Project Description

Scenario:

The Library Management System (LMS) is designed to help librarians manage the library's daily operations. Librarians use the system to add new books, issue books to students, and process book returns. Students do not interact with the system directly but request books through librarians. For example, when a student wants to borrow a book, the librarian logs into the system, searches for the book by title or author, verifies the student's details(through the use of methods), and issues the book if it's available. The system automatically updates the book's status, reducing the quantity available and . Upon return, the librarian processes the book return, and the system increases the quantity available. The LMS ensures that all transactions are accurately recorded, providing real-time information on book availability and issued books. This setup helps streamline library operations, ensuring efficient and error-free management.

Design Paradigm:

The project will implement the following functionalities(through the use of methods):

1. **Book Management**: Librarians add new books to the system, update quantities, and manage the book inventory.

2. **Issue & Return**: Librarians issue books to students, verify their details, and manage book returns, updating availability in real-time.

3. **Search**: Librarians search for books by title, author, publication year, or starting letters.

4. **View Operations**: Librarians view available and issued books in the catalog.

5. **Database Integration**: The system will use the following database tables:

   o **Books**: Tracks book details (e.g., title, author, quantity, and issued copies, etc.).

   o **Students**: Stores student information for issuing purposes.

   o **IssuedBooks**: Logs every issued book, linking the book and student along with issue and return dates.

6. **MVC Architecture**: The project follows an MVC design pattern to separate the business logic from the user interface and data handling.

Expected Output:

The system enables librarians to manage all aspects of book handling, from adding books to issuing and returning them. The system provides confirmation messages and error notifications to guide librarians through successful operations. It ensures the database stays current with all transactions, and book availability is updated automatically based on librarian inputs.