Comprehensive Library Management System in C++, unifying Data Structures & Algorithms, Object-Oriented Programming, and File Handling.

User Manual

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1. Introduction

1.1 Purpose of the System

The library system is designed to manage and organize information about books and users in a library. It provides functionalities for both administrators and users to perform various tasks related to borrowing, returning, searching, and listing books and users.

1.2 Features

Admin Dashboard: Allows administrators to perform operations such as adding books, adding users, searching for books, and listing books and users.

User Dashboard: Allows users to borrow and return books, as well as search for books in the library.

1.3 System Components

The system is comprised of book and user operations, each with specific functionalities. It also includes a library system struct that acts as the main controller for the program.

2. Getting Started

2.1 System Requirements

C++ compiler

Operating System: Windows, Linux, macOS

2.2 Installation

Download the source code.

Compile the code using a C++ compiler.

Run the executable file generated.

2.3 Loading Existing Data

The system can load existing data from files at the beginning. Ensure the "books.txt" and "users.txt" files are present in the same directory as the executable.

3. Admin Dashboard

3.1 Adding a New Book

To add a new book, choose option 1 from the Admin Dashboard.

Enter the book's name, ID, and the number of available copies.

3.2 Adding a New User

To add a new user, choose option 2 from the Admin Dashboard.

Enter the user's name and CMS ID.

3.3 Searching for Books

To search for books, choose option 3 from the Admin Dashboard.

Enter the book's name to find matching books.

3.4 Listing Books Ordered by ID

To list books ordered by ID, choose option 4 from the Admin Dashboard.

3.5 Listing Books Ordered by Name

To list books ordered by name, choose option 5 from the Admin Dashboard.

3.6 Listing Users Ordered by ID

To list users ordered by ID, choose option 6 from the Admin Dashboard.

3.7 Listing Users Ordered by Name

To list users ordered by name, choose option 7 from the Admin Dashboard.

3.8 Listing Users Who Borrowed a Specific Book

To list users who borrowed a specific book, choose option 8 from the Admin Dashboard.

Enter the book's name to find users who borrowed it.

4. User Dashboard

4.1 Borrowing a Book

To borrow a book, choose option 1 from the User Dashboard.

Enter your name and the book's name to borrow it.

4.2 Returning a Book

To return a book, choose option 2 from the User Dashboard.

Enter your name and the book's name to return it.

4.3 Searching for Books

To search for books, choose option 3 from the User Dashboard.

Enter the book's name to find matching books.

5. System Maintenance

5.1 Exiting the System

To exit the system, choose option 3 from the main menu.

5.2 Saving Data to Files

Data is automatically saved to "books.txt" and "users.txt" before exiting the program.

Note: This user manual provides a comprehensive guide to using the library system. Ensure to follow the instructions for each operation to effectively utilize the functionalities of the system.