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# **Software Requirements Specification**

**for**

# **E-Book Management System**

**Version 1.0 approved**

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## Revision History

Name	Date	Reason For Changes	Version

# **1. Introduction**

## **1.1 Purpose**

The primary aim of the document is to represent the requirements of the project, E-Book Management System. This document gives the detailed description of both functional and non-functional requirements. The main purpose is to provide a user-friendly environment to maintain the details of the users, books and enable easy and convenient access to books.

## **1.2 Intended Audience**

The document is proposed for the system developers, University and public Librarians, administration faculty of the Education Department and to whosoever is interested.

## **1.3 Product Scope**

E - Book Management System can also be referred to as an ‘Online Library’ or a ‘Virtual Library’. The purpose is to provide to the target users, the access and subscription to the required books either free or at a prescribed cost for a defined amount of time. The user interface allows finding books based on his/her preferences and subscribing to the same according to the applicable rules. The application also allows the administrator to keep track of the available books and filter them based on various criteria thereby making it more user-friendly.

## **1.4 References**

Books:

- “Software Engineering: Principles and Practice”, Hans van Vliet 3rd edition Wiley India 2010
- “Software Requirements and Specifications: A Lexicon of Practice, Principles”, Michael J. Jackson and Michael Jackson

Websites:

- <https://www.slideshare.net/>
- <https://www.krazytech.com>

## 2. Overall Description

### 2.1 Product Perspective

E - Book Management System is a virtual bookstore/library application which mainly gains popularity because of its online feature and it supports a number of functions for both the users and the stores. It can be proposed as a follow-on member of existing Online E-Book systems with a few additional features which are lacking in the current versions.

### 2.2 Product Functions

The Product Functions include the following interfaces:

#### **The ‘Library’**

- Recommendations
- Searching for books
- Search Refinement by Categories, language, publication, availability etc
- On clicking a book
  - Read the synopsis
  - Look into ratings/reviews
  - Borrow the book
  - Add to wishlist / read later if book is not available right now

#### **Bookshelf - Books you ‘borrowed’**

- List of the books
- Book Info (Title, Author, Expiry Date (Validity of the plan), Pricing Details)

#### **Book Interface**

- Bookmarking
- Personalization
  - Font change
  - Screen mode (Dark and Light)

#### **Account Info**

- User info

### 2.3 User Classes and Characteristics

- Libraries
  - Providing the books
- Users
  - “Borrowing” the books
  - Leaving Reviews

- Rating
- Book Interface
  - Bookmarking
  - Personalization
    - Font change
    - Screen mode (Dark and Light)

## 2.4 Operating Environment

The designed application would operate well in all the existing operating system (Windows, Linux, Mac) and would require the support of browsers for the same. The mobile app can function well in Android versions 6 and above.

The hardware configuration includes PROCESSOR: Pentium(R) Dual Core-CPU

HARD DISK: 40 GB, basic I/O devices like keyboard, mouse, monitor screen or a mobile phone in case of the app.

Access to good internet connection is one of the vital requirements for the application.

## 2.5 Design and Implementation Constraints

- Protection of the application against threats and vulnerabilities.
- Maintenance of the confidentiality and integrity of the data.
- Timely updates about the books and users must be made.
- Billing function must be appropriately handled to avoid any discrepancies.

## 2.6 Assumptions and Dependencies

The assumptions include:

- User-friendly application.
- Data about users and books must be recorded and accessible by the users according to their levels of access.
- Confidentiality, Integrity and Availability of data is preserved.
- Ubiquitous, high storage, fast and on-demand access to the applications' resources.
- Constantly running and no failure data server and warehouse.

The dependencies include:

- The specific hardware and software requirements for the application to run.
- The users should have a proper understanding of the features in order to use it.
- Timely addition, updating and deletion feature.
- The application should have a general stored report.

## 3. External Interface Requirements

### 3.1 User Interfaces

There are two levels of interfaces:

#### **ADMINISTRATOR MODE:**

- Register user
- Enter Book Details
- Issue a Book
- Resolve Conflicts

**USER MODE:** A user can be previously registered or can register on spot

A user can:

- Check the availability of books
- Reserve a book for later
- Issue/renew a book
- Return a book

### 3.2 Software Interfaces

Front end development requirements:

- HTML, CSS, JAVASCRIPT
- JAVA & XML

Back end requirements:

- MySQL DB

Operating System Requirements:

- Windows 8 and above (for developmental purpose)

### 3.3 Communication Interfaces

*<Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as FTP or HTTP. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms.>*

### 3.4 Hardware Interfaces

PROCESSOR: Pentium(R) Dual Core-CPU

HARD DISK: 40 GB

RAM: 256 MB or more

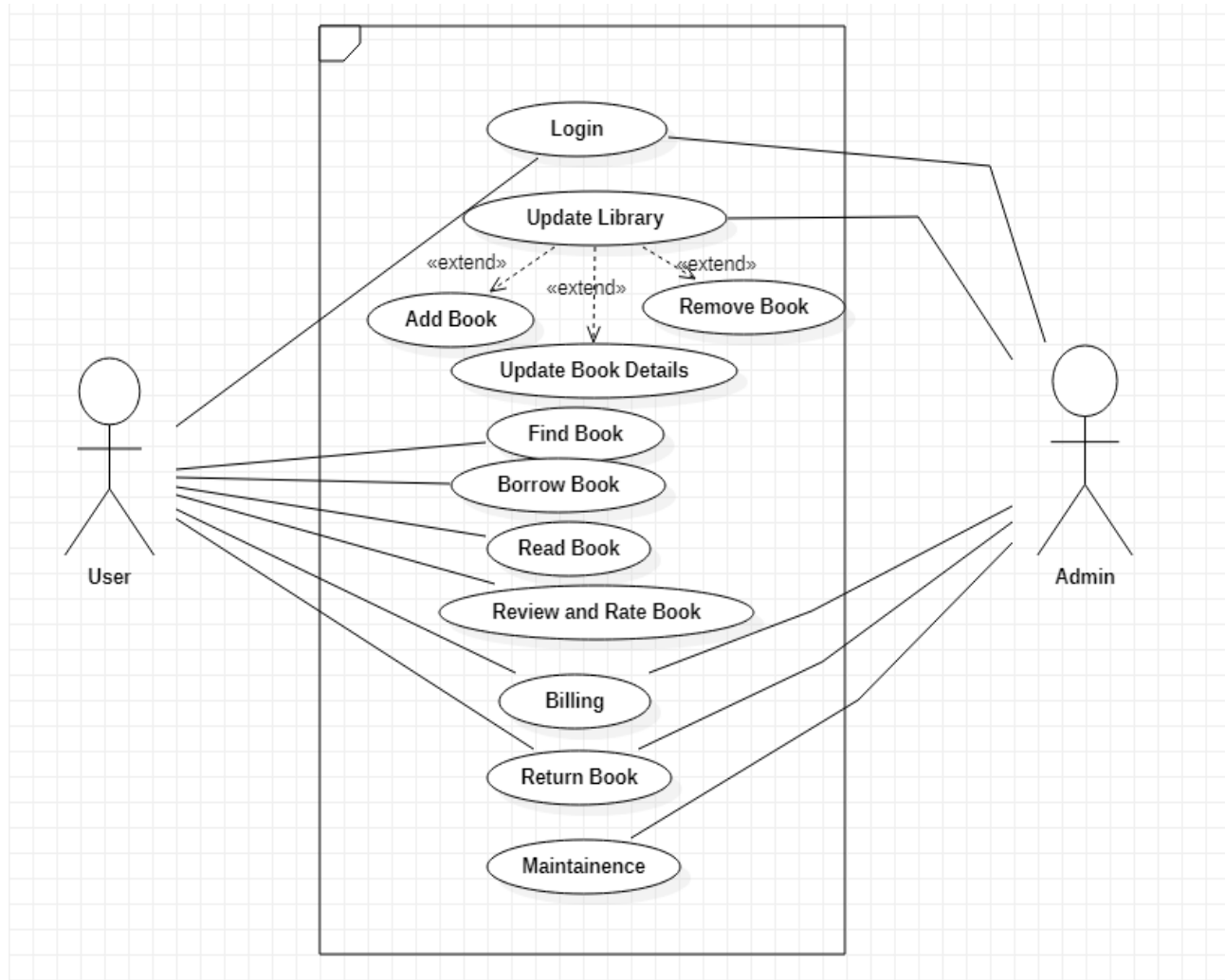
OPERATING SYSTEM: Windows, Mac, Linux

ANDROID VERSION:6.0 & above

## 4. Analysis Models

### USE CASE DIAGRAM: -

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.



## 5. System Features

### 5.1 User Authentication

#### 5.1.1 Description and Priority

User authentication is a security process that covers all of the human-to-computer interactions that require the user to register and log in. Said more simply, authentication asks each user, “who are you?” and verifies their response.

Priority: High

#### 5.1.2 Stimulus/Response Sequences

User Authentication is common to both modes of interface.

A new user provides valid credentials which would lead to their registration.

Registered users can login using their username & password.

#### 5.1.3 Functional Requirements

**REQ-1:** New users to the application would have to register themselves by providing the required information asked for and they are validated in order to prevent conflicts within the same.

**REQ-2:** Registered users can login successfully by providing valid credentials and would lead the user to the Homepage of the application.

**REQ-3:** Unsuccessful login with invalid credentials would lead to an error message and another attempt for the same.

**REQ-4:** Users would be taken to a password recovery screen in the case where he/she forgets his/her password needed for the authentication process.

### 5.2 Finding Books

#### 5.2.1 Description and Priority

A user can search through the online catalogue available to them and find books pertaining to their interests.

Priority: Medium

#### 5.2.2 Stimulus/Response Sequences

A search box to enable the user to enter a particular title and find it.

A filter option to refine the search results.

#### 5.2.3 Functional Requirements

**REQ-1:** A search box is implemented where the user types in key terms pertaining to their book, and the search delivers its response as a set of results.

**REQ-2:** The search can be filtered by various criteria such as genre, publications, price range, language etc., according to the user’s preference. The ‘Library’ can also recommend books to the user (Like a curated Editor’s Reading list).



## 5.3 Subscribing to Books

### 5.3.1 Description and Priority

A user who finds a book of their interest can subscribe to it and proceed further depending upon the subscription plans available for the respective book.

Priority: High

### 5.3.2 Stimulus/Response Sequences

Page containing features/information of the book including

- Basic information of the book (Title, Author etc.)
- Book Description
- Ratings by other users
- Reviews by other users
- Available subscription plans

The user can choose a subscription plan and subscribe to a book.

The book would be available to read once the user subscribes to the book.

### 5.3.3 Functional Requirements

**REQ-1:** Display of book information

**REQ-2:** Display of ratings and reviews by other users

**REQ-3:** Choice of subscription plans (according to the book)

**REQ-4:** To subscribe to a book using one of the subscription plans, and upon success, the book is made available to the user for reading.

## 5.4 Billing

### 5.4.1 Description and Priority

Based on the subscription plan chosen for the book, the user has to pay the specified amount for the plan. This can be done by the various available payment options.

Priority: High

### 5.4.2 Stimulus/Response Sequences

Display of Subscription Plan with the Amount to be paid and validity of the plan.

Selection of a Payment option.

Checkout Page.

### 5.4.3 Functional Requirements

**REQ-1:** Subscription Plan Details

**REQ-2:** Payment Options

## **5.5 Reading the Book and Customization**

### **5.5.1 Description and Priority**

This feature allows the user to customize their reading environment according to their taste. Modifications can be made to the font size, theme of page(dark/light), etc.

Priority: Low

### **5.5.2 Stimulus/Response Sequences**

Basic Reading Interface - To go to the next page

Contents - Going to specific chapters

Bookmark specific pages of interest

Customization Settings

    Readability - Font size of the book

    Appearance - Dark and Light mode

### **5.5.3 Functional Requirements**

**REQ-1:** The user is allowed to read the book and ‘flip’ through the pages.

**REQ-2:** The user can access the content of the book and choose to go to a specific chapter.

**REQ-3:** The user can bookmark pages to look into later.

**REQ-4:** According to the user’s preference, the book’s readability and appearance can be changed.

## **6. Other Nonfunctional Requirements**

### **6.1 Performance Requirements**

- The performance of the system must be fast and accurate.
- The management system must be able to handle expected and unexpected errors, Eg. Inbuilt error testing to identify invalid username/password.
- The system should be able to handle large amounts of data. It must accommodate a high number of books and users without faults.
- The information is refreshed depending upon whether some updates have occurred or not in the application. The system shall respond to the member in not less than two seconds from the time of the request submittal.
- The system shall be allowed to take more time when doing large processing jobs.

### **6.2 Safety Requirements**

- Maintaining the database is one of the key responsibilities of the proposed E-Book Management System.
- The database may crash at any point of time and reason could be virus or operating system failure. Having a database backup and recovery system is vital.
- Proper UPS / inverter facility should also be there in case of power supply failure.

### **6.3 Security Requirements**

- System uses a secured database with password encryption.
- System will have different types of users and every user has access constraints.
- Proper user authentication should be provided.
- There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

### **6.4 Software Quality Attributes**

- Admins will have the right to create changes to the system, but the members or other users cannot do changes.
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database.
- The user is able to easily download and install the system, and they can access it on the web too.

### **6.5 Business Rules**

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision or infer new data from existing data. This includes the rules and regulations that the application users must abide by. May also include the cost and the discount prices offered. Neither the user nor the admin should involve in illegal activities by crossing the rules.

## **7. Other Requirements**

The addition requirements include:

- Licensing costs.
- Patenting costs.
- Well documented legalized business rules.
- Always on server in the data centers.
- High storage and fast access database.

## **Appendix A: Glossary**

1. E-Book – Electronic book - book publication made available in digital form, consisting of text, images, or both, readable on electronic devices.
2. Bookmark – record the address of (a website, file, etc.) to enable quick access in future.
3. Personalization / Customization – the act of designing for individual requirements.
4. Confidentiality – the state of keeping or being kept secret or private.
5. Integrity – the quality of being honest and having strong moral principles.
6. Availability – the quality of being able to be used or obtained.
7. Dependency – the degree to which each program module relies on each one of the other modules.
8. Ubiquitous – existing or being everywhere at the same time.
9. Authentication – Ability of the system to confirm the identity of the user.
10. Stimulus – something that provokes or causes an action or response.
11. Credentials – testimonials or certified documents showing that a person is entitled to credit or has a right to exercise official power
12. Subscription – an arrangement to receive something, typically a publication, regularly by paying in advance.
13. Licensing – a business arrangement in which one company gives another company permission to manufacture its product for a specified payment.
14. Patenting – a form of intellectual property that gives its owner the legal right to exclude others from making, using, or selling an invention for a limited period of years in exchange for publishing an enabling public disclosure of the invention.

## **Appendix B: Field Layouts**

An Excel sheet containing field layouts and properties/attributes and report requirements.

**Sample sheet with the information required to register the user: -**

Field	Length	Data Type	Description	Mandatory
S.No	4	Numeric	Incremental Number for records purpose	Y
Customer Name	50	String	Name of User	Y
E-Mail ID	30	Alphanumeric	Mail ID of user	Y
Unique ID	5	Numeric	Unique Identifier assigned to each user	Y
Mobile No	10	Numeric	Mobile number of user	N
Age	2	Numeric	Age of user	N
Account Username	50	Alphanumeric	Account information	Y

**Sample Report Requirements: -**

Registration Report	Subscription Report
S.No	Unique ID
Customer Name	Subscription Plan
E-Mail ID	List of books currently subscribed to
Unique ID	Amount Payable
Mobile No	Subscription Timeline
Age	Transaction Details
Account Username	Remarks

## Appendix C: Requirement Traceability Matrix

Sl. No	Requirement ID	Brief Description of Requirement	Architecture Reference	Design Reference	Code File Reference	Test Case ID	System Test Case ID
1	REQ#1	Updating details of a book in the system	←		TBD	→	
2	REQ#2	Deleting an existing book in the system	←		TBD	→	
3	REQ#3	Adding a new book to the online catalog	←		TBD	→	