

Software Engineering

Practical work 2

Objective: Create a Java (or C#) program for managing a library's book inventory.

Task 1: Class Design

Define a class named `Book` to represent a book with attributes such as title, author, ISBN, and `availableCopies`.

Task 2: Library Management

Create a class named `Library` that can manage a collection of books. Implement methods to:

1. Add a book to the library.
2. Remove a book from the library.
3. Display the list of books.
4. Check out a book (decrease available copies).
5. Return a book (increase available copies).

Task 3: User Interface

Develop a text-based user interface for this library system. Users should be able to:

1. Add books to the library.
2. Remove books from the library.
3. Check out books (update available copies).
4. Return books (update available copies).
5. List all books in the library.

Task 4: Error Handling

Implement error handling to address potential issues, such as trying to check out a book that is not available.

Task 5: Testing

Test the program by performing various operations like adding, removing, and checking out books. Ensure the library system functions correctly.