TEST PLAN DOCUMENT

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Sets of test cases

- User logs in to their account:
  - Verify that the login form is displayed.
  - Enter valid username and password and verify that the user is logged in successfully.
  - Enter invalid credentials and verify that an appropriate error message is displayed.
  - Verify that the user can reset their password if they have forgotten it.
- User searches for a specific book:
  - Verify that the search bar is displayed.
  - Enter a valid book title or author and verify that the relevant books are displayed.
  - Enter an invalid search term and verify that no books are displayed.
  - Verify that the search results are displayed in a user-friendly format.
- User views a list of books by a specific author:
  - Verify that the author search bar is displayed.
  - Enter a valid author name and verify that the relevant books are displayed.
  - Enter an invalid author name and verify that no books are displayed.
  - Verify that the search results are displayed in a user-friendly format.
- User views a list of all books in the library:
  - Verify that the list of all books in the library is displayed.
  - Verify that the list is displayed in a user-friendly format.
  - Verify that the list can be sorted by different criteria such as author, title, genre, etc.
- User checks out a book:
  - Verify that the user can select a book to check out.
  - Verify that the user is notified of the checkout date and due date.
  - Verify that the book is no longer available for checkout by other users.
  - Verify that the user can only check out a limited number of books at once.
- User returns a book:
  - Verify that the user can select a book to return.
  - Verify that the book is no longer checked out to the user.
  - Verify that the book is available for checkout by other users.
- User renews a book loan:
  - Verify that the user can select a book to renew.
  - Verify that the renewal date is calculated correctly.
  - Verify that the user cannot renew a book beyond a certain number of times.
  - Verify that the user is notified of the new due date.
- User reserves a book:
  - Verify that the user can select a book to reserve.
  - Verify that the book is reserved for the user.
  - Verify that the user is notified when the book is available for checkout.
  - Verify that the user can only reserve a limited number of books at once.
- User cancels a book reservation:
  - Verify that the user can cancel a book reservation.

- – Verify that the book reservation is cancelled.
- – Verify that the book is no longer reserved for the user.
- User views their checkout history:
  - – Verify that the user can view their checkout history.
  - – Verify that the history is displayed in a user-friendly format.
  - – Verify that the history includes details such as checkout date, due date, and return date.
- User views their book loan status:
  - – Verify that the user can view their book loan status.
  - – Verify that the status is displayed in a user-friendly format.
  - – Verify that the status includes details such as checkout date, due date, and renewal date.
- User views their book reservation status:
  - – Verify that the user can view their book reservation status.
  - – Verify that the status is displayed in a user-friendly format.
  - – Verify that the status includes details such as reservation date and availability date.
- User adds a book to their "to read" list:
  - – Verify that the user can add a book to their "to read" list.
  - – Verify that the book is added to the list.
  - – Verify that the user can only add a limited number of books to their list.
- User removes a book from their "to read" list:
  - – Verify that the user can remove a book from their "to read" list.
  - – Verify that the book is removed from the list.
  - – Verify that the user can only remove a book that is currently on their list.
- User marks a book as lost:
  - – Verify that the user can mark a book as lost.
  - – Verify that the book is no longer checked out to the user.
  - – Verify that the user is notified of the lost book status.
- User pays for a lost book:
  - – Verify that the user can pay for a lost book.
  - – Verify that the book is marked as returned.
  - – Verify that the user's account is charged for the lost book.
- User gives feedback on a book:
  - – Verify that the user can provide feedback on a book.
  - – Verify that the feedback is stored in the system.
  - – Verify that the feedback is displayed on the book's page.
- User updates their personal information:
  - – Verify that the user can update their personal information.
  - – Verify that the updated information is saved in the system.
  - – Verify that the user can view their updated information.
- Admin adds a new book to the library:
  - – Verify that the admin can add a new book to the library.
  - – Verify that the book information is stored in the system.

- Verify that the book is displayed in the library catalog.
- Admin removes a book from the library:
  - Verify that the admin can remove a book from the library.
  - Verify that the book information is deleted from the system.
  - Verify that the book is no longer displayed in the library catalog.
- Admin updates book information:
  - Verify that the admin can update book information.
  - Verify that the updated information is saved in the system.
  - Verify that the updated information is displayed in the library catalog.
- Admin views user checkout history:
  - Verify that the admin can view user checkout history.
  - Verify that the history is displayed in a user-friendly format.
  - Verify that the history includes details such as checkout date, due date, and return date.
- Admin views book loan status:
  - Verify that the admin can view book loan status.
  - Verify that the status is displayed in a user-friendly format.
  - Verify that the status includes details such as checkout date, due date, and renewal date.
- Admin views book reservation status:
  - Verify that the admin can view book reservation status.
  - Verify that the status is displayed in a user-friendly format.
  - Verify that the status includes details such as reservation date and availability date.
- Admin approves a user's book reservation:
  - Verify that the admin can approve a user's book reservation.
  - Verify that the book is reserved for the user.
  - Verify that the user is notified when the book is available for checkout.
- Admin sends a notification to a user:
  - Verify that the admin can send a notification to a user.
  - Verify that the notification is received by the user.
  - Verify that the notification contains the appropriate information.
- Admin adds a new user account:
  - Verify that the admin can add a new user account.
  - Verify that the user account information is stored in the system.
  - Verify that the user can log in with their new account.
- Admin deactivates a user account:
  - Verify that the admin can deactivate a user account.
  - Verify that the user account is no longer active.
  - Verify that the user cannot log in with their deactivated account.
- Admin views a list of all user accounts:
  - Verify that the admin can view a list of all user accounts.
  - Verify that the list is displayed in a user-friendly format.

- Verify that the list can be sorted by different criteria such as username, date joined, etc.
- Admin views a report of library activity over a specific time period:
    - Verify that the admin can view a report of library activity over a specific time period.
    - Verify that the report includes information such as number of books checked out, number of books returned, number of reservations made, etc.
    - Verify that the report can be filtered by different criteria such as book genre, author, user account type, etc.

Checklist:

- Verify that the system is able to handle concurrent requests and maintain data consistency.
- Verify that user input is validated to prevent SQL injections, XSS attacks, and other security vulnerabilities.
- Verify that the system is able to handle errors gracefully and provide appropriate error messages to users.
- Verify that the system is able to scale to handle large amounts of data and traffic.
- Verify that the system is able to backup and restore data in case of hardware failures or other disasters.
- Verify that the system is compliant with relevant laws and regulations such as GDPR, COPPA, and PCI-DSS.
- Verify that the system is able to handle different languages and character sets.
- Verify that the system is accessible to users with disabilities.
- Verify that the system is compatible with different browsers and devices.
- Verify that the system is easy to use and intuitive for both users and administrators.

Test procedures:

- Unit testing: test individual functions and modules to ensure they work correctly.
- Integration testing: test how different components of the system work together.
- System testing: test the system as a whole to ensure it meets all the requirements and specifications.
- Acceptance testing: test the system with end users to ensure it is usable and meets their needs.
- Performance testing: test the system under different load conditions to ensure it is scalable and performs well.
- Security testing: test the system for vulnerabilities and weaknesses to ensure it is secure.
- Usability testing: test the system with users to ensure it is easy to use and intuitive.
- Compatibility testing: test the system with different browsers and devices to ensure it works correctly on all platforms.
- Accessibility testing: test the system with assistive technologies to ensure it is accessible to users with disabilities.

<center>Smoke testing group:</center>

A smoke testing group is a small group of testers who perform a quick check of the most critical functionalities of the system to ensure that it is stable and ready for further testing. The smoke testing group should include testers who are familiar with the system and have a good understanding of its requirements and specifications. The smoke testing group should perform the following tests:

- User logs in to their account.
- User searches for a specific book.
- User checks out a book.
- User returns a book.
- Admin adds a new book to the library.
- Admin removes a book from the library.
- Admin updates book information.
- Admin views a list of all user accounts.

If the system passes these tests, it is considered stable and ready for further testing. If any issues are found, they should be reported to the development team for resolution before further testing is performed.