

ARTTIFAI TECH

Java Programming

Project Idea: Library Management System (JavaFX Implementation)

AIM:

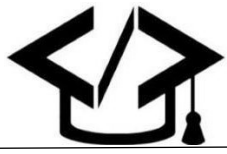
To develop a robust **Library Management System using JavaFX** that enables users to **efficiently manage books, track borrowings** and returns, and **maintain a systematic record** of users and inventory.

Key Focus Areas:

- **Efficient Book Search & Tracking:** Easy access to book details and status.
- **User-Friendly Interface:** Simplified navigation for users and librarians.
- **Security & Authentication:** Data protection and role-based access.
- **Automated Fine Calculation:** Ensuring timely book returns with penalties for late submissions.
- **Admin Dashboard:** Managing books, users, and overall system operations.

Objectives:

- **User & Book Management:**
 - Implement user authentication for students, librarians, and administrators.
 - Allow users to search and browse available books by title, author, and genre.
 - Enable the addition, updating, and removal of books from the catalog.
- **Borrowing & Returning System:**
 - Provide a checkout system for borrowing books with due date tracking.
 - Implement a return system with overdue fine calculation.
 - Maintain records of issued and returned books for easy tracking.
- **Security & Authentication:**
 - Implement user login with different access levels (Librarian, Student, Admin).
 - Secure user credentials using encryption.
 - Restrict book management access to authorized personnel only.
- **Admin & Inventory Management:**
 - Provide an admin panel to manage book inventory and user accounts.
 - Track book availability and issue alerts for low stock.
 - Generate reports on book borrowings, returns, and overdue penalties.



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Expected Output:

- A functional Library Management System with book cataloging, search, and filtering options.
- A borrowing and returning system with due date tracking and fine calculations.
- Secure login and authentication for students, librarians, and administrators.
- Admin control for book inventory and user account management.

Sample Output:

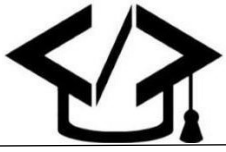
The 'Enter Details' window is a simple form with the following fields and values:

Field	Value
Book ID(BID)	3
User ID(UID)	2
Period(days)	10
Issued Date(DD-MM-YYYY)	02-09-2019

A 'Submit' button is located at the bottom of the form.

The main interface has a menu bar (File, Books, Members, Search, Loan, Help) and a toolbar with icons for adding, deleting, and searching books, as well as borrowing and returning books. Below the menu are three panels:

- Add Books:** A form for adding a new book with fields for Book Subject, Book Title, Book Author, Book Publisher, Copyright Book, Edition Number, Number Of Pages, ISBN Book, Number Of Copies, and Shelf No.
- Borrow Books:** A form for borrowing a book with fields for Enter Book ID, Enter Member ID, Current Date (06-01-19), and Return Date. It includes 'Borrow' and 'Cancel' buttons.
- Return books:** A form for returning a book with fields for Enter Book ID, Enter Member ID, Fine/Day, and Total fine amount. It includes 'Return' and 'Cancel' buttons.



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NOTE:

- The completed project must be uploaded to the student's own GitHub repository.
- The GitHub repository must be public for evaluation purposes.
- The repository link should be submitted via the Google Form:

<https://forms.gle/tNFMkX5wt343vpCo7>