

Day 7 : Daily Task

Question:

Create a C# program to model a simple Library Management System in continuation to the previous assignment, using classes, objects, and interfaces to demonstrate polymorphism. Design classes for "Book" and "Library" with the following properties and methods:

Book Class:

Properties:

BookID (read-only property)

Title (encapsulated property)

Author (encapsulated property)

IsAvailable (encapsulated property) - a boolean flag indicating if the book is available for borrowing.

Methods:

Constructor: Initialize the Book object with book ID, title, author, and set IsAvailable to true by default.

DisplayDetails: Display the book's ID, title, author, and availability status.

Library Class:

Properties:

Books (read-only property) - a list of Book objects representing the books in the library.

Methods:

Constructor: Initialize the Library object and populate the list of books with some initial data.

DisplayAvailableBooks: Display the details of all available books in the library.

BorrowBook: Accept the title of the book to be borrowed. Check if the book is available, and if so, set the "IsAvailable" flag to false.

ReturnBook: Accept the title of the book to be returned. Check if the book exists and is currently unavailable, then set the "IsAvailable" flag to true.

Create an interface called "ILendable" with the following method:

LendItem: Accept the title of the book to be lent. This method should be implemented by the Book class to update the availability status when the book is borrowed.

Program should create an instance of the "Library" class, display the list of available books using the "DisplayAvailableBooks" method, simulate some borrow and return operations using the "BorrowBook" and "ReturnBook" methods, and finally show the updated list of available books using the "DisplayAvailableBooks" method.

Use the "ILendable" interface to demonstrate polymorphism while borrowing books.

Output:

```
choose the option
1.borrow book
2.return book
3.display books
4.exit
1
enter the book name to borrow
Brave New World
Brave New World
Book is Borrowed
choose the option
1.borrow book
2.return book
3.display books
4.exit
2
enter the book name to return
Brave New World
Book is Returned
choose the option
1.borrow book
2.return book
3.display books
4.exit
3
Title :Brave New World Author : Molly Availablity True
Title :The Sun Also Rises Author :Polly Availablity False
Title :A Passage to India Author :Bolly Availablity False
Title :The House of Mirth Author :Tollly Availablity True
choose the option
```