**Intro**

Ensure that the shcemes being developed will meet the high standards by the previous project – because code isn’t scablable robust and secure

Gen ai(chatgpt) aiding junior software developer to ask seniors less questions to proced with work

Any work that being done through it needs be tested before delivered to customer

**Test Objecgtives**

The system should allow for books to be added to the system with all the correct attributes including new book IDs

Verify that the LMS allows librarians to effectively manage member records and validates email format.

Allow fo librarians to issue loans whiles and Automation of loan and due dates.

Fines should be automated based on the conditionals of the library, fines should be able to be marked as completed and updated in ordinance with the database

**Entry exit**

These entry and exit criteria help ensure that testing for each requirement is well-defined and that the conditions are clear for both starting and ending the testing process.

Entry

Check user accounts are set up int the test environment and the systems logging functionality is working correctly.

Exit

The librarian can login successfully with username and password – will inform user with error message if incorrect

Two

Entry

Ensure that BookID , Title , Author, and Status are values SQLite database Schema in the LMS

Exit

Librarians can add the book to the system with the correct criteria.

Entry

Validate that the auto increment feature works when adding a book

Exit

A unique bookID will be generated for a new book entry

Three

Entry

Ensure that MemberID FirstName LastName and dateJoined are values in the database schema

Exit

Librarians can sucesfuly conrol member records in all formats

Entry

Check the email verification works correctly.

Exit

Emails with correct abbreviation will be added to the system , incorrect abbreviation will prompt user

Four

Ensure that the LMS has valid librarian and member accounts set up in the test environment.

Confirm that books are available and in the correct status (e.g., not already on loan) in the system.

Verify that system settings for loan management are properly configured.

Exit

The system should automatically set the loan duration and calculate due dates accurately based on predefined rules.

Librarians should be able to issue loans to members successfully.

Five

Entry Criteria:

Ensure that the LMS has valid librarian and member accounts set up in the test environment.

Confirm that the loan management and date tracking functionalities are working correctly, as fine calculations depend on loan due dates.

Verify that the system settings for fine management, including the specified fine rules, are properly configured.

Exit Criteria:

The system should automatically calculate fines for late returns based on the defined rules, including a £1 fine for 1 to 7 days late, £5 for 8 to 14 days late, and £1 additional for each day after 14 days.

Librarians should be able to mark fines as paid, and the system should update the database accordingly, reflecting the updated payment status.

1. Ensure that the LMS has been properly installed and configured in the test environment.
2. The database is populated with representative data that simulates real usage.
3. Test environment resources (hardware, network) are available and functioning.
4. No performance-enhancing or caching mechanisms are enabled for the LMS.

Exit Criteria:

1. Response time for queries should be measured during testing.
2. Response time for queries should not exceed 2 seconds.

Security (NFR3.2): Entry Criteria:

1. Ensure that the LMS is correctly set up in the test environment with all security features enabled.
2. The system has been configured to use industry-standard encryption algorithms like SHA-256.
3. User roles and access control configurations are properly set up.

Exit Criteria:

1. All user passwords must be stored using industry-standard encryption algorithms (e.g., SHA-256).
2. Role-based access control should be tested to ensure that unauthorized actions are restricted.

Usability (NFR3.3): Entry Criteria:

1. Ensure that the LMS user interface is correctly set up in the test environment.
2. Training materials for librarians are available.

Exit Criteria:

1. Usability testing is performed to validate that the system is user-friendly and requires minimal training.
2. Error messages should be clear, instructive, and localized.

Scalability (NFR3.4): Entry Criteria:

1. Ensure that the LMS is properly configured and running in a production-like environment.
2. The system should have all its base modules and features functioning.

Exit Criteria:

1. The LMS should be tested to verify that it can support the addition of new modules or features without requiring a complete system overhaul.

These entry and exit criteria help ensure that testing for each non-functional requirement is well-defined and that the conditions are clear for both starting and ending the testing process.

5 test enivor

**Operating system**: Windows 10 and above Only

**System Architecture**: Three tier architecture; JavaFX for Ui, Java for Core services , SQLite for database

**User Categories and Roles**: Hierarchy in feature access for; librarians, administrators, and member types (junior/adult)

**JDK:** *“JDK 6 Update 13 minimum (*[*JDK 6 Update 14*](https://www.oracle.com/java/technologies/javase-downloads.html)*recommended).”* For JavaFX

7.Test data requirements

Can you clean this up for me - Describes the kinds of data that will be required for testing, how it will be managed, stored, and accessed • Are the sources of test data specified? • Is it clear how the data will be managed, stored, and accessed? Are data privacy and security considerations addressed? How it will be stored All test data will be stored on a SQlite databse it will be inseted directly in to the SQLite database used by the application How it will be accessed and security concercns It will be limited to authroized personell only Privacy and security will be ensured by this method . Regardless of authroization personal information will be anoymnous and would only be used for testing Types Of Test Data • Book management :Exsiting catlago and new stored and accessed on the database • Book Information : Exisitn records and new stored and accessed on the datbase • Loan details • Fine details : • Member Management :

6.Resource Allocation

**Software Developers**

**Roles:** Working with the test team to fix the bugs identified

**Responsibilities:** Reviewing bug/defect reports made by the test team and rectifying them

**Training:** Comprehensive understanding of the codebase and the test plan from the testers

**Test Team**

**Roles:** Designing, planning, executing then reporting on the tests.

**Responsibilities:** Carrying out all elements of a testcase such as; creating, reporting bugs, compiling documentation from tests , and executing

**Training:** Ensure they comprehensive understanding of the LMS, the Software/Hardware/Network Environment they are testing