Software Requirements Specification

for

BookBreeze

**Version 1.0 approved**

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**March 9, 2024**

**Table of Contents**

[**1.**](#_heading=h.1fob9te) **Introduction 1**

[1.1](#_heading=h.3znysh7) Purpose 1

[1.2](#_heading=h.2et92p0) Document Conventions 1

[1.3](#_heading=h.ihv636) Intended Audience and Reading Suggestions 1

[1.4](#_heading=h.32hioqz) Product Scope 1

[1.5](#_heading=h.1hmsyys) References 1

[**2.**](#_heading=h.41mghml) **Overall Description 2**

[2.1](#_heading=h.2s8eyo1) Product Perspective 2

[2.2](#_heading=h.2grqrue) Product Functions 2

[2.3](#_heading=h.vx1227) User Classes and Characteristics 2

[2.4](#_heading=h.3fwokq0) Operating Environment 2

[2.5](#_heading=h.1v1yuxt) Design and Implementation Constraints 2

[2.6](#_heading=h.4f1mdlm) User Documentation 2

[2.7](#_heading=h.2u6wntf) Assumptions and Dependencies 3

[**3.**](#_heading=h.19c6y18) **External Interface Requirements 3**

[3.1](#_heading=h.3tbugp1) User Interfaces 3

[3.2](#_heading=h.28h4qwu) Hardware Interfaces 3

[3.3](#_heading=h.nmf14n) Software Interfaces 3

[3.4](#_heading=h.37m2jsg) Communications Interfaces 3

[**4.**](#_heading=h.1mrcu09) **System Features 4**

[4.1](#_heading=h.46r0co2) System Feature 1 4

[4.2](#_heading=h.2lwamvv) System Feature 2 (and so on) 4

[**5.**](#_heading=h.3whwml4) **Other Nonfunctional Requirements 4**

[5.1](#_heading=h.111kx3o) Performance Requirements 4

[5.2](#_heading=h.3l18frh) Safety Requirements 5

[5.3](#_heading=h.206ipza) Security Requirements 5

[5.4](#_heading=h.4k668n3) Software Quality Attributes 5

[5.5](#_heading=h.2zbgiuw) Business Rules 5

[**6.**](#_heading=h.1egqt2p) **Other Requirements 5**

**Revision History**

| **Name** | **Date** | **Reason For Changes** | **Version** |
| --- | --- | --- | --- |
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# Introduction

## Purpose

This Software Requirements Specification (SRS) document outlines the requirements for the development of BookBreeze, a comprehensive book-selling website. BookBreeze aims to address the challenges faced by book enthusiasts in finding books across various platforms by providing a user-friendly interface for exploring and purchasing books.

## Document Conventions

This document follows standard conventions for specifying software requirements. Requirements are prioritized based on their importance and relevance to the overall system functionality. Additionally, each requirement statement is assigned its own priority to ensure clarity and organization.

## Intended Audience and Reading Suggestions

This document is intended for developers, project managers, designers, testers, and other stakeholders involved in the development process of BookBreeze. It contains detailed information about the functional and non-functional requirements of the system, organized in a manner that facilitates understanding and implementation. Readers are suggested to start with the overview sections and proceed through the document as per their role and interests.

## Product Scope

BookBreeze is a web-based platform designed to simplify the process of purchasing books by providing users with a user-friendly interface and access to comprehensive book information. The software aims to offer benefits such as intuitive book search, comparison of prices, and a curated selection of titles. By addressing the needs of book enthusiasts, BookBreeze aligns with the goal of enhancing the book shopping experience.

## References

*<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.>*

# Overall Description

## Product Perspective

BookBreeze is a standalone product, aiming to address the challenges faced by book enthusiasts in searching for books across different platforms. It is not a part of a product family but rather a new, self-contained product in the book-selling domain. BookBreeze will interact with users through a web-based interface and will be connected to a backend database for storing book information and user data.

## Product Functions

* Allow users to search for specific books by title, author, or genre.
* Provide detailed information about books, including descriptions, author details, and publication information.
* Enable users to buy, rent or sell books.
* Allow users to create accounts, manage their profiles, and track their order history.

## User Classes and Characteristics

BookBreeze anticipates the following user classes:

* General Users: Individuals interested in purchasing books across various genres.
* Book Enthusiasts: Users with a keen interest in exploring new titles and authors.
* Frequent Shoppers: Users who regularly purchase books online and seek the best deals.
* Casual Readers: Users who occasionally purchase books for leisure reading.
* Tech-Savvy Users: Users comfortable with utilizing online platforms for book purchasing

## Operating Environment

BookBreeze will operate in a web-based environment:

* Hardware Platform: Any device with a web browser, including desktops, laptops, tablets, and smartphones.
* Operating System: Compatible with major operating systems such as Windows, macOS, iOS, and Android.
* Software Components: Utilizes Node.js (Express) for backend development, MongoDB for database management, and React for frontend development.
* External Interfaces: Integration with external book-selling platforms for fetching book prices and availability.

## Design and Implementation Constraints

* Corporate Policies: Adherence to data protection regulations and privacy policies.
* Hardware Limitations: Ensuring compatibility with devices of varying specifications.
* Interfaces to Other Applications: Integration with third-party APIs.
* Technologies: Mandatory use of HTML, CSS, React, Node.js, and MongoDB as specified.Security Considerations: Implementation of secure authentication and data encryption protocols.

## User Documentation

The following user documentation components will be delivered with the software:

* User manuals
* On-line help documentation
* Tutorials for using different features of BookBreeze

## Assumptions and Dependencies

* Third-Party Components: Assumption of availability and compatibility with external APIs.
* Development Environment: Assumption of access to development tools and libraries as required.
* Internet Connectivity: Dependency on a stable internet connection for accessing external book-selling platforms and data retrieval.

# External Interface Requirements

## User Interfaces

**Logical Characteristics:** The user interface of Book Breeze should be intuitive, user-friendly, and visually appealing. It should facilitate easy navigation for users to buy, sell, and borrow books. The interface should have consistent design elements such as color schemes, fonts, and layout across all pages.

**GUI Standards:** The graphical user interface (GUI) should follow industry standards for usability and accessibility. It should comply with web design best practices and accessibility guidelines such as WCAG (Web Content Accessibility Guidelines) to ensure that all users, including those with disabilities, can access and use the platform.

**Screen Layout Constraints:** Screens should be designed to accommodate various screen sizes and resolutions, including desktop, tablet, and mobile devices. Responsive design techniques should be employed to ensure optimal viewing and interaction across different devices.

**Standard Buttons and Functions:** Standard buttons and functions such as "Home," "Search," "My Account," "Cart," "Sell a Book," "Borrow a Book," "Contact Us," and "Help" should appear consistently across all screens for easy access.

**Error Message Display Standards:** Error messages should be displayed prominently and clearly indicate the nature of the error along with guidance on how to resolve it. They should be displayed in a consistent format and style across the platform.

## Hardware Interfaces

**User Devices:**

**Logical Characteristics:** User devices include smartphones, tablets, laptops, and desktop computers. These devices interact with the software product for browsing, buying, selling, and borrowing books.

**Physical Characteristics**: These devices vary in size, screen resolution, and processing power. The software should be compatible with different device types and screen sizes.

Data and Control Interactions: User devices send requests to the software system to perform various actions such as searching for books, listing books for sale, and making transactions. The software responds with relevant data and updates user interfaces accordingly.

**Communication Protocols**: Communication between user devices and the software system typically occurs over the internet using protocols like HTTP or HTTPS. The software should support secure communication protocols to protect user data during transactions.

## Software Interfaces

**Database Management System (DBMS):**

**Name and Version: MongoDB 5.0**

**Data Items:**

Incoming: User registration information, book listings, transaction details, user preferences.

Outgoing: Search results, book availability status, transaction confirmations.

Purpose: The software interacts with MongoDB to store and retrieve various data related to users, books, and transactions. MongoDB's document-oriented structure allows for flexible schema design and efficient data storage. The software communicates with MongoDB using MongoDB drivers and APIs to perform CRUD operations on the database.

**Operating System**:

Name and Version: Android 12, iOS 15

Data Items: N/A

Purpose: The software is compatible with Android and iOS operating systems, allowing users to access the application on smartphones and tablets. It utilizes platform-specific APIs and features to ensure a seamless user experience on each operating system.

**Payment Gateway:**

Credit Card Payments

## Communications Interfaces

**Email Integration:**

**Requirements**: The product sends emails for user registration, password resets, and notifications.

Security: Emails are sent securely using SMTP, protecting sensitive information.

Data Transfer Rates: Email delivery is reliable, ensuring timely notifications to users.

Web Socket Protocol (Optional):

**Requirements**: Allows real-time communication between client and server.

Security: Supports encryption for secure data transmission.

Data Transfer Rates: Provides low-latency communication for instant updates and notifications.

# System Features

## Book Search

4.1.1 **Description and Priority**

This feature allows users to search for specific books by title, author, or genre. Priority: 9.

4.1.2 **Stimulus/Response Sequences**

1. User enters search query.
2. System retrieves relevant books based on the query.
3. System displays search results to the user.

4.1.3 **Functional Requirements**

REQ-1: The system shall provide a search bar for users to input their search queries.

REQ-2: The system shall retrieve book data from the database based on the user's search query.

REQ-3: The system shall display search results to the user, including book titles, authors, and cover images.

REQ-4: If no results are found, the system shall display a message indicating no matches found.

## Book Details

**4.2.1 Description and Priority**

This feature provides users with detailed information about selected books. Priority: 8.

**4.2.2 Stimulus/Response Sequences**

1. User selects a book from the search results.
2. System retrieves detailed information about the selected book.
3. System displays book details to the user.

4.2.3 **Functional Requirements**

REQ-5: The system shall display detailed information about the selected book, including description, author details, publication information, and user reviews.

REQ-6: The system shall provide a link to purchase the book from external platforms, if available.

REQ-7: The system shall allow users to add the book to their cart for purchasing.

## User Account Management

**4.3.1 Description and Priority**

This feature enables users to create accounts, manage profiles, and track order history. Priority: 5

**4.3.2 Stimulus/Response Sequences**

1. User clicks on the "Sign Up" or "Login" button.
2. System displays login/signup form.
3. User fills in the required details and submits the form.
4. System verifies the credentials and grants access to the user's account.

**4.3.3 Functional Requirements**

REQ-8: The system shall provide options for users to sign up for a new account or log in to an existing account.

REQ-9: The system shall securely store user account information, including username, email, and password.

REQ-10: The system shall allow users to update their profile information, such as name, email, and password.

REQ-11: The system shall maintain a record of user order history for reference.

## Sell Book

**4.4.1 Description and Priority**

This feature enables users to sell their own books through the platform. Priority: 9.

**4.4.2 Stimulus/Response Sequences**

* System prompts the user to provide details about the book they wish to sell or rent.
* User enters book details and uploads relevant images.
* System validates the information provided by the user.
* System adds the book to the marketplace for sale or rent

**4.4.3 Functional Requirements**

REQ-12: The system shall provide a dedicated section for users to list their books for sale or rent.

REQ-13: Users shall be able to input details about the book, including title, author, condition, price, and description.

REQ-14: Users shall have the option to upload images of the book for potential buyers to view.

REQ-15: The system shall validate the information provided by the user to ensure accuracy and completeness.

REQ-16: Once listed, the system shall make the book available for purchase by other users browsing the platform.

## Buy Books

**4.5.1 Description and Priority**

This feature allows users to purchase books from the platform. Priority: 9.

**4.5.2 Stimulus/Response Sequences**

* User selects a book from the cart.
* System prompts the user to proceed to checkout.
* User confirms the purchase and provides shipping details.
* System processes the order and notifies the user of the successful transaction.

**4.5.3 Functional Requirements**

REQ-17: The system shall allow users to add books to their cart for purchase.

REQ-18: Users shall be able to proceed to checkout and confirm their purchase.

REQ-19: The system shall prompt users to provide shipping details for physical book orders.

REQ-20: The system shall process the payment securely and notify the user of the transaction status.

## Payment

**4.6.1 Description and Priority**

This feature facilitates secure payment processing for book purchases. Priority: 9.

**4.6.2 Stimulus/Response Sequences**

* User proceeds to checkout after selecting books for purchase.
* System prompts the user to choose a payment method.
* User selects a payment method and provides necessary details.
* System processes the payment securely and confirms the transaction.

**4.6.3 Functional Requirements**

REQ-21: The system shall support multiple payment methods, including credit/debit cards, digital wallets, and bank transfers.

REQ-22: Users shall be able to securely enter their payment details during checkout.

REQ-23: The system shall encrypt sensitive payment information to ensure security.

REQ-24: Upon successful payment processing, the system shall update the order status and notify the user of the transaction confirmation.

## User Reviews

**4.7.1 Description and Priority**

This feature allows users to leave reviews and ratings for books they have purchased. Priority: 5.

**4.7.2 Stimulus/Response Sequences**

* User navigates to the book details page.
* System displays the option to leave a review and rating.
* Users submit their review and rating.
* System updates the book's review section with the user's input.

**4.7.3 Functional Requirements**

REQ-25: The system shall provide users with the option to leave a review and rating for books they have purchased.

REQ-26: Users shall be able to submit textual reviews along with a numerical rating (e.g., out of 5 stars).

REQ-27: The system shall display user reviews and ratings on the book details page for other users to view.

REQ-28: Users shall have the ability to edit or delete their own reviews.

## Rent a book

**4.8.1 Description and Priority**. Priority: 9

This use case involves the process of renting a book from the system. Users, identified as renters or buyers, initiate the rental process by selecting a book and completing the necessary steps to borrow it for a specified duration. The system must handle the transaction securely and update inventory and user profiles accordingly.

**4.8.2 Stimulus/Response Sequences**

* user selects a book from searched results.
* System displays book details, including availability, rental price, and rental duration options
* User clicks on the "Rent" button
* system displays interface for acquiring rental information
* User provides necessary authentication and rental details (e.g., duration, payment information).
* System verifies user information and initiates the rental transaction
* User confirms the rental transaction
* System sends a confirmation email to the user with rental details

**4.8.3 Functional Requirements**

REQ-29:.The system must display relevant information about the selected book, including availability, rental price, and rental duration options

REQ-30:All rental transactions must be conducted securely using encryption protocols to protect user payment information

REQ-31: The system must update the book inventory to reflect the rented status, adjusting availability accordingly

REQ-32: Users must receive a confirmation email with details such as the rented book, due date, and any additional instructions

REQ-33: The user's profile should be updated to include the rented book in their transaction history.

REQ-34:The system should notify the user of upcoming due dates or any other relevant information related to the rented book

## Add book to cart

**4.9.1 Description and Priority. Priority: 9**

This feature ensures the process of tracking the order of a book. Users can monitor the status of their orders, including rented and purchased books, from initiation to delivery or return. The system provides users with real-time updates on order status, ensuring transparency and accountability

**4.9.2 Stimulus/Response Sequences**

* User initiates order tracking process by accessing the "My Orders" section of the system
* System displays a list of the user's current and past orders, including rented and purchased books
* User selects a specific order for tracking
* System provides detailed information about the selected order, including order status, estimated delivery or return date, and any relevant updates

**4.9.3 Functional Requirements**

REQ-35:The system must provide a user-friendly interface for users to track their orders, accessible from the user dashboard.

REQ-36The system must display detailed information about each order, including order ID, book details, order status, estimated delivery or return date, and any relevant updates

REQ-37: The system should notify users of significant order status changes (e.g., order shipped, order delivered, order returned) via email

REQ-38: For rental orders, the system must support the return process by providing users with return instructions, tracking return shipments, and updating order status upon return receipt.

## Add book to wishlist

**4.10.1 Description and Priority. Priority: 3**

This use case involves the process of adding a book to a user's wishlist.Users can save books they are interested in purchasing or renting to their wishlist for future reference.

**4.10.2 Stimulus/Response Sequences**

* User selects the "Add to Wishlist" option for a specific book.
* System adds the selected book to the user's wishlist and provides a confirmation message to the user.
* User views their wishlist
* System removes the selected book from the user's wishlist and updates the wishlist display accordingly.

**4.10.3 Functional Requirements**

REQ-39:The system must provide a user-friendly interface for users to manage their wishlist, accessible from the user dashboard.

REQ-40The system must include an Add to Wishlist option for each book displayed on the platform

REQ-41: When the user selects Add to Wishlist option, the system must add the book to the user's wishlist and provide a confirmation message

REQ-42:The system must include a Remove from Wishlist option for each book displayed in the user's wishlist.

REQ-43:When the user selects Remove from Wishlist option, the system must remove the book from the user's wishlist and update the wishlist display accordingly

# Other Nonfunctional Requirements

## Performance Requirements

* All pages must be rendered in maximum 5 seconds.
* System must show searched results in 3 seconds.
* System must acquire data from database in 2 seconds.
* System should provide drag and drop facility to manage books for renters and sellers.System should respond in less than 1 sec to drag and drop
* The system shall process the payment transaction within 5 seconds.
* The system should notify user about upcoming deadlines prior to 5 days and then prior to 24 hours.
* The system shall process cart addition requests within 500 milliseconds.
* The system shall handle a minimum of 100 transactions per minute during peak usage hours.
* The system shall update the order status within 2 seconds.
* The system shall complete the checkout process, including payment confirmation, within 5 seconds.
* System should retrieve book details in 3 seconds to ensure fast user experience.
* In case there is no match for search display message with no research found information.
* The system shall support a maximum of 500 concurrent users accessing book details and reviews during peak hours.
* The user dashboard interface for tracking orders shall load within 2 seconds under normal operating conditions
* The system shall display user reviews and ratings on the book details page within 1 second of the user's request.
* For rental orders, fee equal to price of book is received and on return fee is returned by cutting rental charges.
* Rental charges is according to the book and duration of renting.
* The system shall update the book inventory within 1 minute of the completion of a rental transaction.
* The system shall display detailed order information within 3 seconds of the user's request

## Safety Requirements

## Unintended consequences or system failures must be prevented. The system should be resilient to unexpected issues in data presentation.

* If no result found, avoid system from crashing out.
* System should ensure safe storage of user information in database to prevent unauthorized access.
* System should ensure availability of books displayed for purchase. It ensures reliability of platform.
* The system shall regularly backup user transaction data to prevent loss in case of system failure.

## Security Requirements

* Data retrieval from the database must be secure to prevent unauthorized access through database security practices.
* Displaying search results should not expose sensitive information. The system should implement secure standard coding practices to prevent common web vulnerabilities.
* System should apply secure authorization system to log in to system. It ensures protection of data.System should provide interface to register into account.
* System should securely store user information. Necessary information for registration includes Name,CNIC,Payment Details,Emails and Passwords.
* The system shall ensure the integrity of user reviews and ratings by preventing unauthorized modification or deletion.
* The system shall implement logging mechanisms to track and monitor access to payment-related functionalities for audit purpose
* The system shall authenticate users before allowing them to submit reviews or ratings for books
* The system shall undergo regular testing to identify and remediate security vulnerabilities.
* The system shall implement role-based access control to restrict access to user payment details to authorized personnel only.
* System should verify the entered information to prevent from malicious or wrong information.
* User wishlist data shall be stored securely in the system's database, with access restricted to authorized users only

## Software Quality Attributes

**Availability**:The system shall provide real-time notifications to users in case of payment processing errors or system unavailability.

The system shall provide real-time notifications to users in case of review submission errors or system unavailability

**Usability:**The system shall provide clear and intuitive error messages to users in case of invalid input during checkout or payment.

The system shall provide clear and user-friendly interfaces for submitting and editing review.

The system shall allow users to filter and sort reviews based on criteria such as rating, relevance.

The user interface for order tracking and wishlist management shall follow industry best practices.

Confirmation messages for adding or removing items from the wishlist shall be clear and easily understandable.

## Business Rules

**Business Rule 1**: Orders can only be processed if the user provides valid payment information during checkout.

**Business Rule 2:** Orders for physical books require users to provide shipping details before completion.

**Business Rule 3**: Payment processing shall only occur after order confirmation and verification of payment details.

**Business Rule 4**: Users must have purchased a book to be eligible to leave a review and rating for it.

**Business Rule 5**: Rental durations shall be clearly specified for each book, and availability shall be adjusted accordingly

# Other Requirements

**Database Requirements:**

The system shall support MongoDB as the primary database management system.

Database backups shall be performed regularly to prevent data loss.

Data integrity and consistency shall be maintained through proper database schema design and normalization.

Reuse Objectives:

The software components shall be designed with reusability in mind to facilitate future updates and enhancements.

Code libraries and modules shall be documented and organized for easy integration into other projects.

**Performance Requirements:**

The system shall be capable of handling concurrent user interactions without significant performance degradation.

Response times for common user actions (e.g., book search, transaction processing) shall meet acceptable thresholds to ensure a smooth user experience.

**Error Handling and Logging:**

The system shall implement robust error handling mechanisms to gracefully handle unexpected errors and prevent service disruptions.

Comprehensive logging shall be implemented to record system activities, errors, and user interactions for troubleshooting and auditing purposes.

**Appendix A: Glossary**

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>

**Appendix B: Analysis Models**

Analysis Class diagram and data flow diagrams(DFD-0,DFD-1) is provided with this document

**Appendix C: To Be Determined List**

<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>