

## Functional Requirements

### 1. User Management

- **User Registration:** Users should be able to register with email, password, and basic profile details.
- **User Login:** Users can log in using their credentials (email/username and password).
- **User Roles and Permissions:** Different roles like Admin, Registered Users (Customers), and Guest Users. Admins should have higher privileges.
- **User Profile Management:** Users should be able to view and edit their profiles (address, email, phone number, password).
- **Password Recovery:** Users should be able to recover forgotten passwords via email.

### 2. Book Management

- **Catalog Management:** Admins should be able to add, update, and remove books in the catalog.
- **Book Details:** Each book should have detailed information like title, author, ISBN, price, cover image, publisher, description, and stock quantity.
- **Category and Genre Management:** Ability to add and manage categories (like Fiction, Non-fiction, Science, etc.) and sub-categories.
- **Inventory Management:** Monitor and update the stock of each book to reflect availability in real-time.

### 3. Search and Filtering

- **Search Functionality:** Allow users to search for books by title, author, ISBN, and keywords.
- **Advanced Filtering:** Filter by price range, categories, publishers, publication date, and ratings.
- **Sorting Options:** Provide sorting options like price (low to high/high to low), popularity, ratings, etc.

### 4. Shopping Cart and Wishlist

- **Add to Cart:** Users can add books to their shopping cart and update quantities.
- **Add to Wishlist:** Users can add books to a wishlist for future purchases.
- **Cart Management:** Users can view, update, or remove items from the cart.
- **Guest Cart:** Allow guest users to maintain a temporary shopping cart.

### 5. Checkout and Payment

- **Address Management:** Users can add and save multiple shipping addresses.
- **Order Summary:** Display an order summary with details such as items, quantity, shipping address, and total amount.

- **Payment Gateway Integration:** Support various payment methods such as credit/debit cards, digital wallets (like PayPal, Google Pay), and bank transfers.
- **Order Confirmation:** Send email confirmation to users after successful order placement.

## 6. Order Management

- **Order History:** Users should be able to view their past orders, along with details like order ID, date, total amount, and status.
- **Order Tracking:** Allow users to track the status of their order (Processing, Shipped, Delivered).
- **Cancellation and Return:** Allow users to cancel or return orders under certain conditions.

## 7. Admin Management Panel

- **Dashboard Overview:** Provide a dashboard showing key metrics like total sales, popular books, inventory alerts, etc.
- **User Management:** Manage user accounts, permissions, and roles.
- **Order Management:** View and manage all customer orders, including updating their status.
- **Reports and Analytics:** Generate reports on sales, user activity, inventory levels, and other relevant metrics.

## 8. Review and Rating System

- **Book Reviews:** Allow users to write reviews and rate books they have purchased.
- **Admin Moderation:** Admin should have the ability to review and moderate user comments and reviews.

## 9. Email Notifications

- **Order Notifications:** Send email notifications to users for order confirmations, dispatch updates, and delivery.
- **Promotional Emails:** Send newsletters or promotional offers to subscribed users.
- **Password Recovery:** Send recovery links or temporary passwords for forgotten passwords.

## 10. Search Engine Optimization (SEO)

- Optimize the product pages, meta descriptions, and keywords for search engines to drive organic traffic.

## Non-Functional Requirements

### 1. Performance Requirements

- The system should be able to handle multiple concurrent users without degrading performance.
- Page load times should be within acceptable limits, ideally below 2 seconds.

## 2. Scalability

- The system should be scalable to accommodate an increasing number of users, books, and orders as the business grows.
- Use a scalable database architecture and load balancing for servers.

## 3. Security Requirements

- Implement HTTPS to secure data transfer.
- Use secure password hashing algorithms for user passwords.
- Protect the system against common threats like SQL injection, Cross-Site Scripting (XSS), and Cross-Site Request Forgery (CSRF).
- Role-based access control (RBAC) should be enforced to restrict unauthorized actions.

## 4. Reliability and Availability

- The system should be available 99.9% of the time, with minimal downtime.
- Regular backups should be taken to prevent data loss.

## 5. Usability

- The interface should be intuitive and user-friendly.
- All pages should be responsive and mobile-friendly.

## 6. Maintainability

- The codebase should be modular and follow clean coding practices for easier maintenance and updates.
- Proper documentation should be provided for each module.

## 7. User Interface Requirements

- **Landing Page:** A visually appealing homepage showcasing featured books and promotions.
- **Product Detail Page:** A detailed page for each book, displaying all relevant information and reviews.
- **Search Results Page:** Display search results in a clear and organized manner with filtering options.
- **Checkout Page:** A clean and concise page for reviewing the cart, selecting an address, and processing the payment.









