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**Online Book Shopping Application**

Requirement Analysis Document

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### Introduction

### ****Purpose****

The purpose of this document is to analyze and define the requirements for the **Online Book Shopping System**. It serves as a detailed guide for stakeholders, developers, testers, and designers to ensure the system meets user needs and business objectives.

This document will cover the following aspects:

1. **User Requirements** – Identifying user expectations and preferences for online book shopping.
2. **Acceptance Criteria** – Defining clear conditions to determine when a feature is complete and meets user needs.
3. **Functional Requirements** – Outlining core system functionalities, including user authentication, book catalog management, search capabilities, shopping cart, and order processing.
4. **Non-Functional Requirements** – Specifying system performance, security, usability, and scalability expectations.
5. **User Stories and scenarios** – Describing how different users interact with the system using the Gherkin syntax to write the scenarios.

### ****Scope****

The **Online Book Shopping System** is a web-based platform that enables registered users to browse, search, and purchase books online. The system will offer an amazing shopping experience, allowing users to explore a wide variety of books, add them to their cart, and securely complete their purchase. Additionally, administrators will have access to a management dashboard to maintain book listings, manage registered user orders, and handle promotions.

### User Requirements:

### ****User Roles:****

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| **User Classes/Role** | **User Actions/ Features** |
| Guest user | An unregistered visitor who can browse the book catalog and view book details but must sign up or log in to add books to the cart, make a purchase, or leave reviews. |
| Registered user | A registered user who can browse books, search by various filters, add books to the cart, make secure purchases, track orders, leave reviews, and manage their profile information. |
| Admin | The admin is responsible for managing the online bookstore, including adding, updating, and removing books, handling registered user orders, managing discounts, and moderating user reviews. |

### Features

### ****User Authentication & Profile Management****

* User Registration (Sign up with email & password)
* User Login & Logout
* Password Reset & Recovery
* Profile Management (Edit name, email, address, payment methods)
* Admin Login & Role-Based Access Control

### ****Book Catalog Management****

* Browse Books by Category, Author, or Genre
* Search Books by Title, Author, ISBN, or Keywords
* Filter & Sort Books (Price, Genre, Ratings, Bestsellers)
* View Book Details (Description, Price, Reviews, Stock Availability)
* View Recommended & Popular Books

### ****Shopping Cart & Checkout****

* Add Books to Shopping Cart
* Remove Books from Cart
* Update Book Quantity in Cart
* View Cart Summary (Total Price, Discounts, Estimated Delivery)
* Proceed to Secure Checkout

### ****Payment Processing & Order Confirmation****

* Multiple Payment Methods (Credit/Debit Card, PayPal, Digital Wallets)
* Apply Discount Codes / Coupons
* Secure Payment Processing
* Order Confirmation & Email Notification

### ****Order Management & Tracking****

* View Order History & Details
* Track Order Status (Processing, Shipped, Delivered)
* Order Cancellation & Refund Request
* Reorder Previously Purchased Books

### ****Registered user Reviews & Ratings****

* Leave a Review on Purchased Books
* Rate Books (Star Rating System)
* View Average Ratings & User Reviews
* Report Inappropriate Reviews

### ****Admin Features****

* Add, Edit, and Remove Books from Catalog
* Manage Book Categories & Genres
* Update Pricing & Stock Levels
* Manage Registered User Orders (Approve, Ship, Cancel)

### Functional requirements:

### ****User Authentication & Profile Management****

FR-1: The system shall allow registered users to sign up using an email and password.

FR-2: The system shall allow registered users to log in using registered credentials only.

FR-3: The system shall provide an option for social media login (Google, Facebook, etc.).

FR-4: The system shall automatically log out users after a period of inactivity for security purposes.

FR-5: The system shall allow registered users to update their profile information such as name, email, address, and payment method.

FR-6: The user shall be able to reset their password via email.

FR-7: The admin shall be able to login with admin credentials for book store management access.

### ****Book Catalog Management****

FR-1: The system shall allow registered users to view a list of books available.

FR-2: The system shall allow registered user to search for a book by title, author, genre, or keyword.

FR-3: The system shall allow registered user to filter books by category, price, author, and rating.

FR-4: The registered user shall be able to view detailed information about a book such as title, author, price, description, rating, total purchases, and reviews.

FR-5: The user shall be able to view book reviews.

FR-6: The registered user shall be able to view book ratings.

FR-7: The admin shall be able to add, edit, delete books from the catalog.

FR-8: The admin shall be able to modify the book price and availability.

FR-9: The admin shall be able to allocate books under different categories and genres.

FR-10: The system shall display trending, new arrivals, and best-selling books on the homepage.

### ****Shopping Cart & Checkout****

FR-1: The registered user shall be able add a book to the shopping cart.

FR-2: The registered user shall be able to remove books from the cart.

FR-3: The registered user shall be able to view total items in the cart.

FR-4: A guest user shall not be able to checkout.

FR-5: The registered user shall be able to proceed to checkout from the shopping cart.

FR-6: The registered user shall be able to select from a payment method.

FR-7: The system shall complete the payment process securely.

FR-8: The system shall confirm transaction upon successful payment processing.

FR-9: The system shall generate an order id for every book purchase.

FR-10: The system shall send an order confirmation email to registered users after successful payment.

FR-11: The registered user shall receive an order confirmation email.

FR-12: The system shall allow users to apply a promo code/discount during checkout.

FR-13: The system shall provide estimated delivery time before confirming the order.

FR-14: The system shall display shipping charges before finalizing the payment.

### ****Order Management & Tracking****

FR-1: The registered user shall be able to view their order history and details.

FR-2: The registered user shall be able to track the status of their orders (Processing, Shipped, Delivered).

FR-3: The admin shall be able to view and manage registered user orders.

FR-4: The admin shall be able to update the order status.

FR-5: The registered user shall be notified upon order status change.

FR-6: The system shall notify registered users if an out-of-stock book is restocked.

FR-7: The system shall allow registered users to reorder previously purchased books with a single click.

### ****Registered user Reviews & Ratings****

FR-1: The system shall allow registered users to edit or delete their reviews within a specific time frame.

FR-2: The system shall allow admins to moderate and remove inappropriate reviews.

FR-3: The system shall allow registered users to up vote/down vote helpful reviews.

FR-4: The registered user shall be able to leave a review on a purchased book.

FR-5: The registered user shall be able to rate a purchased book.

FR-6: The system shall display the average ratings.

FR-7: The registered user shall be able to view reviews of other registered users.

### ****Payment Processing & Order Confirmation****

FR-1: The system shall support multiple currencies for international registered users.

FR-2: The system shall allow users to save payment methods securely for future transactions.

FR-3: The system shall provide an option for cash-on-delivery (if applicable).

FR-4: The system shall send SMS and email notifications for successful payments.

FR-5: The system shall allow users to download invoices in PDF format.

### ****Admin Features****

FR-1: The admin shall be able to view reports on top-selling books and registered user trends.

FR-2: The admin shall be able to view and analyze monthly/annual revenue reports.

FR-3: The admin shall be able to set up automated discounts based on purchase behavior.

### Non-Functional Requirements (NFRs)

### ****Performance Requirements****

* The website should load in under **3 seconds** for a smooth user experience.
* The system shall respond to user actions (e.g., search, add to cart) within 2 seconds to ensure a smooth user experience.
* The system shall be capable of performing database queries (e.g., book search, filtering) in less than 2 second under normal load.
* The system shall be able to process a minimum of 500 transactions per minute during peak shopping hours.
* The system shall load all pages, including the homepage, book catalog, and checkout page, in under 3 seconds.
* The system should support at least **9000 concurrent users** without performance degradation.
* The book search functionality should return results in less than **2 seconds.**
* The system should process **checkout transactions within 6 seconds.**

### ****Security Requirements****

* All sensitive user data (passwords, payment details) should be encrypted using **AES-256 encryption.**
* The system must use **HTTPS (SSL/TLS)** for secure communication.
* User sessions should automatically expire after **30 minutes of inactivity.**
* Implement role-based access control (RBAC) to prevent unauthorized access.

### ****Usability Requirements****

* The interface should be **responsive and mobile-friendly**.
* Users should be able to complete a book purchase in **less than 5 steps.**
* The system should provide **clear error messages** for incorrect inputs.

### ****Compatibility Requirements****

* The system should be compatible with **all major browsers** (Chrome, Firefox, Edge, Safari).
* The mobile app should work on **Android and iOS devices**.
* The system should support integration with **third-party APIs** (e.g., payment gateways, book databases).

### User Stories

User stories define the key actions and expectations of users in the online book shopping platform. Each story represents a specific feature or functionality that enhances the shopping experience. These stories guide the development of features and help in defining acceptance criteria.

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| **Feature** | **User Registration** |
| **User Stories** | **US-01:** As a new user, I want to register using my email and password so that I can create an account.  **US-02:** As a user, I want to receive an email verification link after I sign up successfully so that I can activate my account. |

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| **Feature** | **User Login and Logout** |
| **User Stories** | **US-03:** As a registered user, I want to log in using my email and password so that I can access my account.  **US-04:** As a logged-in user, I want to log-out so that I can secure my account on shared devices. |

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| **Feature** | **Password reset and recovery** |
| **User Stories** | **US-05:** As a user, I want to request a password reset link so that I can regain access to my account in case I forget my password.  **US-06:** As a user, I want to reset my password using the link so that I can create a new password and log in again. |

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| **Feature** | **Profile Management** |
| **User Stories** | **US-07:** As a user, I want to edit my profile information (username, email, address, phone number, etc.) so that I can update my details. |

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| **Feature** | **Admin Login** |
| **User Stories** | **US-08:** As an admin, I want to log in using my admin credentials so that I can manage users and system settings.  **US-09:** As an admin, I want to view all the registered users so that I can manage their accounts.  **US-10:** As an admin, I want to assign or revoke roles (user, admin) so that I can control the system access. |

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| **Feature** | **Browse Books** |
| **User Stories** | **US-11:** As a user, I want to view a list of books by category (Fiction, Sci-Fi, Fantasy, etc.) so that I can explore books based on my interest.  **US-12:** As a user, I want to filter books by popularity so that I can find best books. |

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| **Feature** | **Searching Books** |
| **User Stories** | **US-13:** As a user, I want to search for books by author’s name so that I can find all the books written by same author.  **US-14:** As a user, I want to search for books by Title so that I can quickly find a specific book.  **US-15:** As a user, I want to search a book by ISBN so that I can find the exact edition of the book.  **US-16:** As a user, I want to search for a book by keywords so that I can find books related to specific topics. |

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| **Feature** | **Filter & Sort Books** |
| **User Stories** | **US-17:** As a registered,I want to filter and sort books based on price, genre, ratings, and bestsellers, so that I can quickly find books that match my preferences.  **US-18:** As a guest user, I want to apply filters and sorting options while browsing books, so that I can explore available books without signing in. |

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| **Feature** | **View Book Details** |
| **User Stories** | **US-19:** As a registered user, I want to view the details of a book, including its description, price, reviews, and availability, so that I can make an informed purchasing decision.  **US-20:** As a guest user, I want to access book details without logging in, so that I can decide whether to create an account and purchase the book. |

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| **Feature** | **View Recommended & Popular Books** |
| **User Stories** | **US-21**: As a registered user, I want to see recommended books based on my past searches and purchases, so that I can discover books that align with my interests.  **US-22**: As a guest user**,** I want to view trending and popular books, so that I can explore bestsellers and highly rated books without creating an account |

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| **Feature** | **Add Books to Shopping Cart** |
| **User Stories** | **US-23:** As a registered user, I want to add books to my shopping cart so that I can review and purchase them later.  **US-24:** As a guest user, I want to add books to my cart without signing in so that I can continue shopping.  **US-25:** As an admin, I want to ensure that the "Add to Cart" functionality works correctly for both registered and guest users.  **US-26:** As a registered user, I want to be notified when I successfully add a book to my cart so that I can proceed with my shopping. |

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| **Feature** | **Remove Books from Cart** |
| **User Stories** | **US-27:** As a registered user, I want to remove books from my shopping cart so that I can adjust my order.  **US-29:** As an admin, I want to verify that books can be removed from the cart without any errors or issues.  **US-30:** As a registered user, I want to see the updated cart immediately after removing a book so that I can confirm my changes. |

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| **Feature** | **Update Book Quantity in Cart** |
| **User Stories** | **US-31:** As a registered user, I want to update the quantity of books in my cart so that I can adjust my order before checkout.  **US-32:** As a guest user, I want to change the quantity of books in my cart without signing in so that I can modify my selection.  **US-33:** As an admin, I want to ensure that the cart updates the book quantity correctly and shows the updated total price.  **US-34:** As a registered user, I want to see the updated cart total immediately after changing the quantity of a book so that I can verify my order. |

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| **Feature** | **View Cart Summary (Total Price, Discounts, Estimated Delivery)** |
| **User Stories** | **US-35:** As a registered user, I want to view a summary of my cart including the total price, discounts, and estimated delivery so that I can review my order before proceeding to checkout.  **US-36:** As an admin, I want to ensure that the cart summary shows accurate information, including any discounts and delivery estimates.  **US-37:** As a registered user, I want the cart summary to be updated automatically when I add or remove items from the cart so that I always see the correct totals. |

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| **Feature** | **Proceed to Secure Checkout** |
| **User Stories** | **US-38:** As a registered user, I want to securely proceed to checkout so that I can complete my purchase safely.  **US-39:** As an admin, I want to make sure the checkout process is secure and properly integrates with payment gateways.  **US-40:** As a registered user, I want to review my order summary at checkout to confirm that all items and prices are correct before submitting my order.  **US-41:** As a guest user, I want to be prompted to create an account during checkout for a smoother future purchase experience. |

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| **Feature** | **Choose from Multiple Payment Methods** |
| **User Stories** | **US-42:** As a registered user, I want to select from multiple payment methods (Credit/Debit Card, PayPal, Digital Wallets) so that I can choose the most convenient option for payment.  **US-43:** As an admin, I want to ensure that multiple payment options are securely integrated and functional for all users.  **US-44:** As a registered user, I want to securely store my preferred payment method for future purchases to make the checkout process faster. |

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| **Feature** | **Apply Discount Codes / Coupons** |
| **User Stories** | **US-45**: As a registered user, I want to apply discount codes or coupons at checkout to receive a discount on my order.  **US-46:** As an admin, I want to manage and create discount codes and coupons to offer promotions to users.  **US-47:** As a registered user, I want to see a confirmation message after applying a discount code to ensure its valid and applied correctly. |

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| **Feature** | **Secure Payment Processing** |
| **User Stories** | **US-48:** As a registered user, I want my payment information to be securely processed to ensure that my financial data is protected.  **US-49:** As an admin, I want to monitor and ensure that the payment gateway meets security standards, including encryption and fraud prevention.  **US-50:** As a registered user, I want to receive a confirmation that my payment was securely processed so I can be confident my transaction is safe. |

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| **Feature** | **Order Confirmation & Email Notification** |
| **User Stories** | **US-51**: As a registered user, I want to receive an order confirmation notification by email after completing my purchase so I can confirm my order details. |

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| **Feature** | **Leave a Review on Purchased Books** |
| **User Stories** | **US-52:** As a registered user, I want to leave a review on purchased books so that I can share my opinion with other registered users. |

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| **Feature** | **View Average Ratings & User Reviews** |
| **User Stories** | **US-53:** As a registered user, I want to view the average rating and user reviews of a book so that I can gauge its quality before purchasing.  **US-54:** As a guest user, I want to see the average rating and reviews of a book before deciding whether to purchase it. |

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| **Feature** | **Report Inappropriate Reviews** |
| **User Stories** | **US-55:** As a registered user, I want to report inappropriate reviews so that the platform can review and take necessary action. |

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| **Feature** | **Add, Edit, and Remove Books from Catalog** |
| **User Stories** | **US-56:** As an admin, I want to add new books to the catalog so that users can browse and purchase them.  **US-57:** As an admin, I want to edit the details of existing books in the catalog to keep information accurate and up to date.  **US-58:** As an admin, I want to remove books from the catalog that are no longer available or in stock to avoid confusion. |

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| **Feature** | **Manage Book Categories & Genres** |
| **User Stories** | **US-59:** As an admin, I want to create new categories and genres for books to help organize the catalog better.  **US-60:** As an admin, I want to remove or merge categories and genres when they become redundant or need restructuring. |

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| **Feature** | **Update Pricing & Stock Levels** |
| **User Stories** | **US-61:** As an admin, I want to update the pricing of books to reflect sales or price changes.  **US-62:** As an admin, I want to update the stock levels for books to ensure registered users are only able to purchase items that are in stock.  **US-63:** As an admin, I want to apply discounts to books and manage pricing rules to offer promotions. |

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| **Feature** | **Manage Registered user Orders (Approve, Ship, Cancel)** |
| **User Stories** | **US-64:** As an admin, I want to approve or reject registered user orders to ensure all purchases are legitimate before processing.  **US-65:** As an admin, I want to update the status of orders to shipped or cancelled so that registered users are informed of their order progress.  **US-66:** As an admin, I want to cancel orders when necessary, such as in the case of out-of-stock items, and inform the registered users accordingly. |

### Scenarios

Scenarios outline the possible interactions and outcomes for each user story in the online book shopping platform. They define step-by-step conditions using Gherkin syntax to ensure proper functionality and validation. These scenarios help in testing and verifying system behavior under different conditions.

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| **Feature** | **User Registration** |
| **User Story ID** | **US-01, US-02** |
| **Scenarios** | **Scenario 1:** Successful registration with valid email and password  Given I am a new user  When I enter a valid email and password  And I click on “Sign up” button  Then I should receive an email verification link  And my account should be created  **Scenario 2:** Registration fails with invalid email  Given I am a new user  When I enter an invalid email and a valid password  And I click on "Sign Up"  Then I should see an error message indicating "Invalid email format"  And my account should not be created |

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| **Feature** | **User Login and Logout** |
| **User Story ID** | **US-03** |
| **Scenarios** | **Scenario 1:**  User successfully logs in with a valid email and password  Given I am a registered user  When I enter a valid email and password  And I click on the "Login" button  Then I should be successfully logged in  And I should be redirected to my dashboard  **Scenario 2:**  User fails to log in due to an incorrect password  Given I am a registered user  When I enter a valid email but an incorrect password  And I click on the "Login" button  Then I should see an error message "Invalid email or password"  And I should not be logged in  **Scenario 3:** User fails to log in using an unregistered email  Given I am not a registered user  When I enter an unregistered email and any password  And I click on the "Login" button  Then I should see an error message "Account does not exist"  And I should be given an option to register  **Scenario 4:**  User tries to log in without entering credentials  Given I am on the login page  When I click on the "Login" button without entering an email or password  Then I should see an error message prompting me to fill in both fields  And I should not be logged in  **Scenario 5:**  User gets locked out after multiple failed login attempts  Given I have entered incorrect credentials 5 times in a row  When I try to log in again  Then I should see a message "Your account has been temporarily locked due to multiple failed attempts"  And I should be prompted to reset my password or try again later  **Scenario 6:**  User logs in with "Remember Me" enabled  Given I am a registered user  When I enter my valid email and password  And I check the "Remember Me" option  And I click on the "Login" button  Then I should be logged in successfully  And my session should remain active even after closing and reopening the browser |

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| **Feature** | **User Logout** |
| **User Story ID** | **US-04** |
| **Scenarios** | **Scenario 1:**  User logs out successfully  Given I am a logged-in user  When I click on the "Logout" button  Then I should be logged out of my account  And I should be redirected to the login page  **Scenario 2:**  User logs out from all active sessions  Given I am logged into my account on multiple devices  When I select the option to "Logout from all devices"  Then all my active sessions should be terminated  And I should be required to log in again on all devices  **Scenario 2:**  User is automatically logged out after session timeout  Given I am a logged-in user  And I have been inactive for 30 minutes  When I try to perform an action  Then I should be redirected to the login page  And I should see a message "Your session has expired, please log in again" |

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| **Feature** | **Password Reset and Recovery** |
| **User Story ID** | **US-05** |
| **Scenarios** | **Scenario 1:**  User requests a password reset link successfully  Given I am on the "Forgot Password" page  When I enter my registered email address  And I click on the "Send Reset Link" button  Then I should receive an email containing a password reset link  And the system should display a confirmation message "A reset link has been sent to your email."  **Scenario 2:**  User requests a password reset link with an unregistered email  Given I am on the "Forgot Password" page  When I enter an email that is not registered in the system  And I click on the "Send Reset Link" button  Then I should see an error message "No account found with this email address."  And I should not receive any password reset email  **Scenario 3:**  User tries to request a password reset link without entering an email  Given I am on the "Forgot Password" page  When I click on the "Send Reset Link" button without entering an email  Then I should see an error message "Please enter your registered email address."  And the system should not proceed with the request  **Scenario 4:**  User attempts to reset password using an expired link  Given I have received a password reset email  And the reset link is valid for only 24 hours  When I try to reset my password after 24 hours  Then I should see an error message "This reset link has expired."  And I should be given an option to request a new reset link |
| **Feature** | **Password Reset and Recovery** |
| **User Story ID** | **US-06** |
| **Scenarios** | **Scenario 1:**  User successfully resets password using a valid reset link  Given I have received a valid password reset link  When I click on the link  And I enter a new password that meets the security criteria  And I confirm the new password  And I click on the "Reset Password" button  Then my password should be updated successfully  And I should see a confirmation message "Your password has been reset successfully."  And I should be redirected to the login page  **Scenario 2:**  User enters a weak password during password reset  Given I have received a valid password reset link  When I enter a new password that does not meet the security criteria (e.g., too short, lacks special characters)  And I confirm the new password  And I click on the "Reset Password" button  Then I should see an error message "Password must be at least 8 characters long and contain special characters."  And my password should not be updated  **Scenario 3:**  User tries to reset password with a previously used password  Given I have received a valid password reset link  When I enter a password that I have used before  And I confirm the new password  And I click on the "Reset Password" button  Then I should see an error message "You cannot reuse an old password."  And my password should not be updated |

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| **Feature** | **Profile Management** |
| **User Story ID** | **US-07** |
| **Scenarios** | **Scenario 1:**  User successfully updates profile information  Given I am logged into my account  And I navigate to the "Profile Settings" page  When I update my username, email, address, and phone number with valid details  And I click on the "Save Changes" button  Then my profile information should be updated successfully  And I should see a confirmation message "Your profile has been updated successfully."  **Scenario 2:**  User tries to update profile with an email that is already registered  Given I am logged into my account  And I navigate to the "Profile Settings" page  When I enter an email that is already associated with another account  And I click on the "Save Changes" button  Then I should see an error message "This email is already in use. Please enter a different email."  And my profile should not be updated  **Scenario 3:**  User enters an invalid email format while updating profile  Given I am logged into my account  And I navigate to the "Profile Settings" page  When I enter an email that does not follow a valid format (e.g., "user@hhhcom" or "dummy.com")  And I click on the "Save Changes" button  Then I should see an error message "Please enter a valid email address."  And my profile should not be updated  **Scenario 4:**  User enters an invalid phone number while updating profile  Given I am logged into my account  And I navigate to the "Profile Settings" page  When I enter a phone number that contains letters or is too short/long  And I click on the "Save Changes" button  Then I should see an error message "Please enter a valid phone number."  And my profile should not be updated  **Scenario 5:**  User tries to update profile without filling required fields  Given I am logged into my account  And I navigate to the "Profile Settings" page  When I clear my username, email, or phone number fields  And I click on the "Save Changes" button  Then I should see an error message "All required fields must be filled."  And my profile should not be updated  **Scenario 6:**  User enters an invalid username format while updating profile  Given I am logged into my account  And I navigate to the "Profile Settings" page  When I enter a username that contains special characters or spaces  And I click on the "Save Changes" button  Then I should see an error message "Username can only contain letters, numbers, and underscores."  And my profile should not be updated  **Scenario 7:**  Unauthenticated user tries to access profile settings  Given I am not logged into any account  When I try to navigate to the "Profile Settings" page  Then I should be redirected to the "Login" page  And I should see a message "Please log in to access your profile settings." |

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| **Feature** | **Admin Login and User Management** |
| **User Story ID** | **US-08** |
| **Scenarios** | **Scenario 1:**  Admin logs in successfully with valid credentials  Given I am on the "Admin Login" page  When I enter a valid admin email and password  And I click on the "Login" button  Then I should be redirected to the "Admin Dashboard"  And I should see a message "Welcome, Admin!"  **Scenario 2:**  Admin enters incorrect login credentials  Given I am on the "Admin Login" page  When I enter an invalid admin email or password  And I click on the "Login" button  Then I should see an error message "Invalid email or password."  And I should remain on the "Admin Login" page  **Scenario 3:**  A regular user attempts to log in as an admin  Given I am on the "Admin Login" page  When I enter valid user credentials that do not have admin privileges  And I click on the "Login" button  Then I should see an error message "Access denied. Admin credentials required."  And I should remain on the "Admin Login" page  **Scenario 4:**  Admin logs out of the system  Given I am logged into the admin panel  When I click on the "Logout" button  Then I should be logged out successfully  And I should be redirected to the "Admin Login" page  And I should see a message "You have been logged out." |

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| **Feature** | **User Management** |
| **User Story ID** | **US-09** |
| **Scenarios** | **Scenario 1:**  Admin views the list of all registered users  Given I am logged into the admin panel  When I navigate to the "User Management" section  Then I should see a list of all registered users  And each user should have details such as name, email, role, and account status  **Scenario 2:**  Admin searches for a specific user  Given I am logged into the admin panel  And I navigate to the "User Management" section  When I enter a user's name or email in the search bar  And I click on the "Search" button  Then I should see the matching user(s) in the search results |

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| **Feature** | **User Management** |
| **User Story ID** | **US-10** |
| **Scenarios** | **Scenario 1:**  Admin assigns a regular user as an admin  Given I am logged into the admin panel  And I navigate to the "User Management" section  When I select a user from the list  And I change their role to "Admin"  And I click on the "Save Changes" button  Then the user’s role should be updated to "Admin"  And I should see a confirmation message "User role updated successfully."  **Scenario 2:**  Admin revokes admin privileges from another admin  Given I am logged into the admin panel  And I navigate to the "User Management" section  When I select an admin user from the list  And I change their role to "User"  And I click on the "Save Changes" button  Then the user’s role should be updated to "User"  And I should see a confirmation message "User role updated successfully."  **Scenario 3:**  Admin tries to revoke their own admin privileges  Given I am logged into the admin panel  And I navigate to the "User Management" section  When I try to change my own role from "Admin" to "User"  And I click on the "Save Changes" button  Then I should see an error message "You cannot revoke your own admin access."  And my role should remain as "Admin"  **Scenario 4:**  A non-admin user tries to access the admin dashboard  Given I am logged in as a regular user  When I try to navigate to the "Admin Dashboard" URL  Then I should be redirected to the homepage  And I should see an error message "Access denied. Admin privileges required." |

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| **Feature** | **Browse Books** |
| **User Story ID** | **US-11** |
| **Scenarios** | **Scenario 1:**  User selects a book category to browse  Given I am on the "Books" page  When I select a category from the category list (e.g., "Fiction")  Then I should see a list of books that belong to the selected category  And each book should display its title, author, and price  **Scenario 2:**  User selects a category with no available books  Given I am on the "Books" page  When I select a category that has no books available  Then I should see a message "No books available in this category."  **Scenario 3:**  User changes the selected book category  Given I am browsing books in the "Fiction" category  When I select a new category, such as "Science Fiction"  Then I should see the book list update to show books from the "Science Fiction" category |

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| **Feature** | **Browse Book** |
| **User Story ID** | **US-12** |
| **Scenarios** | **Scenario 1:**  User applies the "Most Popular" filter  Given I am on the "Books" page  When I apply the filter "Most Popular"  Then I should see a list of books sorted by popularity  And books with the highest ratings and most sales should appear at the top  **Scenario 2:**  No books match the applied popularity filter  Given I am on the "Books" page  When I apply a filter that excludes all books (e.g., only books with 5-star ratings)  Then I should see a message "No books match your filter criteria." |

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| **Feature** | **Book Searching** |
| **User Story ID** | **US-13** |
| **Scenarios** | **Scenario 1:**  User searches for books by a specific author  Given I am on the "Books" search page  When I enter "J.K. Rowling" in the search bar  And I select the "Author" filter  Then I should see a list of books written by J.K. Rowling  **Scenario 2:**  No books found for a given author  Given I am on the "Books" search page  When I enter "Unknown Author" in the search bar  And I select the "Author" filter  Then I should see a message "No books found for this author." |

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| **Feature** | **Book Searching** |
| **User Story ID** | **US-14** |
| **Scenarios** | **Scenario 1:**  User searches for a book by its title  Given I am on the "Books" search page  When I enter "How to Train your Dragon" in the search bar  And I select the "Title" filter  Then I should see the book " How to Train your Dragon " in the search results  **Scenario 2:**  No book found with the entered title  Given I am on the "Books" search page  When I enter "Nonexistent Book" in the search bar  And I select the "Title" filter  Then I should see a message "No books found with this title." |

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| **Feature** | **Book Searching** |
| **User Story ID** | **US-15** |
| **Scenarios** | **Scenario 1:**  User searches for a book using a valid ISBN  Given I am on the "Books" search page  When I enter "348-3-16-000410-0" in the search bar  And I select the "ISBN" filter  Then I should see the exact book matching that ISBN in the search results  **Scenario 2:**  Scenario: No book found for the given ISBN  Given I am on the "Books" search page  When I enter "000-0-00-000000-0" in the search bar  And I select the "ISBN" filter  Then I should see a message "No books found with this ISBN." |

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| **Feature** | **Book Searching** |
| **User Story ID** | **US-16** |
| **Scenarios** | **Scenario 1:**  User searches for books using a relevant keyword  Given I am on the "Books" search page  When I enter "Vikings" in the search bar  And I select the "Keywords" filter  Then I should see a list of books related to "Vikings"  **Scenario 2:**  No books found for the given keyword  Given I am on the "Books" search page  When I enter "RandomNonsenseWord123" in the search bar  And I select the "Keywords" filter  Then I should see a message "No books found for this keyword." |

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| **Feature** | **View Book Details** |
| **User Story ID** | **US-19** |
| **Scenarios** | **Scenario 1:**  Registered user views book details  Given I am logged in as a registered user  When I navigate to a book’s details page  Then I should see the book title, description, price, and availability  And I should see user reviews and ratings for the book  **Scenario 2:**  Registered user views an out-of-stock book  Given I am logged in as a registered user  When I navigate to a book’s details page for a book that is out of stock  Then I should see a message "Currently out of stock"  And I should not see an "Add to Cart" button  **Scenario 3:** Registered user views a book with a discount  Given I am logged in as a registered user  When I navigate to a book’s details page  And the book has an active discount  Then I should see the original price struck through  And I should see the discounted price displayed |

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| **Feature** | **View Book Details** |
| **User Story ID** | **US-20** |
| **Scenarios** | **Scenario 1:**  Guest user views book details  Given I am not logged in  When I navigate to a book’s details page  Then I should see the book title, description, price, and availability  And I should see user reviews and ratings for the book  **Scenario 2:**  Guest user views book details but does not see member-exclusive discounts  Given I am not logged in  When I navigate to a book’s details page  And the book has a special discount for registered users  Then I should only see the regular price  And I should see a message "Sign up to access exclusive discounts!" |

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| **Feature** | **View Recommended & Popular Books** |
| **User Story ID** | **US-21** |
| **Scenarios** | **Scenario 1:**  Registered user sees book recommendations based on past activity  Given I am logged in as a registered user  And I have previously searched for or purchased books  When I visit the "Recommended for You" section  Then I should see a list of books related to my past searches and purchases  **Scenario 2:**  Registered user with no history sees general recommendations  Given I am logged in as a registered user  And I have not made any searches or purchases  When I visit the "Recommended for You" section  Then I should see a message "Start exploring to receive personalized recommendations!"  And I should see a list of popular books instead |

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| **Feature** | **View Recommended & Popular Books** |
| **User Story ID** | **US-22** |
| **Scenarios** | **Scenario 1:**  Guest user views trending and popular books  Given I am not logged in  When I visit the homepage or the "Popular Books" section  Then I should see a list of bestsellers and highly rated books  **Scenario 2:**  Guest user does not see personalized recommendations  Given I am not logged in  When I visit the "Recommended for You" section  Then I should see a message "Log in to get personalized book recommendations!"  And I should only see general trending and popular books |

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| **Feature** | **Add Books to Shopping Cart** |
| **User Story ID** | **US-23** |
| **Scenarios** | **Scenario 1:**  Registered user adds a book to the cart  Given I am logged in as a registered user  When I view a book’s details  And I click on the "Add to Cart" button  Then the book should be added to my cart  And I should see a notification confirming the book was added to my cart |

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| **Feature** | **Add Books to Shopping Cart** |
| **User Story ID** | **US-24** |
| **Scenarios** | **Scenario 1:**  Guest user adds a book to the cart  Given I am not logged in  When I view a book’s details  And I click on the "Add to Cart" button  Then the book should be added to my cart  And I should see a notification confirming the book was added to my cart |

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| **Feature** | **Add Books to Shopping Cart** |
| **User Story ID** | **US-25** |
| **Scenarios** | **Scenario 1:**  Admin verifies "Add to Cart" for registered users  Given I am logged in as an admin  When I view the "Add to Cart" button on a book page as a registered user  Then I should see that clicking the button adds the book to the registered user's cart |

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| **Feature** | **Add Books to Shopping Cart** |
| **User Story ID** | **US-26** |
| **Scenarios** | **Scenario 1:**  Registered user is notified after adding a book to the cart  Given I am logged in as a registered user  When I click the "Add to Cart" button for a book  Then I should see a notification confirming that the book has been added to my cart |

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| **Feature** | **Remove Books from Cart** |
| **User Story ID** | **US-27** |
| **Scenarios** | **Scenario 1:**  Registered user removes a book from the cart  Given I am logged in as a registered user  And I have at least one book in my cart  When I click on the "Remove" button next to a book  Then the book should be removed from my cart  And I should see a confirmation message that the book has been removed |

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| **Feature** | **Remove Books from Cart** |
| **User Story ID** | **US-29** |
| **Scenarios** | **Scenario 1:**  Admin verifies book removal functionality for registered users  Given I am logged in as an admin  When I test the "Remove" button on a registered user's cart  Then the book should be removed from the cart  And the system should not produce any errors |

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| **Feature** | **Remove Books from Cart** |
| **User Story ID** | **US-30** |
| **Scenarios** | **Scenario 1:**  Cart updates instantly after removing a book  Given I am logged in as a registered user  And I have multiple books in my cart  When I remove a book from my cart  Then my cart should update immediately  And the removed book should no longer be displayed  And the total price should be recalculated accordingly |

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| **Feature** | **Update Book Quantity in Cart** |
| **User Story ID** | **US-31** |
| **Scenarios** | **Scenario 1:**  Registered user increases book quantity in cart  Given I am logged in as a registered user  And I have at least one book in my cart  When I increase the quantity of a book  Then the updated quantity should be reflected in my cart  And the total price should be recalculated accordingly  **Scenario 2:**  Registered user decreases book quantity in cart  Given I am logged in as a registered user  And I have more than one quantity of a book in my cart  When I decrease the quantity of the book  Then the updated quantity should be reflected in my cart  And the total price should be recalculated accordingly  **Scenario 3:**  Registered user sets book quantity to zero  Given I am logged in as a registered user  And I have at least one book in my cart  When I set the quantity of the book to zero  Then the book should be removed from my cart  And the total price should be updated |

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| **Feature** | **Update Book Quantity in Cart** |
| **User Story ID** | **US-32** |
| **Scenarios** | **Scenario 1:**  Guest user updates book quantity in cart  Given I am a guest user  And I have at least one book in my cart  When I increase the quantity of a book  Then the updated quantity should be reflected in my cart  And the total price should be recalculated accordingly |

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| **Feature** | **Update Book Quantity in Cart** |
| **User Story ID** | **US-33** |
| **Scenarios** | **Scenario 1:**  Admin verifies book quantity updates correctly  Given I am logged in as an admin  And I have access to system logs for cart updates  When a user updates the quantity of a book in their cart  Then the system should log the change  And the total price should be recalculated correctly  **Scenario 2:**  Admin verifies incorrect quantity entry is handled  Given I am logged in as an admin  And a user tries to enter a negative quantity or an invalid number  When the system processes the request  Then the system should prevent the update  And display an appropriate error message to the user |

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| **Feature** | **Update Book Quantity in Cart** |
| **User Story ID** | **US-34** |
| **Scenarios** | **Scenario 1:**  Registered user sees immediate cart updates  Given I am logged in as a registered user  And I have at least one book in my cart  When I change the quantity of a book  Then the updated quantity should be displayed immediately  And the total price should be recalculated instantly  And the cart summary should reflect the updated item count |

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| **Feature** | **View Cart Summary** |
| **User Story ID** | **US-35** |
| **Scenarios** | **Scenario 1:**  Registered user views cart summary  Given I am logged in as a registered user  And I have items in my cart  When I navigate to the cart page  Then I should see a summary displaying the total price, applied discounts, and estimated delivery time  **Scenario 2:**  Registered user views cart summary with no items  Given I am logged in as a registered user  And my cart is empty  When I navigate to the cart page  Then I should see a message indicating that my cart is empty  And the total price should be displayed as zero |

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| **Feature** | **View Cart Summary** |
| **User Story ID** | **US-36** |
| **Scenarios** | **Scenario 1:**  Admin verifies total price and discounts in cart summary  Given I am logged in as an admin  And a user has multiple items in their cart with discounts applied  When I inspect the cart summary  Then the total price should be calculated correctly after applying discounts  And the discount breakdown should be visible |

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| **Feature** | **View Cart Summary** |
| **User Story ID** | **US-37** |
| **Scenarios** | **Scenario 1:**  art summary updates after adding an item  Given I am logged in as a registered user  And I have items in my cart  When I add a new item to my cart  Then the cart summary should update instantly to reflect the new total price, discounts, and estimated delivery time  **Scenario 2:**  Cart summary updates after removing an item  Given I am logged in as a registered user  And I have multiple items in my cart  When I remove an item from my cart  Then the cart summary should update immediately  And the total price should be recalculated accordingly  **Scenario 3:**  Cart summary updates after applying a discount code  Given I am logged in as a registered user  And I have items in my cart  When I apply a valid discount code  Then the discount should be reflected in the cart summary  And the total price should be updated accordingly |

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| **Feature** | **Proceed to Secure Checkout** |
| **User Story ID** | **US-38** |
| **Scenarios** | **Scenario 1:**  Registered user proceeds to secure checkout  Given I am logged in as a registered user  And I have items in my cart  When I click on the "Proceed to Checkout" button  Then I should be redirected to the secure checkout page  And my cart items, total price, and payment options should be displayed  **Scenario 2:**  Registered user proceeds with an empty cart  Given I am logged in as a registered user  And my cart is empty  When I click on "Proceed to Checkout"  Then I should see an error message saying "Your cart is empty"  And I should not be able to proceed further |

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| **Feature** | **Proceed to Secure Checkout** |
| **User Story ID** | **US-39** |
| **Scenarios** | **Scenario 1:**  Admin ensures checkout is secured  Given I am logged in as an admin  When I inspect the checkout process  Then all payment transactions should be securely encrypted  And sensitive user data should not be stored in plaintext |

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| **Feature** | **Proceed to Secure Checkout** |
| **User Story ID** | **US-40** |
| **Scenarios** | **Scenario 1:**  Registered user reviews order summary at checkout  Given I am logged in as a registered user  And I have items in my cart  When I navigate to the checkout page  Then I should see an order summary displaying item details, quantity, prices, discounts, and total amount  And I should have the option to edit my cart before confirming the purchase |

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| **Feature** | **Proceed to Secure Checkout** |
| **User Story ID** | **US-41** |
| **Scenarios** | **Scenario 1:**  Guest user is prompted to create an account at checkout  Given I am a guest user  And I have items in my cart  When I click on "Proceed to Checkout"  Then I should see a prompt to create an account or continue as a guest  And if I choose to create an account, I should be redirected to the registration page before proceeding to checkout |

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| **Feature** | **Choose from Multiple Payment Methods** |
| **User Story ID** | **US-42** |
| **Scenarios** | **Scenario 1:**  Registered user selects a payment method during checkout  Given I am logged in as a registered user  And I have items in my cart  When I navigate to the payment options section at checkout  Then I should see multiple payment methods including Credit/Debit Card, PayPal, and Digital Wallets  And I should be able to select my preferred payment method before proceeding with the purchase |

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| **Feature** | **Choose from Multiple Payment Methods** |
| **User Story ID** | **US-43** |
| **Scenarios** | **Scenario 1:**  Admin verifies that multiple payment methods are available and working  Given I am logged in as an admin  When I inspect the payment integration  Then all payment options should be available and functional  And transactions should be processed securely without exposing sensitive information  **Scenario 2:**  Admin ensures failed payments are handled properly  Given I am logged in as an admin  When a user’s payment fails due to insufficient funds or technical issues  Then an appropriate error message should be displayed  And the user should be given an option to retry with a different payment method |

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| **Feature** | **Choose from Multiple Payment Methods** |
| **User Story ID** | **US-44** |
| **Scenarios** | **Scenario 1:**  Registered user saves a preferred payment method  Given I am logged in as a registered user  And I have successfully completed a payment  When I choose to save my payment details for future purchases  Then my payment details should be securely stored  And I should be able to select my saved payment method for future transactions  **Scenario 2:**  User views and manages saved payment methods  Given I am logged in as a registered user  When I navigate to my account settings under "Saved Payment Methods"  Then I should see a list of my saved payment options  And I should have the option to delete or update any saved payment method |

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| **Feature** | **Apply Discount Codes** |
| **User Story ID** | **US-45** |
| **Scenarios** | **Scenario 1:**  Registered user applies a valid discount code  Given I am logged in as a registered user  And I have items in my cart  When I enter a valid discount code at checkout  And I click on "Apply"  Then the discount should be applied to the total order price  And the updated total price should be displayed  **Scenario 2:**  Registered user applies an expired or invalid discount code  Given I am logged in as a registered user  And I have items in my cart  When I enter an expired or invalid discount code at checkout  And I click on "Apply"  Then I should see an error message stating "Invalid or expired discount code"  And the total price should remain unchanged |

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| **Feature** | **Apply Discount Codes** |
| **User Story ID** | **US-46** |
| **Scenarios** | **Scenario 1:**  Admin creates a new discount code  Given I am logged in as an admin  When I navigate to the discount code management section  And I create a new discount code with a specific discount percentage and expiration date  Then the discount code should be successfully saved and available for users to apply  **Scenario 2:** Admin removes an existing discount code  Given I am logged in as an admin  And there are active discount codes in the system  When I select a discount code and choose the "Delete" option  Then the discount code should be removed from the system  And users should no longer be able to apply it |

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| **Feature** | **Apply Discount Codes** |
| **User Story ID** | **US-47** |
| **Scenarios** | **Scenario 1:**  Registered user receives confirmation after applying a discount code  Given I am logged in as a registered user  And I have successfully applied a discount code  When I proceed to checkout  Then I should see a confirmation message stating "Discount successfully applied!"  And the discount amount should be deducted from the total price |

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| **Feature** | **Secure Payment Processing** |
| **User Story ID** | **US-48** |
| **Scenarios** | **Scenario 1:**  Registered user completes a secure payment  Given I am logged in as a registered user  And I have selected items and proceeded to checkout  When I enter my payment details  And I confirm the payment  Then my payment information should be securely transmitted  And I should receive a confirmation of successful payment processing |

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| **Feature** | **Secure Payment Processing** |
| **User Story ID** | **US-49** |
| **Scenarios** | **Scenario 1:**  Admin verifies that payment gateway meets security standards  Given I am logged in as an admin  When I review the payment gateway security settings  Then I should see encryption protocols, fraud detection, and security measures enabled  And all transactions should be logged for monitoring |

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| **Feature** | **Secure Payment Processing** |
| **User Story ID** | **US-50** |
| **Scenarios** | **Scenario 1:**  Registered user receives payment confirmation  Given I am logged in as a registered user  And I have completed my payment  When my payment is successfully processed  Then I should receive an email and on-screen confirmation of the payment  And my order should be marked as "Paid"  **Scenario 2:**  Registered user fails a payment due to security verification issues  Given I am at the checkout page  When I attempt to make a payment with incorrect or suspicious details  Then my payment should be declined  And I should receive an error message stating "Payment failed due to security verification issues" |

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| **Feature** | **Order Confirmation & Email Notification** |
| **User Story ID** | **US-51** |
| **Scenarios** | **Scenario 1:**  Registered user receives an order confirmation notification  Given I am logged in as a registered user  And I have completed my purchase  When the order is processed  Then I should receive an order confirmation for my completed order  And the email should contain my order details.  **Scenario 2:**  Order confirmation is only sent after successful payment  Given I am a registered user  When my payment processing fails  Then my payment should be declined  And I should not receive an order confirmation email |

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| **Feature** | **Leave a Review on Purchased Books** |
| **User Story ID** | **US-52** |
| **Scenarios** | **Scenario 1:**  A registered user leaves a review for a purchased book  Given I am a registered user  And I have purchased a book  When I read the book  And I click on the “Write a Review” button  Then I should be able to write a review with a rating  And I should be able to submit the review.  **Scenario 2:** A guest user tries to write a review  Given I am a guest user  When I try to write a review for a product  Then the system should redirect me to login page.  **Scenario 3:** Review includes a rating and test  Given I am a registered user  And I am on the “Write a Review “page  When I write a review and provide a rating  Then my review should include both rating and text  And I should be able to submit my review successfully  **Scenario 4:** A review is displayed only after successful submission  Given I am a registered user  And I have submitted a review for a purchased book  When I view the reviews for a book in its details section  I should be able to see my review text and rating  **Scenario 5:** Review with inappropriate text is rejected  Given I am a registered user  And I write a review with inappropriate text  When I click the “submit” button  Then the system should reject my review  And display a message like “Inappropriate text”  **Scenario 6:** Registered user can make changes to their review  Given I am a registered user  When I visit review section of a book  And I click “Edit/Delete” button  Then my review should be edited or deleted accordingly  And the changes should be updated accordingly |

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| **Feature** | **View Average Ratings and Reviews** |
| **User Story ID** | **US-53** |
| **Scenarios** | **Scenario 1:**  Registered users can view average rating of a book  Given I am a registered user  When I go to book details section  Then I should see average book rating in five stars’ format  **Scenario 2:**  Book with no reviews display a message  Given I am a registered user  When I visit a book’s detail page  And the book has no reviews  Then I should see a message saying “No reviews yet. Be the first to review this book!” |

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| **Feature** | **View Average Ratings and Reviews** |
| **User Story ID** | **US-54** |
| **Scenarios** | **Scenario 1:**  Guest users can also view book rating and reviews  Given I am a guest user  When I visit a book’s detail page  And I click on review section  Then I should see reviews  And I should see ratings left by other registered users |

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| **Feature** | **Report inappropriate Reviews** |
| **User Story ID** | **US-55** |
| **Scenarios** | **Scenario 1:**  Registered users can report an inappropriate comment  Given I am a registered user  And I see a review with inappropriate words  When I click on “Report” button  And I write a reason for reporting  And I submit the report  Then I should see a confirmation message saying “Your report has been submitted successfully”  **Scenario 2:** A guest user cannot report an inappropriate review  Given I am a guest user  And I am viewing a book’s review  When I click on the “Report” button  Then I should see a message saying “Login to report”  And I should be redirected to login page |

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| **Feature** | **Add, Edit, and Remove Books from Catalog** |
| **User Story ID** | **US-56** |
| **Scenarios** | **Scenario 1:**  Admin successfully add a new boo to the catalog  Given I am an admin user  And I am logged in to the system  When I navigate to “Add a new book section”  And I enter valid book details  And I click on the “Save” button  Then the book should be added to the catalog  And I should see a confirmation message saying “Book added successfully”  **Scenario 2:** Admin attempts to add a book with missing required details  Given I am logged in as an admin  When I navigate to the "Add New Book" section  And I leave mandatory fields (title, author, ISBN) blank  And I click on the "Save" button  Then I should see an error message indicating "Required fields cannot be left blank."  And the book should not be added to the catalog |

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| **Feature** | **Add, Edit, and Remove Books from Catalog** |
| **User Story ID** | **US-57** |
| **Scenarios** | **Scenario 1:**  Admin successfully edits book details  Given I am logged in as an admin  And there is an existing book in the catalog  When I navigate to the book’s edit page  And I update the book details (e.g., price, stock availability, description)  And I click on the "Save" button  Then the book details should be updated  And I should see a confirmation message "Book details updated successfully." |

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| **Feature** | **Add, Edit, and Remove Books from Catalog** |
| **User Story ID** | **US-58** |
| **Scenarios** | **Scenario 1:**  Admin successfully removes a book from the catalog  Given I am logged in as an admin  And there is an existing book in the catalog  When I navigate to the book’s management page  And I click on the "Remove" button  And I confirm the deletion  Then the book should be removed from the catalog  And I should see a confirmation message "Book removed successfully."  **Scenario 2:** Admin attempts to remove a book that is in a user’s cart  Given I am logged in as an admin  And the book I want to remove is currently in at least one user's shopping cart  When I click on the "Remove" button  Then I should see a warning message "This book is in an active cart and cannot be removed."  And the book should remain in the catalog |

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| **Feature** | **Manage Book Categories & Genres** |
| **User Story ID** | **US-59** |
| **Scenarios** | **Scenario 1:**  Admin successfully creates a new book category  Given I am logged in as an admin  When I navigate to the "Manage Categories" section  And I click on the "Add New Category" button  And I enter a unique category name  And I click on the "Save" button  Then the new category should be added to the catalog  And I should see a confirmation message "Category added successfully."  **Scenario 2:**  Admin attempts to create a duplicate book category  Given I am logged in as an admin  And an existing category named "Science Fiction" exists  When I navigate to the "Manage Categories" section  And I click on the "Add New Category" button  And I enter "Science Fiction" as the category name  And I click on the "Save" button  Then I should see an error message "Category name already exists."  And the duplicate category should not be added to the catalog  **Scenario 3:**  Admin attempts to create a duplicate book genre  Given I am logged in as an admin  And an existing genre named "Cyberpunk" exists  When I navigate to the "Manage Genres" section  And I click on the "Add New Genre" button  And I enter "Cyberpunk" as the genre name  And I click on the "Save" button  Then I should see an error message "Genre name already exists."  And the duplicate genre should not be added to the catalog |

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| **Feature** | **Manage Book Categories & Genres** |
| **User Story ID** | **US-60** |
| **Scenarios** | **Scenario 1:**  Admin successfully removes an existing book category  Given I am logged in as an admin  And a category named "Outdated Category" exists  When I navigate to the "Manage Categories" section  And I select "Outdated Category"  And I click on the "Delete" button  And I confirm the deletion  Then the category should be removed from the catalog  And I should see a confirmation message "Category removed successfully."  **Scenario 2:**  Admin attempts to remove a category that has associated books  Given I am logged in as an admin  And a category named "Popular Category" exists  And there are books associated with "Popular Category"  When I navigate to the "Manage Categories" section  And I select "Popular Category"  And I click on the "Delete" button  Then I should see a warning message "Cannot delete category with associated books. Please reassign or remove books first."  And the category should not be removed from the catalog  **Scenario 3:** Admin successfully removes an existing book genre  Given I am logged in as an admin  And a genre named "Obsolete Genre" exists  When I navigate to the "Manage Genres" section  And I select "Obsolete Genre"  And I click on the "Delete" button  And I confirm the deletion  Then the genre should be removed from the catalog  And I should see a confirmation message "Genre removed successfully." |

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| **Feature** | **Update Pricing & Stock Levels** |
| **User Story ID** | **US-61** |
| **Scenarios** | **Scenario 1:**  Admin updates the price of a book  Given I am logged in as an admin  And a book titled "Jannat ke Patte" exists with a price of Rs. 800  When I navigate to the "Manage Books" section  And I select " Jannat ke Patte "  And I update the price to Rs. 899  And I click on the "Save" button  Then the book price should be updated to Rs. 899  And I should see a confirmation message "Book price updated successfully."  **Scenario 2:**  Admin tries to update the book price to an invalid value  Given I am logged in as an admin  And a book titled "Mulan" exists with a price of Rs.1499  When I navigate to the "Manage Books" section  And I select "Mulan"  And I update the price to "-500"  And I click on the "Save" button  Then I should see an error message "Invalid price. Please enter a valid amount."  And the book price should remain Rs.1499 |

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| **Feature** | **Update Pricing & Stock Levels** |
| **User Story ID** | **US-62** |
| **Scenarios** | **Scenario 1:**  Admin updates the stock levels of a book  Given I am logged in as an admin  And a book titled " One Piece Vol 108" exists with a stock quantity of 5  When I navigate to the "Manage Books" section  And I select "One Piece Vol 108"  And I update the stock quantity to 10  And I click on the "Save" button  Then the stock quantity should be updated to 10  And I should see a confirmation message "Stock level updated successfully."  **Scenario 2:**  Book is automatically marked as out of stock when inventory reaches zero  Given I am logged in as an admin  And a book titled "One Piece Vol 10" exists with a stock quantity of 1  When I navigate to the "Manage Books" section  And I update the stock quantity to 0  And I click on the "Save" button  Then the book should be marked as "Out of Stock"  And registered users should not be able to add it to their cart  And I should see a confirmation message "Stock updated. Book is now out of stock."  **Scenario 3:**  Admin tries to update stock quantity with an invalid value  Given I am logged in as an admin  And a book titled "Alchemist" exists with a stock quantity of 5  When I navigate to the "Manage Books" section  And I select " Alchemist "  And I update the stock quantity to "-3"  And I click on the "Save" button  Then I should see an error message "Invalid stock quantity. Please enter a non-negative number."  And the stock quantity should remain 5 |

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| **Feature** | **Update Pricing & Stock Levels** |
| **User Story ID** | **US-63** |
| **Scenarios** | **Scenario 1:**  Admin applies a discount to a book  Given I am logged in as an admin  And a book titled "Mob Psycho 100" exists with a price of RS.1000  When I navigate to the "Manage Discounts" section  And I select " Mob Psycho 100"  And I apply a 10% discount  And I click on the "Save" button  Then the book price should be updated to Rs.900  And the discount should be reflected in the cart and checkout  And I should see a confirmation message "Discount applied successfully." |

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| **Feature** | **Manage Registered user Orders** |
| **User Story ID** | **US-64** |
| **Scenarios** | **Scenario 1:**  Admin approves a valid order  Given I am logged in as an admin  And a pending order exists with Order ID "ORD123" from a registered user  When I navigate to the "Manage Orders" section  And I select Order ID "ORD123"  And I approve the order  Then the order status should be updated to "Approved"  And the registered user should receive a notification "Your order ORD123 has been approved and is being processed." |

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| **Feature** | **Manage Registered user Orders** |
| **User Story ID** | **US-65** |
| **Scenarios** | **Scenario 1:**  Admin marks an order as shipped  Given I am logged in as an admin  And an approved order exists with Order ID "ORD125"  When I navigate to the "Manage Orders" section  And I select Order ID "ORD125"  And I update the status to "Shipped"  And I enter a tracking number "TRACK123456"  Then the order status should be updated to "Shipped"  And the registered user should receive a notification "Your order ORD125 has been shipped. Tracking Number: TRACK123456."  **Scenario 2:**  Admin tries to mark a non-approved order as shipped  Given I am logged in as an admin  And an order exists with Order ID "ORD126" with the status "Pending"  When I navigate to the "Manage Orders" section  And I attempt to update the status to "Shipped"  Then I should see an error message "Order must be approved before shipping."  And the order status should remain "Pending" |

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| **Feature** | **Manage Registered user Orders** |
| **User Story ID** | **US-66** |
| **Scenarios** | **Scenario 1:**  Admin cancels an order due to out-of-stock items  Given I am logged in as an admin  And an approved order exists with Order ID "ORD127" containing an out-of-stock book  When I navigate to the "Manage Orders" section  And I select Order ID "ORD127"  And I cancel the order with the reason "Item out of stock"  Then the order status should be updated to "Cancelled"  And the registered user should receive a notification "Your order ORD127 has been cancelled due to out-of-stock items. A refund will be processed."  **Scenario 2:**  Admin cancels an order upon registered user request  Given I am logged in as an admin  And an approved order exists with Order ID "ORD128"  And the registered user has requested order cancellation  When I navigate to the "Manage Orders" section  And I select Order ID "ORD128"  And I cancel the order with the reason "Registered user requested cancellation"  Then the order status should be updated to "Cancelled"  And the registered user should receive a notification "Your order ORD128 has been cancelled as per your request. A refund will be processed." |

### Sprints

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| **Sprint No** | **User Stories** | **Feature** |
| Sprint 1 | US-01, US-02, US-03, US-04, US-05, US-06, US-07 | User Authentication & Profile Management |
| Sprint 2 | US-11, US-12, US-13, US-14, US-15, US-16, US-17, US-18, US-19, US-20, US-21, US-22 | Book Catalog Management |
| Sprint 3 | US-23, US-24, US-25, US-26, US-27, US-29, US-30, US-31, US-32, US-33, US-34, US-35, US-36, US-37 | Shopping Cart & Checkout |
| Sprint 4 | US-38, US-39, US-40, US-41, US-42, US-43, US-44, US-45, US-46, US-47, US-48, US-49, US-50, US-51 | Payment Processing & Order Confirmation |
| Sprint 5 | US-52, US-53, US-54, US-55 | Reviews & Ratings |
| Sprint 6 | US-56, US-57, US-58, US-59, US-60, US-61, US-62, US-63 | Admin Features (Book Management) |
| Sprint 7 | US-64, US-65, US-66 | Admin Features (Order Management) |
| Sprint 8 | US-08, US-09, US-10 | Admin Features (User Management) |

### Conclusion

In summary, this online book shopping application requirement analysis document captures the main features, functional and non-functional requirements, and user stories required to develop a strong and effective system. It establishes the requirements for various roles of users, such as registered users, guest users, and administrators, making it an easy-to-use experience from book browsing to transaction completion. The report also emphasizes the need for security, performance, and usability to provide a high-quality service to the users. With these requirements, the system will be capable of supporting smooth management of book catalogs, secure payments, and effective order tracking. This analysis will act as a base for the development team to successfully implement the application and ensure that it satisfies all the users' expectations.