SE 1108 PROGRAMMING AND PROBLEM SOLVING II

Assignment: Library Book Management System

Develop a Library Book Management System that automates common library operations such as borrowing, returning, and managing book records by utilizing ArrayList.

1. Implement the Book Class

- Define a Book class with the following private attributes:

    o title (String)

    o author (String)

    o isbn (int)

    o isAvailable (boolean)

- Create a constructor to initialize these attributes.

- Implement getter and setter for all attributes.

- Implement a borrowBook() method that sets isAvailable to false.

- Implement a returnBook() method that sets isAvailable to true.

- Implement a toString() to return book details.

2. Implement the Library Class

- Use an ArrayList to store books.

- Implement an addBook(Book book) method to add books to the library.

- Implement a borrowBook(int isbn) method:

    o Find the book by ISBN and mark it as borrowed if available.

    o If already borrowed, display a message.

- Implement a returnBook(int isbn) method:

    o Find the book by ISBN and mark it as available.

- Implement a listAvailableBooks() method to display only books that are currently available for borrowing.

- Implement a removeBook(int isbn) method to remove a book from the library by ISBN.

3. Implement a Test Class

- Create at least 3 book instances
- Create a library and add all book instances
- Borrow a book
- Display available books
- Try to borrow the same book again
- Return a book
- Display available books
- Remove a book from the library