

Software Requirements Specification

for

E-BOOK APPLICATION

BOOK CLUB

Version 1.0 approved

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1. Introduction

Purpose

- The purpose of this Flutter-based E-Book Application is to provide a user-friendly and feature-rich platform that allows readers to access, manage, and enjoy digital books effortlessly. This application aims to facilitate users in reading books, building a personalized digital library, staying informed about upcoming book releases, receiving tailored book recommendations, exploring various book categories, and maintaining an up-to-date user profile. By delivering an intuitive and interactive interface, the application strives to enhance the reading experience and cater to the diverse preferences and needs of readers in the digital realm.

1.1 Document Conventions

1. Title Case for Features and Functionalities:

- All features, functionalities, and components of the E-Book Application will be written in title case. For example: "Read a Book," "Add Books to Library," "Show Upcoming Books," "Recommend Books for You," "Categories of Books," and "Update User Profile."

2. CamelCase for Variables and Functions:

- Variables, functions, and code-related entities will use CamelCase. For instance:
``selectedBook`, `addBookToLibrary()`, `upcomingBooksList`,
`recommendBooksForUser()`, `userProfileUpdate()``.

3. Italic for UI Elements:

- UI elements such as buttons, labels, and screens will be italicized. For example: **Read Now**, **Add to Library**, **Upcoming Books**, **Recommended for You**, **Categories**, and **User Profile**.

4. Code Blocks:

- Code blocks, snippets, or any technical excerpts will be presented in a monospaced font.
- For example:

```
void displayBookDetails(Book book) {  
    // Implementation logic for displaying book details
```

5. Use of "shall" for Requirements:

- The term "shall" will be used to denote mandatory requirements. For example: "The application shall display book details when the user selects a book."

6. Bullet Points for Lists:

- Lists of requirements, features, or any other related information will be presented using bullet points.

7. Hyperlinks for References:

- Hyperlinks will be used to reference external sources or related documents.

1.2 Intended Audience and Reading Suggestions

- **Book Enthusiasts and Readers:**
- Individuals who have an interest in reading books across various genres and are seeking a modern digital platform for an enhanced reading experience.
- **Genre-based Book Recommendations:**
- Book recommendations categorized by genres to help users discover books aligning with their interests and preferences.
- **In-App Feature Highlights:**
- Highlighted sections within the application, showcasing the key features such as adding books, exploring categories, and updating profiles.
- **Upcoming Book Notifications:**
- Regular notifications or a dedicated section for upcoming book releases to keep users informed about new additions.

1.3 Project Scope

- Implement a notification system within the application to alert users about upcoming book releases based on their preferences.
- Allow users to customize notification preferences, including frequency and types of upcoming book notifications.
- Design a dedicated section within the application where users can browse and explore upcoming book releases with details like titles, authors, and release dates.
- Provide the option for users to set reminders or mark books they are interested in for easy reference when the books are released.

1.4 References

- Youtube
- Github
- Google

2. Overall Description

2.1 Product Perspective

User Interface (UI):

- The UI component includes screens, buttons, navigation, and interactions that provide a seamless and intuitive experience for users as they read, explore, and manage their e-books.

Book Management System:

- This component manages the user's library, allowing users to add, categorize, and organize their e-books efficiently.

Recommendation Engine:

- The recommendation engine analyzes user behavior and preferences to suggest personalized book recommendations.

Notification System:

- The notification system keeps users informed about upcoming book releases and other important updates.

User Profile Management:

- The user profile management component allows users to personalize their experience, update their information, and customize settings.

2.2 Product Features

- The E-Book Application offers a set of key features that enhance the reading experience and provide efficient book management for users. These features can be summarized as follows:
 - **Reading Experience Enhancement**
 - Allows users to read e-books seamlessly with a focus on a pleasant and interactive reading experience.
 - **Library Management**

- Enables users to organize and manage their digital book collection in a user-friendly manner.
- **Discover and Explore**
- Facilitates users in discovering and exploring new books based on various categories and genres.
- **Personalization and Recommendations**
- Provides a personalized experience by recommending books based on user preferences and reading history.
- **User Profile Management**
- Allows users to manage their profiles, including preferences and reading statistics.

Upcoming Book Notifications

- Keeps users informed about upcoming book releases through notifications or a dedicated section.

2.3 User Classes and Characteristics

Reader

- Characteristics:
 - Frequency of Use: Regular and frequent use to read books.
 - Product Functions: Primarily focused on reading, bookmarking, and annotating e-books.
 - Technical Expertise :Varied technical expertise, from novice to advanced.
 - Educational Level: Diverse educational backgrounds.

Library Organizer

- Characteristics:
 - Frequency of Use:Regular use for managing and organizing their e-book library.
 - Product Functions:Prioritizes features related to categorizing, adding, and removing books from the library.
 - Technical Expertise: Moderate to advanced technical skills.
 - Educational Level: Moderate to advanced educational backgrounds.

Explorer and Enthusiast

- Characteristics:
- Frequency of Use: Frequent use to explore new books, genres, and categories.
- Product Functions: Actively engages with features related to discovering and exploring new books.
- Technical Expertise: Varied technical expertise, from novice to advanced.
- Educational Level: Diverse educational backgrounds.

Customization

- Characteristics:
- Frequency of Use: Regular use to customize settings and preferences.
- Product Functions: Emphasizes personalization features and updates user profile frequently.
- Technical Expertise: Varied technical expertise, from novice to advanced.
- Educational Level: Diverse educational backgrounds.

Notification Enthusiast

- Characteristics:
- Frequency of Use: Regular use to stay informed about upcoming book releases.
- Product Functions: Actively uses features related to notifications and upcoming book displays.
- Technical Expertise: Varied technical expertise, from novice to advanced.
- Educational Level: Diverse educational backgrounds.

2.4 Operating Environment

- *Hardware Platforms:*
- *Smartphones (iOS and Android)*
- *Tablets (Android)*
- *Laptops/Computers (Windows)*
- *Operating Systems:*
- *Android 7.0 (Nougat) and newer*
- *Software Components:*
- *Flutter Framework (latest stable version)*
- *Dart Programming Language*
- *Third-party Libraries and APIs*
- *Internet Connectivity:*
- *Stable internet connection required for certain features*
- *Core reading functionality available offline*

2.5 Design and Implementation Constraints

Platform Constraints

Operating Systems:

- The application must be compatible with iOS 12 and newer, as well as Android 7.0 (Nougat) and newer versions.

Hardware Requirements:

- The application should run efficiently on a wide range of smartphones, tablets, and computers, adhering to their respective hardware capabilities.

Technology Stack

Flutter Framework:

- The application will be developed using the Flutter framework, requiring expertise in Dart programming language and Flutter widgets for consistent cross-platform development.

Third-Party Libraries:

- Use of third-party libraries for specific functionalities such as e-book rendering, database management, and network communication must align with Flutter and Dart compatibility.
- User Experience and Design Guidelines

Design Standards:

- Adherence to design conventions and guidelines to ensure a consistent and intuitive user interface and experience across all devices.

Accessibility Standards:

- Compliance with accessibility guidelines to make the application usable by a diverse user base, including those with disabilities.

Security and Data Privacy

Data Encryption:

- Implementation of strong encryption mechanisms to ensure the security and privacy of user data, particularly during transactions and storage.

User Authentication:

- Secure authentication mechanisms to protect user accounts and prevent unauthorized access.

Performance and Scalability

Optimized Performance:

- Optimization of code and resources to ensure smooth performance even on devices with varying processing capabilities.

Scalability:

- Design considerations to facilitate future scalability in terms of handling a growing user base and additional features.

Compliance and Regulations

Data Protection Regulations:

- Adherence to data protection and privacy regulations applicable in the regions where the application is available.

Copyright and Licensing:

- Compliance with copyright laws and licensing agreements for any third-party content, including e-books.

2.6 User Documentation

User Manual

- Format:PDF and Online Documentation
- Description: A comprehensive manual detailing the features, functionalities, and navigation within the application. It provides step-by-step instructions and usage guidelines for users.

On-Screen Guidance

- Format: In-App Tutorials and Tooltips
- Description: Interactive in-app tutorials and tooltips to guide users on how to perform specific actions, use features, or navigate the application effectively.

FAQ Section

- Format:In-App Section and Online
- Description: Frequently Asked Questions section addressing common queries, troubleshooting steps, and providing quick solutions to common issues users might encounter.

Onboarding Screens

- Format:In-App Screens

- Description: Initial screens within the app guiding new users on setting up their profile, adding books, and understanding basic features.

Contextual Help

- Format: In-App Contextual Pop-ups
- Description: Contextual help provided within the application, triggered based on user actions, to guide them on how to use specific features in real-time.

Release Notes

- Format: Online Release Notes Section
- Description: Detailed release notes outlining updates, new features, improvements, and bug fixes with each application update.

2.7 Assumptions and Dependencies

Assumptions

Third-Party Libraries:

- Assumption that third-party libraries and components utilized for specific functionalities will be available, well-documented, and compatible with the Flutter framework.

Platform Stability:

- Assumption that the targeted operating systems (iOS and Android) will remain stable and backward-compatible with the application throughout its development and deployment lifecycle.

Internet Accessibility:

- Assumption that users will have access to a stable internet connection for features that require real-time updates and downloads, such as book recommendations and updates.

Dependencies

Flutter Framework:

- The project depends on the stability, compatibility, and updates of the Flutter framework to develop a robust, cross-platform application.

Dart Programming Language:

- The project relies on the Dart programming language, and its development and updates influence the coding practices and efficiency of the application.

Third-Party Libraries:

- The project is dependent on various third-party libraries for specific functionalities, such as e-book rendering and networking.

Operating System Updates:

- The project's functionality and performance are influenced by updates to the targeted operating systems (iOS and Android) and may require adjustments to maintain compatibility.

External API Services:

- Integration with external services (e.g., book recommendation APIs) is a dependency, and any changes or unavailability of these APIs can impact related features.

3. System Features

- READ BOOKS
- ADD TO LIBRARY
- SHOW TRENDY BOOKS
- SHOW SUGGESTION
- ADD TO FAVOURITE
- EDIT PROFILE

3.1 System Feature 1

- **Description and Priority**

Read Books

Description: Users can read digital books within the application.

Priority: High

Add to Library

Description: Users can add books to their personal library for easy access and organization.

Priority: High

Show Trendy Books

Description: Users can discover and view popular or trending books.

Priority:Medium

Show Suggestions

Description: Users receive personalized book recommendations based on their preferences and reading history.

Priority: High

● **Stimulus/Response Sequences**

Read Books

Stimulus: User selects a book to read.

Response:The application displays the selected book and allows the user to start reading.

Add to Library

Stimulus: User chooses to add a book to their library.

Response: The application adds the selected book to the user's library and provides a confirmation.

Show Trendy Books

Stimulus:User selects the "Trendy Books" section.

Response:The application displays a list of trending books based on user activity or general popularity.

Show Suggestions

Stimulus: User navigates to the "Recommendations" section.

Response:The application generates and displays personalized book recommendations for the user.

Functional Requirements

Read Books

Functional Requirements:

REQ-1: The application shall provide an intuitive interface for users to select and read books.

REQ-2:The application shall support features such as bookmarking, highlighting, and changing font size during book reading.

Add to Library

Functional Requirements:

REQ-3: The application shall allow users to add books to their library.

REQ-4: The application shall provide an option to categorize books within the library.

Show Trendy Books

Functional Requirements:

REQ-5: The application shall curate a list of trendy books based on user interactions and general popularity.

REQ-6: The application shall update the list of trendy books periodically.

Show Suggestions

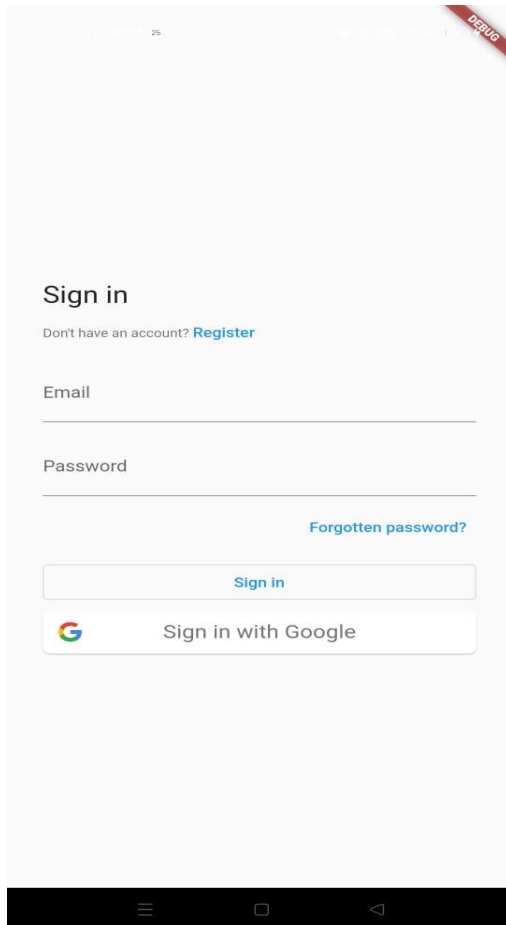
Functional Requirements:

REQ-7: The application shall analyze user reading habits to generate book recommendations.

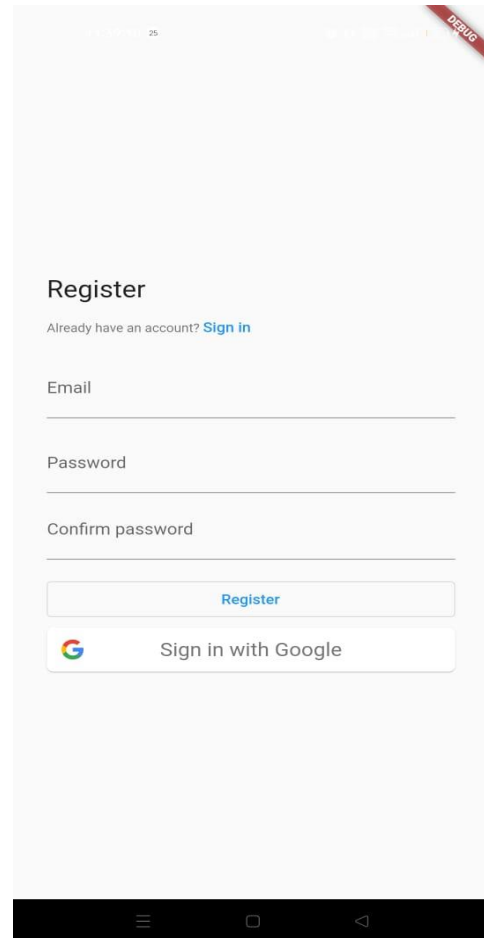
REQ-8: The application shall allow users to customize their preferences for better book suggestions.

4. External Interface Requirements

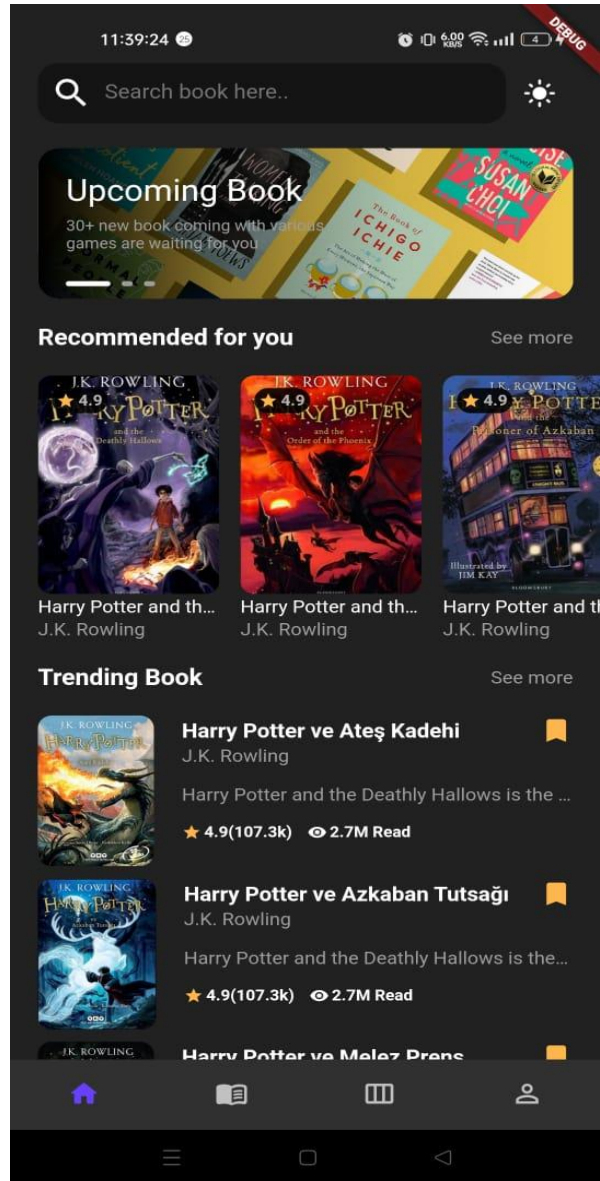
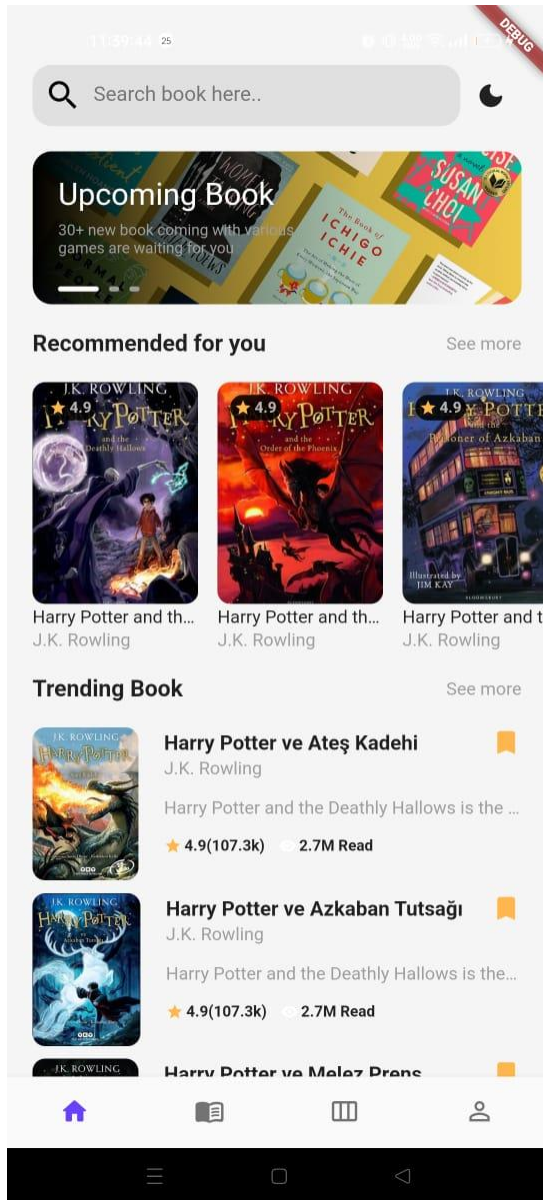
4.1 Software Interface:



Mobile app mockup for the Sign in screen. The screen has a light gray background. At the top, there is a status bar with the time 12:45 and a battery icon. Below the status bar, there is a header area with the text "Sign in" and a link "Don't have an account? Register". Below the header, there are two input fields for "Email" and "Password". Below the password field, there is a link "Forgotten password?". At the bottom, there is a "Sign in" button and a "Sign in with Google" button. A red "DEBUG" label is visible in the top right corner.



Mobile app mockup for the Register screen. The screen has a light gray background. At the top, there is a status bar with the time 12:45 and a battery icon. Below the status bar, there is a header area with the text "Register" and a link "Already have an account? Sign in". Below the header, there are three input fields for "Email", "Password", and "Confirm password". Below the confirm password field, there is a "Register" button and a "Sign in with Google" button. A red "DEBUG" label is visible in the top right corner.



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J.K. Rowling

Harry Potter and the Deathly Hallows is the ...

★ 4.9(107.3k) 📖 2.7M Read



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J.K. Rowling

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★ 4.9(107.3k) 📖 2.7M Read



Harry Potter ve Melez Prens

J.K. Rowling

Harry Potter and the Deathly Hallows is the ...

★ 4.9(107.3k) 📖 2.7M Read



Harry Potter ve Sırlar Odası

J.K. Rowling

Harry Potter and the Deathly Hallows is the ...

★ 4.9(107.3k) 📖 2.7M Read



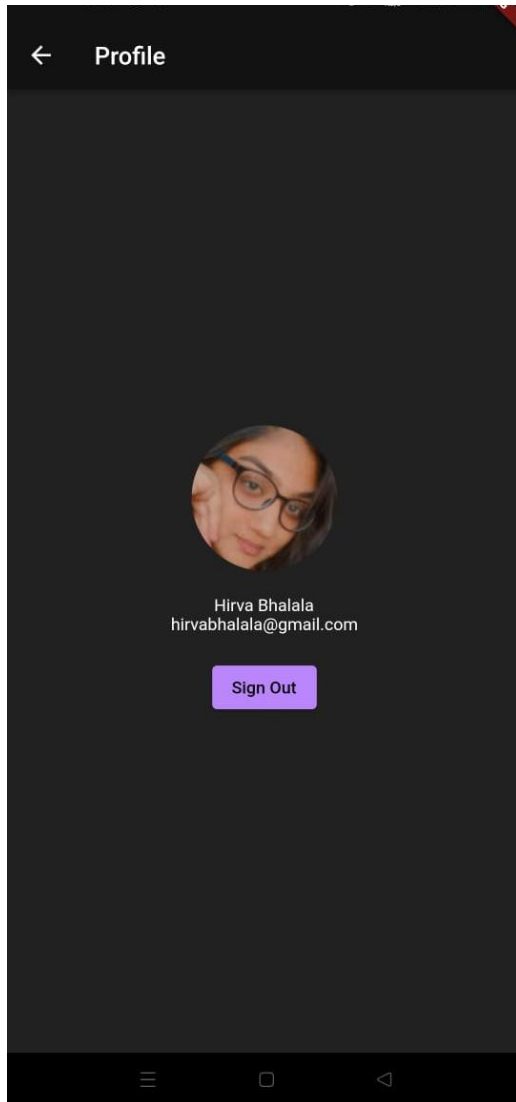
Harry Potter ve Zümrüdü Anka Yo...

J.K. Rowling

Harry Potter and the Deathly Hallows is the ...

★ 4.9(107.3k) 📖 2.7M Read





4.1.1 Logical Characteristics

The E-Book application interfaces with various software components to function seamlessly. These include:

- Flutter Framework: Utilized for application development.
- Dart Programming Language: Primary language for development within the Flutter framework.
- Third-Party Libraries: Used for functionalities like e-book rendering and networking.
- Operating Systems: iOS (version 12 and newer), Android (version 7.0 and newer).

4.1.2 Data and Message Exchange

- The application exchanges data and messages for functionalities such as user authentication, book recommendations, and library management. This includes JSON data for communication with APIs and structured data for local storage.

4.2 Communications Interfaces

4.2.1 Communication Functions

- The E-Book application requires the following communication functions:
- Internet Connectivity:Necessary for fetching book data, recommendations, and updates.
- API Communication: Communicating with external servers to retrieve book information and recommendations.
- Secure Data Transfer:Ensuring data is transmitted securely, particularly for user authentication and transactions.

4.2.2 Communication Standards

HTTP/HTTPS:Used for communication with servers and APIs.

Encryption: Data encryption to secure communications, particularly for sensitive user information.

4.2.3 Message Formatting

- JSON (JavaScript Object Notation): Utilized for formatting data exchanged between the application and external servers.

4.2.4 Communication Security

- SSL/TLS: Used to establish secure connections and ensure data privacy during communication.

4.2.5 Data Transfer Rates

- Optimized Data Transfer: Efficient data transfer strategies to minimize latency and improve user experience.

4.2.6 Synchronization Mechanisms

- Asynchronous Processing:Leveraging asynchronous techniques for data synchronization to prevent UI freezes and enhance responsiveness.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Response Time:

- The application should respond to user interactions (e.g., opening a book, navigating categories) within 0.5 seconds under normal operating conditions.

Loading Time:

- The application should load the book content within 2 seconds, considering an average book size.

Scalability:

- The application should support at least 10,000 concurrent users without a significant degradation in performance.

5.2 Safety Requirements

Data Security:

- The application must encrypt sensitive user data (e.g., passwords, payment details) using industry-standard encryption algorithms to prevent unauthorized access.

In-App Purchases:

- Secure and verified payment gateways should be used for any in-app purchases to prevent fraudulent transactions.

5.3 Security Requirements

User Authentication:

- The application must implement secure user authentication mechanisms (e.g., two-factor authentication) to ensure user identity and prevent unauthorized access.

Data Privacy:

- The application should comply with data privacy laws (e.g., GDPR) and not share user data with third parties without explicit consent.

Secure Communication:

- All communications between the application and external servers should be encrypted using SSL/TLS to prevent eavesdropping and data breaches.

5.4 Software Quality Attributes

Usability:

- The application should adhere to a user-centered design approach, ensuring a high degree of usability to facilitate an intuitive and efficient user experience.

Reliability:

- The application should have a low crash rate, aiming for less than 0.1% of user sessions resulting in a crash.

Maintainability:

- The codebase should follow a modular structure and coding best practices to facilitate ease of maintenance and updates.

Portability:

- The application should run seamlessly across different platforms (iOS, Android) and devices with varying screen sizes and resolutions.

Testability:

- The application code should be designed with testing in mind, allowing for effective unit testing, integration testing, and UI testing.

6. Other Requirements

6.1 Database Requirements

Database Technology:

- The application shall utilize a robust and scalable database technology (e.g., MySQL, Firebase) to store user profiles, book information, preferences, and library data.

Data Backup:

- The application shall implement periodic automated backups of the database to prevent data loss in case of system failures or other unforeseen events.

6.2 Internationalization Requirements

Language Support:

- The application shall support multiple languages to ensure accessibility and usability for a diverse user base.

Locale Settings:

- The application shall adapt to the user's locale settings for displaying appropriate date formats, currencies, and other region-specific information.

6.3 Legal Requirements

Compliance:

- The application shall comply with all relevant laws, regulations, and legal requirements in the regions where it is made available, including copyright laws and data privacy regulations.

Terms of Service and Privacy Policy:

- The application shall provide clear and accessible terms of service and privacy policy to users, outlining their rights, responsibilities, and data usage policies.

Appendix A: Glossary

- E-Book Application: The software product being developed, allowing users to read, manage, and discover digital books.
- GUI: Graphical User Interface.
- API: Application Programming Interface.
- JSON: JavaScript Object Notation.
- SSL/TLS: Secure Sockets Layer/Transport Layer Security.

Appendix B: Issues List

User Interface

Issue 1: Inconsistent Button Styling

- Description: Buttons have inconsistent styling.
- Priority: Medium

Issue 2: Font Size Inconsistencies

- Description: Inconsistent font sizes.
- Priority: Low

Functionality

Issue 3: Book Loading Delay

- Description: Books take too long to load.
- Priority: High

Issue 4: Search Functionality Not Working

- Description: Search is inaccurate or dysfunctional.
- Priority: High

Performance***Issue 5: High Memory Consumption***

- Description: Application consumes excessive memory.
- Priority: High

Issue 6: Slow Response on Low-End Devices

- Description: Slow response on low-end devices.
- Priority: High

Security and Privacy***Issue 7: Insecure Data Transmission***

- Description: Data is transmitted without encryption.
- Priority: High

Issue 8: Lack of Secure Authentication

- Description: Application lacks robust authentication.
- Priority: High