

Lab 10 - B

You have been hired to develop a library management system for a university. The system should allow librarians to manage the books in the library, as well as the borrowers who borrow the books.

Each book in the library has a unique ISBN, title, author, and genre. The library has a maximum capacity for books, and the system should ensure that the number of books in the library does not exceed this capacity. The system should also keep track of the number of copies of each book that are available to be borrowed. The borrowers in the system should have a unique ID, name, and contact information. They should also keep a record of the books they have borrowed and the due dates for those books. The system should prevent a borrower from borrowing more than a specified number of books at a time, and it should prevent a borrower from borrowing a book that is already checked out. The system should also keep track of the fines charged for late returns. If a borrower returns a book after the due date, they will be charged a fine based on the number of days the book is overdue.

You should use object-oriented programming concepts like inheritance, polymorphism, and encapsulation to create appropriate classes for the system. **You should also use custom exceptions to handle error cases, such as trying to borrow a book that is already checked out or trying to return a book that was not borrowed by the borrower. You should also use generic classes and methods.**

Create a console application in C# (or, a desktop application using WinForms) that implements the library management system. The application should allow the librarian to add, remove, and edit books and borrowers, as well as borrow and return books. The application should also display the current inventory of books and a list of borrowers with their borrowed books and fines.