

Bookshop Management System
Vision

Version 1.0

Bookshop Management System	Version: 1.0
Vision	Date: 25/05/2025
BMS-VISION-2025-05-25	

Revision History

Date	Version	Description	Author
25/05/2025	1.0	First version has the minimal features fully functional: CRUD, user & role support, forgot password & order services.	Grad Laurentiu-Calin

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Vision

1. Introduction

This Vision document outlines the foundational aspects of the *Bookshop Management System* project. It serves as a reference point for all stakeholders by defining the purpose, goals, and high-level features of the system. The document aims to provide clarity on the system's intended functionality, its users, and the underlying motivations behind its development.

1.1 Purpose

The purpose of this document is to collect, analyze, and define the high-level needs and features of the **Bookshop Management System**. It focuses on the capabilities required by stakeholders and end users and explains why these needs exist. The technical and functional specifications on how the system fulfills these requirements are elaborated in subsequent use-case and supplementary specification documents.

1.2 Scope

The Bookshop Management System is a full-stack web application that simulates the core operations of an online bookstore. The system allows users to manage books, authors, and publishers, while also supporting user registration, authentication, and role-based access. It also includes extended functionalities such as:

- Book browsing and purchasing
- Order history tracking
- Automated email confirmations upon order placement
- Two-step password recovery over email
- JWT-based authentication for secure session management

The project is implemented using **Java Spring Boot** for the backend, **React with Vite** for the frontend, and **PostgreSQL** for persistent data storage. Security, modular architecture, and validation are key non-functional requirements.

1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
JWT	JSON Web Token
DTO	Data Transfer Object
ORM	Object-Relational Mapping
DI	Dependency Injection
BMS	Bookshop Management System

Table 1. Glossary of terms

1.4 References

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1.5 Overview

This subsection outlines the structure and organization of the Vision document. It is intended to guide readers through the contents and help them understand the document's layout.

The Vision document is structured as follows:

- **Section 1 – Introduction:** Presents the purpose, scope, definitions, references, and an overview of the Vision document itself.
- **Section 2 – Positioning:** explains where the system fits in the market or within a broader software ecosystem. It highlights the problem the system solves, the users it targets, and how it compares to or improves existing solutions.
- **Section 3 – Stakeholders and User Descriptions:** Provides a detailed listing of the system's functional and non-functional requirements, including core features like user management, book operations, order handling, and security aspects.
- **Section 4 – Product requirements:** Presents the main features of the system in terms of use cases and high-level functionalities.

2. Positioning

2.1 Problem Statement

The problem of	inefficient and outdated methods for managing book inventory, user interactions, and purchase workflows in small to medium-sized bookstores
affects	bookstore staff, administrators, and customers who require an efficient, secure, and user-friendly platform to manage or access book-related data
the impact of which is	slower operations, poor user experience, data inconsistency, and increased risk of errors in order management or inventory tracking
a successful solution would be	a full-stack, web-based system that enables easy management of books, authors, publishers, secure authentication, order tracking, and purchase history for users

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2.2 Product Position Statement

For	small to medium-sized bookstores and users looking for a digital platform to buy and manage books
Who	need an intuitive, secure, and maintainable system to handle book inventory, user registration, and order workflows
The (product name)	Bookshop Management System is a bookstore management application
That	enables administrators to manage catalog entries and users, while allowing customers to browse books, make purchases, and view order history
Unlike	generic content management systems or overly complex ERP solutions
Our product	is focused on simplicity, domain-specific features (e.g. ISBN validation, stock control), and enhanced security (e.g. JWT, 2-step reset)

3. Stakeholder and User Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Project Sponsor	University professor or evaluator overseeing the academic project	Approves the overall direction and goals of the system; evaluates the final outcome; ensures educational objectives are met
System Administrator	Technical staff or developer responsible for deployment and maintenance	Ensures the system is deployable, secure, and maintainable; sets up backend services and manages server infrastructure
Security Auditor	Person responsible for reviewing authentication and data safety mechanisms	Verifies implementation of strong password policies, proper JWT use, secure password reset flows, and overall adherence to security best practices
Legal/Compliance	Stakeholder concerned with data privacy and software licensing	Ensures the system complies with data protection regulations (e.g. GDPR); ensures legal use of third-party libraries and frameworks
Business Advisor	Individual knowledgeable about bookstore operations or e-commerce platforms	Ensures the system addresses real-world bookstore workflows, market needs, and usability expectations
Academic Review Board	Faculty or curriculum committee involved in reviewing capstone projects	Monitors project progress, ensures documentation and deliverables are academically rigorous and submitted according to schedule

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3.2 User Summary

Name	Description	Responsibilities	Stakeholder
Admin User	A privileged user responsible for managing the system	Manage user accounts (CRUD) Access all resources Monitor and ensure correct use of the platform	System Administrator
Privileged User	A privileged user that can manage some parts of the system	Manage authors, books, and publishers (CRUD)	Employee
Registered Customer	A visitor who has not created an account	Register as a user	General Public

3.3 User Environment

The target users of the bookstore management system primarily include bookstore administrators, employees, and customers. The working environment varies depending on the user role and their interactions with the system.

Number of People Involved in Completing the Task

- The number of users varies depending on the bookstore size. Typically, multiple employees and administrators interact with the system simultaneously to manage book inventories, authors, publishers, and customer transactions.
- Customers can also access the system to browse books, place orders, and manage their accounts.
- As the bookstore grows, the number of users interacting with the system is likely to increase, requiring scalability considerations.

Task Cycle & Duration

- **Administrators & Employees:** Routine tasks include updating book stock, managing author and publisher records, and handling customer data. These tasks may range from minutes (simple updates) to hours (bulk data entry or complex queries).
- **Customers:** Browsing books, placing orders, and managing accounts, typically lasting a few minutes per session.
- The task cycle depends on the business size and may evolve with expanding operations or seasonal trends.

Unique Environmental Constraints

- **Integration with External Services:** The system may require connectivity with payment gateways, email servers for password recovery, and book databases for external catalog synchronization.
- **Multi-user Concurrency:** Given that different users interact with the system simultaneously, concurrency control must be handled efficiently to prevent conflicts.

System Platforms

- **Current Platforms:** The system is built using **PostgreSQL** for database management,

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Java & SpringBoot for backend processing, and **React & Vite** for frontend development.

- **Future Platforms:** Depending on scalability requirements, cloud-based solutions such as AWS may be considered for deployment.
- **Other Applications & Integrations**
- The system needs to integrate with **authentication mechanisms** (JWT), **email services** (for password recovery), and potentially **external book APIs** to enhance the bookstore's functionality.

4. Product Requirements

Applicable Standards

- **Security Standards:** Implementation of JWT authentication and secure password storage using encryption techniques.
- **Data Handling Standards:** Compliance with ACID (Atomicity, Consistency, Isolation, Durability) properties in database transactions for reliable operations.
- **Web Standards:** Usage of HTML5, CSS3, ECMAScript (JavaScript/React), RESTful APIs, adhering to industry best practices.
- **Software Development Standards:** Implementation of SOLID principles, Object-Oriented Programming (OOP), and Design Patterns for maintainability and scalability.

Hardware & Platform Requirements

- **Server Requirements:** Minimum Quad-Core CPU, 8GB RAM, and SSD storage for efficient backend performance.
- **Database Hosting:** PostgreSQL hosted on local servers or cloud platforms (AWS RDS, Azure, Google Cloud).
- **Frontend Execution:** Optimized for modern web browsers (Chrome, Edge, Firefox, Safari) and responsive across desktop & mobile devices.
- **Development & Deployment:** Compatible with Windows, and macOS.

Performance Requirements

- **Database Performance:** Queries must execute within milliseconds to seconds, optimized through indexing and ORM techniques.
- **System Responsiveness:** Frontend operations should respond within <2s for user actions to provide a seamless experience.
- **Concurrency Handling:** The system should support multiple simultaneous user interactions without performance degradation.
- **Scalability:** Designed to scale horizontally through cloud deployment or vertical optimization for larger bookstores.

Environmental Requirements

- **User Accessibility:** Designed for indoor use, primarily accessed via desktop or mobile.
- **Network Dependency:** Requires stable internet connection for cloud-hosted solutions but supports offline operations for local hosting.
- **Integration Capabilities:** Compatible with third-party APIs for payment processing, email notifications, and external book databases.

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- Security Measures: Protection against SQL injection, CSRF, XSS vulnerabilities through validation and secure authentication.