**Lab Assignment-9**

Testing is a crucial aspect of the software development life cycle, ensuring that the Library Management System (LMS) functions correctly and meets its requirements. Here's a list of test cases, focusing on different functionalities and critical scenarios in the LMS:

**Cataloging Functionality:**

Test Cases:

* Validate that a new book can be added with all mandatory fields filled.
* Verify that duplicate books cannot be added based on ISBN or other unique identifiers.
* Test the system's response when attempting to update information for a non-existing book.
* Ensure that the search functionality returns accurate results for various search criteria.

**Circulation Functionality:**

Test Cases:

* Test book check-out for a valid user with no overdue books.
* Validate that a user cannot check out more books than allowed by the library policy.
* Test the system's response when a user attempts to return a book that was not checked out.
* Verify that the system calculates fines accurately for overdue books.

**Acquisition Functionality:**

Test Cases:

* Verify that a new purchase order can be created with valid information.
* Test the system's response when attempting to receive books for a non-existing purchase order.
* Validate that the system prevents creating a duplicate purchase order.

**Financial Functionality:**

Test Cases:

* Verify that fines are correctly calculated based on the library's fine policy.
* Test the payment process for fines, ensuring accurate updates to the user's account.
* Validate that revenue reports accurately reflect fines and book sales.

**User Management Functionality:**

Test Cases:

* Test user registration with valid and unique information.
* Validate the system's response when attempting to register a user with a duplicate username or email.
* Verify that user information can be updated successfully.

**Inventory Management Functionality**:

Test Cases:

* Test the system's response when attempting to update inventory for a non-existing book.
* Verify that damaged or lost books are appropriately handled, affecting the inventory count.
* Validate that inventory updates are reflected in the system in real-time.

**Reporting Functionality:**

Test Cases:

* Verify that different types of reports can be generated successfully.
* Validate that customized report parameters are applied correctly.
* Test the system's response when attempting to generate a report without the necessary permissions.

**Security Functionality**:

Test Cases:

* Validate that user access is restricted based on their roles and permissions.
* Test the system's response to unauthorized access attempts.
* Verify that security incidents are logged and can be reviewed by administrators.
* These test cases cover a range of critical scenarios to ensure the robustness and reliability of the Library Management System throughout its life cycle. It's important to conduct both positive and negative testing to identify and address potential issues.