

Test Case Document for Library Management System

- Project: Library Management System
- Test Approach: Test-Driven Development (TDD)
- Objective: Verify the functionalities for managing books, handling ISBN uniqueness, tracking book copies, borrowing books, and ensuring proper error handling.

Test Case 1: Ensure Unique ISBN for Each Book

Test Case ID	TC_LMS_001
Test Description	Verify that the system enforces a unique ISBN for each book. If an ISBN already exists, prompt the user to add more copies instead.
Preconditions	The system contains at least one book with a specific ISBN.
Test Steps	1. Try adding a new book using an ISBN that already exists in the system. 2. Observe the system's response.
Expected Result	The system displays: "ISBN already exists. Do you want to add more copies?"
Priority	High

Test Case 2: Adding Copies to an Existing ISBN

Test Case ID	TC_LMS_002
Test Description	Verify that users can add more copies to a book with an existing ISBN.
Preconditions	A book with ISBN 978-1-86197-876-9 is present in the system.
Test Steps	1. Attempt to add more copies to the book with the existing ISBN. 2. Provide the number of copies to add.
Expected Result	The total number of copies for the book is updated correctly.
Priority	Medium

Test Case 3: Successful Borrowing of Available Book

Test Case ID	TC_LMS_003
Test Description	Verify that a book can be borrowed if copies are available.
Preconditions	The book with ISBN 978-1-86197-876-9 has at least 1 copy available.
Test Steps	1. Borrow the book using its ISBN.
Expected Result	The system decreases the number of available copies by 1.
Priority	High

Test Case 4: Borrowing a Book with No Available Copies

Test Case ID	TC_LMS_004
Test Description	Verify that the system displays an error when trying to borrow a book with no available copies.
Preconditions	The book with ISBN 978-1-86197-876-9 has 0 available copies.
Test Steps	1. Attempt to borrow the book with the given ISBN.
Expected Result	The system displays: "Book not available."
Priority	High

Test Case 5: Adding a New Book with a Unique ISBN

Test Case ID	TC_LMS_005
Test Description	Verify that a new book with a unique ISBN can be added successfully.
Preconditions	The ISBN 978-0-13-110362-7 does not exist in the system.
Test Steps	1. Add a new book using a unique ISBN. 2. Provide all required details (title, author, etc.).
Expected Result	The book is successfully added to the library inventory.
Priority	Medium

Test Case 6: Return a Book Successfully

Test Case ID	TC_LMS_006
Test Description	Verify that the system allows a user to return a borrowed book successfully.
Preconditions	The user has borrowed a book with ISBN 978-1-86197-876-9.
Test Steps	1. Return the book using the ISBN.
Expected Result	The number of available copies for the book is increased by 1.
Priority	Medium

Test Case 7: Check Total Copies After Multiple Borrow and Return Operations

Test Case ID	TC_LMS_007
Test Description	Verify that the total copies for a book remain accurate after multiple borrow and return transactions
Preconditions	The book with ISBN 978-1-86197-876-9 has 5 copies available.
Test Steps	1. Borrow the book 3 times. 2. Return the book 2 times.
Expected Result	The final available copies should be 4.
Priority	Medium