SOFTWARE REQUIREMENTS SPECIFICATION

for

BASED: Bookshop And Sales management - Enterprise Development

Version approved

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Table 1: Revision History

Contents

1 Introduction

The Software Requirements Specification (SRS) document provides a comprehensive overview of the Bookshop Inventory and Sales Management System (BASED). It outlines the purpose, scope, and key objectives of the system, along with definitions, acronyms, abbreviations, and references used throughout the document.

The primary aim of this document is to:

- Define the problem statement in detail, addressing the challenges faced by bookshops in managing inventory, sales, and customer interactions.
- Gather, analyze, and document the requirements of the system to ensure that it meets the needs of all stakeholders, including customers, employees, and bookshop owners.
- Provide in-depth information on the system's functionalities, including book queries, inventory management, sales processing, and reporting.
- Highlight the high-level features and capabilities required by stakeholders, ensuring the system aligns with their expectations and business goals.

This document serves as a foundational guide for the development, implementation, and maintenance of the based system. It details the functional and non-functional requirements, system interfaces, and communication protocols, ensuring a clear understanding of the system's design and operation.

1.1 Purpose

The purpose of the document is to collect and analyze all assorted ideas that have come up to define the system, its requirements with respect to consumers. Also, we shall predict and sort out how we hope this product will be used in order to gain a better understanding of the project, outline concepts that may be developed later, and document ideas that are being considered, but may be discarded as the product develops.

In short, the purpose of this SRS document is to provide a detailed overview of our software product, its parameters, and goals. This document describes the project's target audience and its user interface, hardware, and software requirements. It defines how our client, team, and audience view the product and its functionality. Nonetheless, it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

1.2 Scope

Primarily, the scope pertains to the product features for making the Bookshop and Sales Management project live. Focuses on software, stakeholders, and applications that allow for the sale, distribution, and purchase of books.

The standard can be used to create software requirements specifications directly or as a model to define an organization or project-specific standard. It does not identify any specific method, nomenclature, or tool to prepare an SRS.

1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
ISBN	International Standard Book Number
BASED	Bookshop And Sales management - Enterprise Development.
BAS	Bookshop And Sales Management (equivalent to BASED)

Table 2: Definitions, Acronyms, and Abbreviations

1.4 Overview

The remaining sections of this document provide a general description, including characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product. The general description of the project is discussed in section 2 of this document. Section 3 gives the functional requirements, data requirements, constraints, and assumptions made while designing the based. It also gives the user viewpoint of the product. Section 3 also gives the specific requirements of the product. Section 3 also discusses the external interface requirements and gives a detailed description of functional requirements. Section 4 is for supporting information.

2 Overall Description

This Software Requirements Specification (SRS) document outlines the development of the Bookshop Inventory and Sales Management System (BASED), which aims to streamline inventory tracking and sales management for a bookshop. The document begins with a problem statement highlighting the limitations of the current system and its impact on business operations. It then identifies key stakeholders, including customers, salesclerks, managers, and the bookshop owner, along with their specific needs and expectations from the proposed system.

The SRS further details the core functionalities of based, including book availability queries, inventory updates, sales processing, and automated procurement assistance. It describes how based will enable customers to check book availability by title or author, request unavailable books, and receive notifications when new stock arrives. The system

will also assist salesclerks in updating stock levels, generating sales receipts, and maintaining accurate inventory records. Additionally, based will provide managers and the bookshop owner with detailed sales reports and demand forecasting to optimize inventory restocking.

This document presents a comprehensive overview of the product's features, functional and non-functional requirements, system constraints, assumptions, and dependencies. The goal of based is to improve operational efficiency, enhance customer experience, and support data-driven decision-making for bookshop management.

3 Specific Requirements

The specific requirements are:

3.1 Functionality

This subsection outlines the detailed functional requirements for the Bookshop Inventory and Sales Management System. The requirements are derived from the initial vision document and refined using use case and sequence diagrams. Each functionality is traceable via the traceability matrix and is aimed at ensuring efficient inventory management, accurate sales tracking, and seamless customer engagement.

3.1.1 Check Book Availability

1. The system shall allow customers and employees to query book availability.
2. The system shall display real-time status (e.g., in-stock, low-stock, out-of-stock) for each queried book.
3. The system shall enable filtering results by genre, publication date, and format (e.g., paperback, hardcover, digital).

3.1.2 Request Books Not in Stock

1. The system shall enable customers to submit a request for books that are currently out of stock.
2. The system shall capture customer contact details (email/phone) along with the request details.
3. The system shall provide a confirmation message acknowledging receipt of the request.
4. The system shall log the request for future procurement review.

3.1.3 Query Books by Title and/or Author

1. The system shall provide a search interface for entering title, author, or both.
2. The system shall support partial match queries and suggest possible titles or authors as the user types.

3. The system shall display a list of matching books along with key details (e.g., publication year, price, availability).

3.1.4 Display Real-Time Book Availability Updates

1. The system shall automatically update customers regarding changes in book availability.
2. The system shall use emails to alert customers when previously out-of-stock items become available.
3. The system shall include an opt-in mechanism for receiving such updates.

3.1.5 Capture Full Book Details for Future Procurement

1. For books not sold by the shop, the system shall allow customers to enter full details (title, author, publisher, ISBN, etc.).
2. The system shall validate the entered information against standard formats (e.g., ISBN format).
3. The system shall store the submitted details for review by procurement personnel.

3.1.6 Automated Customer Notifications on Book Arrival

1. On receiving new book stock, the system shall cross-reference pending customer requests.
2. The system shall automatically send an email to customers who requested the book.
3. The system shall log emails sent, including time and recipient details.

3.1.7 Process Sales Transactions and Generate Receipts

1. The system shall allow employees to process customer transactions at the point of sale.
2. The system shall generate a detailed receipt displaying the purchased items, pricing, discounts, taxes, and total amount.
3. The system shall offer options for receipt printing and digital copies sent via email.

3.1.8 Update Inventory with New Supplies

1. The system shall allow employees to update inventory details upon receipt of new supplies.
2. The system shall provide forms for entering batch numbers, quantities, and supplier details.
3. The system shall automatically adjust current stock levels based on the new entries.

3.1.9 View Sales Statistics and Trends

1. The system owner shall be able to view sales statistics, including daily, weekly, and monthly trends.
2. The system shall present statistics in both tabular and graphical formats.
3. The system shall allow filtering by book category and time period.

3.1.10 Daily Book Procurement Details

1. The system shall generate and send a daily report to the owner with details of all book procurement requests and acquisitions.
2. The system shall include procurement status in the report.

3.1.11 Generate On-Demand Sales Reports

1. Upon request, the system shall generate comprehensive sales reports.
2. The system shall allow selection of parameters such as date range, category, and payment method.
3. The system shall provide export options (PDF, CSV) for further analysis.

3.1.12 Update Inventory Stock Upon New Stock Arrival

1. The system shall prompt employees to update inventory levels when new stock is received.
2. The system shall verify and validate updated stock numbers against purchase orders.
3. The system shall notify the owner once the stock update is completed.

3.1.13 Calculate Inventory Based on Sales Trends and Analysis

1. The system shall analyze historical sales data to predict inventory requirements.
2. The system shall provide recommendations for reordering based on forecasted trends.
3. The system shall generate alerts for books that require urgent restocking.

3.1.14 Print Daily Reports for Low-Stock Books

1. The system shall automatically identify books with stock levels below a pre-defined threshold.
2. The system shall generate a daily report listing all low-stock books.
3. The system shall allow printing of the report for review by the management team.

3.1.15 Maintain Book Prices and Details

1. The system shall allow employees to update and maintain book prices along with other relevant details (e.g., discounts, special offers).
2. The system shall log changes made to book details, including timestamp and user details for audit purposes.

3.2 Usability

3.2.1 Graphical User Interface

- The system shall provide a uniform look and feel between all the web pages.
- The system shall provide a digital image for each product in the product catalog.
- The system shall provide use of icons and toolbars.

3.2.2 Accessibility

- The system shall provide handicap access.
- The system shall provide multi-language support.

3.2.3 Reliability & Availability

The system shall ensure high reliability and availability to meet the operational needs of the bookshop. Key requirements include:

- The system shall be available 24/7, allowing customers to check book availability and place requests at any time.
- Real-time synchronisation of stock levels shall be maintained to ensure accurate inventory updates across all interfaces.
- The system shall handle failures gracefully, automatically recovering without manual intervention.
- Automated backup mechanisms shall ensure data integrity.
- Continuous performance monitoring shall log issues and generate alerts for anomalies or potential failures.

3.3 Performance

- The product shall be based on the web and has to be run from a web server.
- The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is run.

3.4 Security

3.4.1 Data Transfer

- The system shall use secure sockets in all transactions involving confidential customer information.
- The system shall automatically log out all users, including customers and employees, after a period of inactivity.
- The system shall confirm all transactions related to book purchases, inventory updates, and procurement requests with the user's web browser.
- The system shall not store any cookies containing a user's password on the customer's or employee's computer.
- The system shall not store any cookies containing any confidential information related to customers, sales, or inventory.

3.4.2 Data Storage

- The customer's web browser shall never display a customer's password. It shall always be echoed with special characters representing typed characters.
- The customer's web browser shall never display a customer's credit card number after retrieving from the databases. It shall always be shown with just the last 4 digits of the credit card number.
- The system's back-end servers shall never display a customer's password. The customer's password may be reset but never shown.
- The system's back-end servers shall only be accessible to authenticated administrators.
- The system's back-end databases shall be encrypted.
- Role-based access control.
- Secure data storage and encrypted transactions.

3.5 Supportability

3.5.1 Configuration Management Tool

The source code developed for this system shall be maintained in a configuration management tool (e.g., Git) to ensure version control, collaboration, and traceability of changes.

3.6 Design Constraints

3.6.1 Standard Development Tools

The system shall be built using a standard web page development tool that conforms to either IBM's CUA standards or Microsoft's GUI standards.

3.6.2 Web based Product

- There are no memory requirements.
- The computers must be equipped with web browsers such as Mozilla Firefox.
- The product must be stored in such a way that allows the client easy access to it.
- Response time for loading the product should take no longer than five minutes.
- A general knowledge of basic computer skills is required to use the product.

3.7 On-line User Documentation and Help System Requirements

As the product is based, On-line help system becomes a critical component of the system which shall provide:

- It shall provide specific guidelines to a user for using the based system and within the system.
- To implement online user help, link and search fields shall be provided.

3.8 Purchased Components

Not Applicable.

3.9 User Interfaces

There are many types of interfaces as such supported by the based software system namely; User Interface, Software Interface, and Hardware Interface.

The protocol used shall be HTTPS. The Port number used will be 8080. There shall be a logical address of the system in IPv4 format.

3.9.1 Customer Search Page

The system shall provide a **Customer Search Page** that allows customers to search for books using the following criteria:

- **Search by Title**: Customers can search for books by entering the title.
- **Search by Author**: Customers can search for books by entering the author's name.

For each book displayed in the search results, the system shall show the following details:

- **Availability Status**: Indicates whether the book is in stock or out of stock.
- **Rack Location**: Specifies the physical location of the book within the bookstore.
- **Price Details**: Displays the price of the book.

If a book is out of stock, the system shall provide an option for customers to submit their details (e.g., name, contact information) for future procurement. The system shall store these details and notify the customer when the book becomes available.

3.9.2 Sales Entry Module

The system shall include a **Sales Entry Module** to enable salesclerks to process book purchases. The module shall perform the following functions:

- **ISBN Entry**: Salesclerks can enter the ISBN number of the book being purchased.
- **Stock Verification**: The system shall verify the availability of the book in the inventory.
- **Inventory Update**: If the book is in stock, the system shall automatically update the inventory levels to reflect the sale.
- **Receipt Generation**: The system shall generate a receipt for the customer, including details such as the book title, price, quantity, and total amount paid.

If the book is out of stock, the system shall notify the salesclerk and provide an option to inform the customer about the unavailability.

3.9.3 Inventory Update Dashboard

The system shall provide an **Inventory Update Dashboard** for employees to manage book stock. The dashboard shall include the following functionality:

- **Add New Stock**: Employees can add new stock upon the arrival of books by entering details such as ISBN, title, author, quantity, and rack location.
- **Inventory Update**: The system shall automatically update inventory levels to reflect the newly added stock.
- **Demand Tracking**: The system shall track demand trends for each book based on past sales data and display this information to employees for better stock management.

3.9.4 Sales Report Generation Module

The system shall include a **Sales Report Generation Module** to provide bookshop owners with detailed insights into business performance. The module shall perform the following functions:

- **Sales Reports**: Generate reports that include:
  - Total copies sold for each book.
  - Total revenue earned.
  - Demand trends for each book.
- **Custom Date Ranges**: Allow owners to generate reports based on custom date ranges (e.g., daily, weekly, monthly, or yearly).
- **Export Options**: Provide options to export reports in formats such as PDF or Excel for further analysis.

The module shall help owners assess business performance, identify popular books, and make informed decisions about inventory and sales strategies.

3.10 Software Interfaces

The system shall communicate with the following external and internal systems to ensure seamless functionality and integration:

- **Inventory Management System**:
  - The system shall track book stock levels in real-time.
  - It shall update inventory quantities automatically upon sales or new stock arrivals.
- **Order Processing System**:
  - The system shall manage sales transactions, including book purchases and returns.
  - It shall generate purchase records for each transaction, including details such as book title, quantity, price, and customer information.
- **Notification System**:
  - The system shall send email updates to customers regarding book availability, procurement status, and order confirmations.
  - It shall notify customers automatically when requested books are back in stock.
- **Sales Report System**:
  - The system shall generate financial and inventory reports, including details such as total revenue, copies sold, and demand trends.
  - Reports shall be customizable based on date ranges (e.g., daily, weekly, monthly).
- **Customer Management System**:
  - The system shall maintain customer details, including name, contact information, and purchase history.
  - It shall provide personalized recommendations based on past purchases.
- **Book Procurement System**:
  - The system shall track book requests from customers and generate procurement orders for suppliers.
  - It shall manage supplier interactions, including order confirmations and delivery schedules.
- **Payment Gateway**:
  - The system shall validate payments securely during online transactions.
  - It shall support multiple payment methods, including credit/debit cards and digital wallets.
- **Tax Calculation System**:

  - The system shall compute applicable taxes on book purchases based on regional tax laws.
  - It shall display the total amount, including taxes, during the checkout process.

- **Third-Party Verification System**:
  - The system shall ensure secure transactions by integrating with a third-party verification system.
  - It shall validate customer and payment details to prevent fraud and unauthorized access.

3.11 Communications Interfaces

The system shall utilize the following communication protocols and interfaces for secure and efficient data exchange:

- **HTTPS Protocol**:
  - The system shall use HTTPS for secure communication during all transactions, including book purchases, inventory updates, and customer notifications.
  - It shall ensure encrypted data transfer to protect sensitive customer and financial information.

4 Supporting Information

The following supporting materials are provided for reference:

4.1 Communications Interfaces

The system shall utilize the following communication protocols and interfaces for seamless interaction between its components and external systems:

- **HTTP/HTTPS Protocol**: For secure communication over the Internet, ensure encrypted data transfer for customer queries, sales transactions, and procurement requests.
- **TCP/IP Protocol Suite**: For intranet communication between internal system components, such as the front-end, back-end, and databases servers, to ensure reliable and efficient data exchange.
- **RESTful APIs**: Standardised communication between the front-end and back-end services, enabling functionalities such as book queries, inventory updates, and sales processing.
- **WebSocket Protocol**: For real-time notifications, such as stock updates and procurement alerts, to enhance user experience and system responsiveness.

4.2 Library and Framework Requirements

The system shall utilize the following software interfaces and frameworks for development and functionality:

- **Spring Boot Framework**: For backend development.
- **Spring Data JPA**: For databases interactions.
- **Spring Security**: For user authentication and access control.
- **Spring Mail**: For email notifications.
- **Hibernate ORM**: For databases management.
- **RESTful APIs**: For communication between services.
- **Spring Events**: For handling stock updates and book requests.
- **Thymeleaf / React.js**: For frontend UI development.
- **PostgreSQL/MySQL**: For the databases management system.

4.3 Licensing Requirements

Not Applicable at present.

4.4 Legal, Copyright, and Other Notices

None as of now.

4.5 Applicable Standards

It shall be as per the industry standard.

5 Other Information

- Library System within SNU.
- Markdown brainstorming map in Obsidian.