Software Requirements Specification

for

E-Reading Revolution System

Version 1.0 approved

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1. Introduction

1.1 Purpose

The purpose of an E-Reading Revolution System is to provide a digital platform that streamlines and automates various processes involved in managing and operating an online bookstore. The system is designed to enhance the efficiency, accuracy, and overall functionality of the bookstore by leveraging technology

1.2 Product Scope

The E-Reading Revolution System (ERS) is designed to provide a comprehensive solution for managing the operations and transactions of an online bookstore. The scope of the product encompasses the following key features:

1.4.1 Inclusions
1.4.1.1 Inventory Management:
The system will facilitate the efficient management of the bookstore's inventory, including:

Book Addition: The ability to add new books to the inventory, specifying details such as title, author, genre, and quantity available.

Stock Tracking: Real-time tracking of stock levels to prevent over-selling and facilitate timely restocking.

1.4.1.2 Customer Interaction:
The system will enable seamless interactions with customers through:

User Registration: Customers can create accounts to manage their preferences, track orders, and receive personalized recommendations.

Order Placement: Customers can browse the catalog, place orders, and receive order confirmation and shipment updates.

1.4.1.3 Order Management:
Efficient management of customer orders, including:

Order Processing: Systematic processing of customer orders, including order confirmation, packaging, and dispatch.

Order History: Maintaining a comprehensive history of customer orders for reference and analysis.

1.4.1.4 Payment Integration:
Integration with secure payment gateways for:

Payment Processing: Facilitating secure and smooth online transactions for customer orders.
1.4.1.5 Reporting and Analytics:
Providing insights through:

Sales Reports: Generating reports on sales performance, popular genres, and customer preferences.

1.4.3 Constraints
The development and implementation of the OBMS are subject to the following constraints:

Budget Constraints: The project will operate within the allocated budget for development.

Time Constraints: The system is expected to be developed and deployed within the agreed-upon timeframe.

Technology Constraints: The system will adhere to the specified technological stack and infrastructure.

1.3 References

Smith, J. (2023). ModernOnlineBookstore: An Advanced E-commerce Platform for Book Retail. Online Bookstore Publications.
Davis, M. (2021). BookHub Pro: User Manual and Technical Documentation. Retrieved from https://www.bookhubpro.com/documentation

2. Overall Description

2.1 Product Perspective

The E-Reading Revolution System (ERS) is designed as a standalone system that plays a crucial role in the management and operation of an online bookstore. It interacts with various external entities, and its functionality is influenced by both internal and external factors.

1.5.1 System Interfaces
The OBMS will interact with the following external entities:

1.5.1.1 Customer-Facing Interfaces:
Web Interface: Customers will interact with the system through a web-based interface, accessing the online bookstore's catalog, placing orders, and managing their accounts.

Mobile Interface: The system will provide a mobile-friendly interface, allowing customers to access the bookstore's services on various devices.

1.5.1.2 Payment Gateway:
Payment Processing: The OBMS will interface with a secure payment gateway to process customer transactions securely.

Customer Portal: Customers will interact with the system through a user-friendly portal for browsing books, placing orders, and managing their accounts.

1.5.3 Hardware Interfaces
The OBMS will be hosted on standard web servers and will be accessible through common web browsers. No specific hardware interfaces are required beyond standard server and client hardware.

1.5.4 Software Interfaces
The system will rely on the following software components:

Web Browsers: Customer and admin interfaces will be accessible through standard web browsers such as Chrome, Firefox, and Safari.

Payment Gateway Integration: The OBMS will integrate with a chosen payment gateway to facilitate secure online transactions.

1.5.5 Communication Interfaces
Communication between the system components and external entities will occur over standard internet protocols, ensuring secure and reliable data exchange.

1.5.6 Dependencies
The successful operation of the OBMS is dependent on:

Internet Connectivity: The system relies on a stable internet connection for customer interactions, order processing, and data synchronization.

Payment Gateway Availability: Seamless payment processing is contingent on the availability and reliability of the integrated payment gateway.

2.2 Product Functions

The E-Reading Revolution System (ERS) is designed to perform a variety of functions to facilitate the efficient management of an online bookstore. The primary functions include:

2.2.1 Customer Functions
Browse Books:

Allow customers to browse through the catalog of available books.
Provide filtering and search options for easy book discovery.

Customer Management:

Allow administrators to view and manage customer accounts.
Implement functionalities for account suspension or removal if necessary.
Generate Reports:

Generate reports on sales, inventory levels, and other relevant metrics.
Provide insights to support decision-making.
2.2.3 System Management Functions
Security and Authentication:

Implement secure authentication mechanisms for both customers and administrators.
Ensure data privacy and protection against unauthorized access.
Backup and Recovery:

Implement regular data backup procedures to prevent data loss.
Provide mechanisms for data recovery in the event of system failures.
System Configuration:

Allow administrators to configure system settings.
Provide flexibility for adjusting parameters such as shipping costs and tax rates.

2.3 User Classes and Characteristics

The E-Reading Revolution System (ERS) caters to different user classes, each with unique characteristics and roles. The primary user classes are:

2.3.1 Customers
Characteristics:

Customers are individuals who visit the online bookstore to browse, purchase, and manage their orders.
They may register for accounts to facilitate the ordering process and access personalized features.
Customers may have varying levels of technological proficiency, so the user interface should be intuitive.
Roles:

Browsing Books: Customers can browse the catalog, search for specific books, and view detailed book information.

Placing Orders: Customers can add books to their shopping carts, proceed to checkout, and place orders.
Account Management: Registered customers can log in, update personal information, and view order history.
2.3.2 Administrators
Characteristics:

Administrators are individuals responsible for managing the online bookstore's operations and ensuring smooth functionality.
They possess a deeper understanding of the system's features and may have administrative privileges.
Administrators require secure access to sensitive information and system management tools.

2.4 User Documentation

User documentation for the E-Reading Revolution System (ERS) is designed to assist users in understanding and utilizing the system efficiently. The following documents will be provided:

2.6.1 User Manual
The User Manual is a comprehensive guide that provides step-by-step instructions on using various features of the OBMS. It covers:

Registration and Login:

Instructions on creating an account and logging into the system.
Browsing and Searching:

Guidance on searching for books, browsing categories, and filtering options.
Order Placement:

Details on how to place an order, add items to the cart, and complete the checkout process.
User Profile Management:

Instructions for managing user profiles, including updating personal information and viewing order history.
Book Management:

Guidance for authors or publishers on how to add, edit, or remove books from the catalog.
2.6.2 Administrator Guide
The Administrator Guide is tailored for system administrators responsible for managing and maintaining the OBMS. It covers:

System Installation:

Instructions on installing and configuring the OBMS on a server.
User and Role Management:

Details on managing user accounts, roles, and permissions.
Catalog Management:

Guidance on adding, updating, and removing books from the catalog.
Order Processing:

Instructions for handling and processing customer orders.
2.6.3 Troubleshooting Guide
The Troubleshooting Guide provides solutions to common issues that users may encounter while using the OBMS. It includes:

Login Issues:

Solutions for problems related to account login and authentication.

3. External Interface Requirements

3.1 User Interfaces

The User Interfaces of the E-Reading Revolution System (ERS) are designed to provide an intuitive and efficient experience for users. The logical characteristics of these interfaces include:

Sample Screen Images:

The OBMS will include sample screen images showcasing the main user interfaces, including the homepage, book catalog, user account dashboard, and checkout process.
GUI Standards: The graphical user interface (GUI) will follow industry-standard design principles, with a user-friendly layout, consistent navigation, and visually appealing elements.
Screen Layout Constraints: The screen layouts will be designed to ensure responsiveness across various devices, including desktops, tablets, and mobile phones.
Standard Buttons and Functions: Common buttons and functions, such as "Add to Cart," "Proceed to Checkout," and "View Order History," will appear consistently across relevant screens for a seamless user experience.
Error Message Display Standards: Error messages will be displayed clearly and concisely, providing users with actionable information to resolve issues.
Keyboard Shortcuts:

The system may include keyboard shortcuts for efficient navigation, subject to user preferences.

3.2 Hardware Interfaces

The OBMS interfaces with hardware components to ensure optimal performance and compatibility. The characteristics include:

Supported Device Types: The system will support a range of devices, including desktop computers, laptops, tablets, and smartphones.
Data and Control Interactions: Data interactions between the software and hardware components will be managed efficiently, with appropriate control mechanisms in place.
Communication Protocols: Standard communication protocols will be employed to facilitate data exchange between the software and hardware components.

3.3 Software Interfaces

The OBMS interacts with various software components to enhance its functionality. These interfaces include:

Database Systems: The system will interface with a relational database management system (e.g., MySQL, PostgreSQL) to store and retrieve data related to books, users, and orders.
Operating Systems: The OBMS is designed to be platform-independent, compatible with major operating systems such as Windows, macOS, and Linux.
External APIs: Integration with external APIs (e.g., payment gateway APIs, book information providers) will be established to enhance functionality.

3.4 Communications Interfaces

Efficient communication functions are vital for the ERS operation. The communication interface requirements include:

Protocols: Communication protocols such as HTTPS will be utilized to ensure secure data transfer.
Message Formatting: Clear message formatting standards will be maintained for communication within the system and with external entities.
Security and Encryption: Security measures, including encryption, will be implemented to protect sensitive information during communication.
Data Transfer Rates: Data transfer rates will be optimized to provide a responsive and seamless user experience.
Synchronization Mechanisms: Synchronization mechanisms will be in place to ensure consistency and real-time updates across different components.

4. System Features

4.1 User Authentication

4.1.1 Description and Priority
This feature involves user authentication, allowing registered users to log in securely. It is of High priority.

4.1.2 Functional Requirements
REQ-1: The system shall provide a secure login form with fields for username and password.
REQ-2: User passwords shall be stored securely using industry-standard hashing algorithms.
REQ-3: The system shall authenticate users based on entered credentials.
REQ-4: In case of authentication failure, the system shall display an appropriate error message.
REQ-5: Upon successful authentication, the system shall grant access to the user's account.

4.2 Book Catalog

4.2.1 Description and Priority
This feature involves displaying a catalog of books available for purchase. It is of High priority.

4.2.2 Functional Requirements
REQ-1: The system shall maintain an up-to-date catalog of books.
REQ-2: Each book entry in the catalog shall include details such as title, author, price, and availability.
REQ-3: Users shall be able to browse and search the catalog efficiently.
REQ-4: Clicking on a book in the catalog shall display additional details about the selected book.

4.3 Shopping Cart

4.3.1 Description and Priority
This feature involves managing a user's shopping cart for selected items. It is of High priority.

4.3.2 Functional Requirements
REQ-1: The system shall provide a virtual shopping cart to each logged-in user.
REQ-2: Users shall be able to add books to the shopping cart.
REQ-3: The system shall calculate and display the total price in the shopping cart.
REQ-4: Users shall be able to remove items from the shopping cart.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Response Time: The system shall respond to user actions within 2 seconds under normal load conditions.
Concurrent Users: The system shall support at least 1000 concurrent users without significantly degrading performance.
Search Efficiency: Searches in the book catalog shall be completed within 1 second.

5.2 Safety Requirements

Data Integrity: The system shall implement measures to ensure data integrity, preventing loss or corruption of user and transaction data.
Authentication Security: User authentication shall follow industry-standard security practices to prevent unauthorized access.

5.3 Security Requirements

Data Encryption: All sensitive user data, including passwords and personal information, shall be encrypted during transmission and storage.
Access Control: The system shall implement role-based access control, restricting access to certain features based on user roles.
Audit Trail: The system shall maintain an audit trail of user activities for security and accountability.

5.4 Software Quality Attributes

Usability: The user interface shall follow usability best practices, and users shall be able to perform common tasks with minimal training.
Reliability: The system shall have an uptime of at least 99.9% for continuous availability.
Maintainability: The code shall be well-documented, and the system architecture shall allow for easy maintenance and updates.

5.5 Business Rules

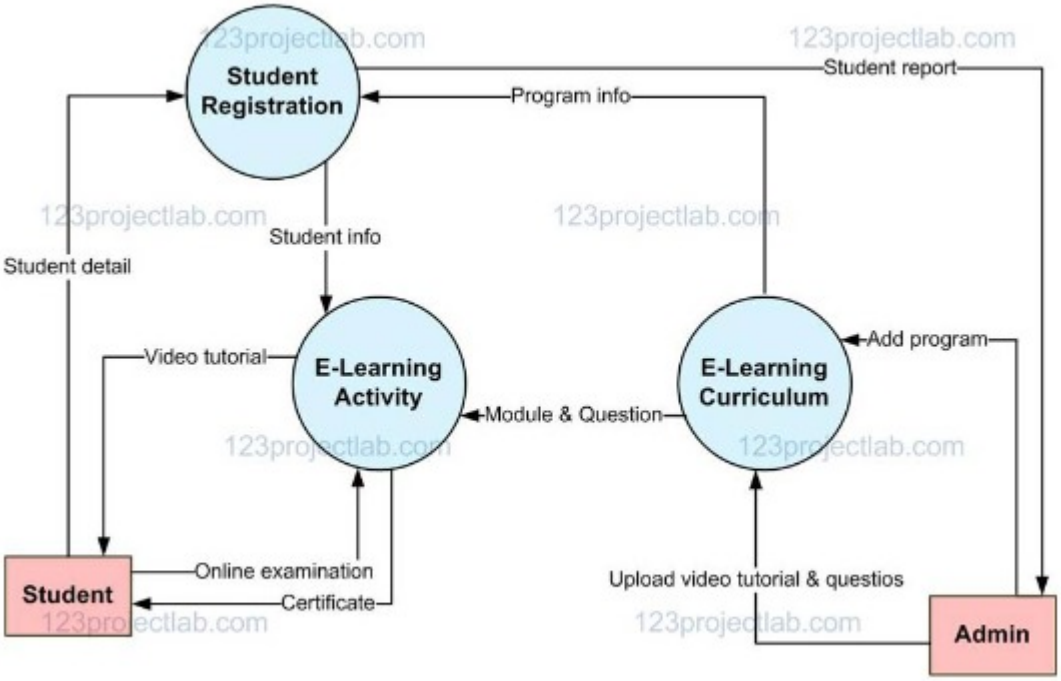
Purchase Limit: To prevent misuse, each user shall be limited to a maximum purchase amount per transaction.

Appendix A: Glossary

Catalog: The collection of books available for purchase.

Shopping Cart: A virtual cart where users can add and manage selected items for purchase.

Appendix B: Analysis Models



Appendix C: To Be Determined List

TBD-1: Clarify the requirements for internationalization support.
TBD-2: Specify legal requirements related to online transactions and user data protection.

For Faculty Use

Correction Parameters	Formative Assessment [40%]	Timely completion of Practical [40%]	Attendance / Learning Attitude [20%]	
Marks Obtained				