**1. Introduction:**

The Book Cart application is an online platform where users can browse, search, and purchase books. The application provides 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:**

Browser Compatibility: Chrome, Firefox, Safari

Operating Systems: Windows, macOS, Linux

Mobile Devices: Android, iOS

Testing Tools: Selenium WebDriver, Postman (for API testing)

**5. Test Scenarios:**

User Registration and Login:

Verify that users can register with valid credentials.

Verify that appropriate error messages are displayed for invalid registration inputs.

Verify that registered users can log in with valid credentials.

Verify that appropriate error messages are displayed for invalid login attempts.

Book Searching and Browsing:

Verify that users can search for books by title.

Verify that search results are accurate and relevant.

Verify that users can browse through different categories of books.

Verify that users can view details of individual books.

Cart Management:

Verify that users can add books to the cart.

Verify that users can view the contents of their cart.

Verify that users can update the quantity of books in the cart.

Verify that users can remove books from the cart.

**Checkout Process:**

Verify that users can proceed to checkout from the cart.

Verify that users can enter shipping and payment information.

Verify that users can complete the purchase successfully.

Verify that appropriate error messages are displayed for incomplete or invalid checkout inputs.

**API Testing:**

Verify the functionality of the user registration API endpoint.

Verify the functionality of the user login API endpoint.

Verify the functionality of the book search API endpoint.

Verify the functionality of the cart management API endpoints.

Verify the functionality of the checkout process API endpoints.

**6. Test Execution:**

Create test cases based on the scenarios outlined above.

Execute the test cases manually for UI testing.

Automate the test cases using Selenium WebDriver and Postman for API testing.

Execute smoke tests initially to ensure basic functionalities are working.

Perform regression testing after each release or update.

**7. Reporting:**

Document test results, including pass/fail status and any issues encountered.

Report any bugs found with detailed steps to reproduce and screenshots if applicable.

Prioritize and track the resolution of reported issues.

**8. Conclusion:**

By following this test plan, we aim to ensure that the Book Cart application meets its functional requirements, performs reliably, and provides a positive user experience. Regular testing and feedback will help maintain and improve the quality of the application over time.