Object Oriented Programming (IS2101/SE2104)

Assignment

You need to create a Library Management System that allows users to perform various operations such as adding, updating, deleting, and searching for books.

This system will include a console-based user interface (graphical user interface not needed) and use JDBC to connect and interact with a MySQL database. You need to ensure the following conditions are met.

- Code is well-organized and commented.
- Use meaningful variable and method names.
- Follow Java naming conventions and coding standards.

Setup and Configuration:

- Set up a MySQL database (or any other preferred RDBMS) to data.
- Configure the JDBC driver in your Java project.
- Create a database named `library_db` and create tables for `books`, `members, and loans`. Use the provided database schemea (library_db.sql).

Functional Requirements:

- **Implement the following CRUD operations in Java**

    o **Add a New Book:**
       - Prompt user for book details (title, author, publisher, year published).
       - Insert the new book into the `books` table.
    o **Update Book Details:**
       - Allow user to update details of an existing book by providing the book ID.
    o **Delete a Book:**
       - Remove a book from the `books` table using the book ID.
    o **Search for a Book:**
       - Search for books by title, author, or year published.
    o **Add a New Member:**
       - Prompt user for member details (name, email, phone).
       - Insert the new member into the `members` table.
    o **Loan a Book:**
       - Record a new loan by associating a book with a member.
       - Update the `loans` table with loan date and due date.

- o **Return a Book:**
  - ▪ Mark a book as returned by updating the return date in the `loans` table.

Submission Guidelines:

- Create a folder in your registration number and include all source code files and the SQL scripts for setting up the database schema and inserting initial data.
- Compressed the folder and submit it through VLE.