**1. Introduction**

* The Book Cart application is an online platform where users can browse, search, and purchase books.
* The application provides both a web UI and RESTful API for interaction.
* The test plan covers UI and API testing to ensure the functionality, usability, and reliability of the application (functionalities for user registration, authentication, searching for books, adding books to the cart, and completing purchases).

**2. Objective**

The objective of this test plan is to ensure the quality and reliability of the Book Cart application by thoroughly testing its functionalities.

**3. Scope**

This test plan will cover testing of both the UI and API of the Book Cart application.

**4. Test Environment**

* Web UI Testing: Chrome, Firefox, Safari browsers on Windows and MacOS.
* API Testing: Postman, REST Assured.
* Testing Tools: Selenium WebDriver, Postman (for API testing)
* Application URL: [BookCart](https://bookcart.azurewebsites.net/)
* API Documentation URL: [Swagger UI (bookcart.azurewebsites.net)](https://bookcart.azurewebsites.net/swagger/index.html)

**5. Test Strategy**

* Focus on testing real user flows such as registration, login, browsing books, adding to cart, and checkout.
* Use a combination of UI and API tests to ensure end-to-end functionality.
* Prioritize positive test cases to validate expected behavior and negative test cases to handle error conditions.

**4. UI Test Cases**

Registration

Positive Test: Register with valid credentials.

Negative Test: Register with existing username/email.

Negative Test: Register with weak password.

Login

Positive Test: Login with valid credentials.

Negative Test: Login with invalid username/password.

Negative Test: Login without entering credentials.

Browse Books

Positive Test: View list of available books.

Positive Test: Search for a book by title.

Negative Test: Search for a non-existent book.

Add to Cart

Positive Test: Add a book to the cart.

Negative Test: Add a non-existent book to the cart.

Checkout

Positive Test: Proceed to checkout with items in the cart.

Positive Test: Complete checkout process successfully.

Negative Test: Checkout without adding any items to the cart.

Negative Test: Checkout with invalid payment details.

**5. API Test Cases**

User Registration API:

Positive Test: Register user with valid credentials.

Negative Test: Register user with existing username/email.

Negative Test: Register user with invalid email format.

User Authentication API:

Positive Test: Authenticate user with valid credentials.

Negative Test: Authenticate user with invalid credentials.

Book Listing API:

Positive Test: Retrieve list of available books.

Positive Test: Search for a book by title.

Negative Test: Search for a non-existent book.

Cart Management API:

Positive Test: Add a book to the cart.

Positive Test: Retrieve items in the cart.

Negative Test: Add a non-existent book to the cart.

Checkout API:

Positive Test: Proceed to checkout with items in the cart.

Positive Test: Complete checkout process successfully.

Negative Test: Checkout without adding any items to the cart.

Negative Test: Checkout with invalid payment details.

**6. Smoke Test**

Positive UI and API test cases covering critical user flows such as registration, login, browsing, and checkout.

**7. Positive and Negative Test Cases**

Positive test cases validate expected behavior and successful user interactions.

Negative test cases handle error conditions, invalid inputs, and edge cases to ensure robustness and error handling.

**Conclusion**

The test plan outlines comprehensive testing strategies for both UI and API aspects of the Book Cart application. By covering real user flows and scenarios, along with positive and negative test cases, it aims to ensure the quality and reliability of the application.