

## **Enterprise Systems: Concept and Practice Documentation**

### **LibMS: Bestlink College of the Philippines Library Management System**

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## Abstract

This research focuses on the development and implementation of **Bestlink College of the Philippines' Library Management System (LibMS)** to enhance the efficiency of library operations. The primary objective is to streamline book borrowing, returning, cataloging, and user management through a digital system.

The study follows the Software Development Life Cycle (SDLC) approach, incorporating requirement analysis, system design, development, testing, and deployment. Data collection methods include interviews with librarians, surveys from students, and system performance evaluations to assess the effectiveness of the **LibMS**.

Key findings indicate that the **BCP LibMS** significantly reduces manual workload, minimizes errors in book tracking, and improves accessibility for users through a centralized digital database. The system enhances user experience by automating processes such as book reservations, overdue notifications, and inventory management.

In conclusion, the BCP Library Management System offers a more efficient, user-friendly, and scalable solution for managing library resources. Its implementation improves operational efficiency, ensures accurate record-keeping, and enhances the overall library experience. Future research could explore AI-driven book recommendations, mobile app integration, and cloud-based library systems to further optimize library management.

## Table of Content

<b>Abstract .....</b>	<b>2</b>
<b>Chapter 1: Introduction .....</b>	<b>4</b>
1.1 Purpose .....	4
1.2 Scope .....	4
1.3 Objectives .....	5
1.4 Stakeholders .....	5
<b>Chapter 2: System Overview .....</b>	<b>7</b>
2.1 System Name .....	7
2.2 System Description .....	7
2.3 Key Features .....	7
2.4 Technology Stack .....	8
2.5 Assumptions and Constraints .....	8

## Chapter 1: Introduction

### 1.1 Purpose

This document outlines the development and implementation of the **BCP Library Management System (LibMS)**, designed to enhance the efficiency, security, and accessibility of library operations. The system aims to streamline book cataloging, borrowing, returning, and user management through a centralized digital platform.

By digitizing manual library operations, the **LibMS** ensures accuracy, accessibility, and security in handling library resources. It also minimizes errors in record-keeping and improves the overall user experience. The system includes automated tracking, overdue notifications, and an advanced search feature, allowing users to efficiently locate books and manage their accounts.

Furthermore, this document serves as a guideline for auditing and controlling the **LibMS** to ensure compliance with institutional policies, data security standards, and operational efficiency. It provides detailed procedures for system maintenance, user access management, and data integrity checks to uphold the reliability and effectiveness of the system.

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### 1.2 Scope

The **BCP Library Management System (LibMS)** is designed to automate and optimize library operations, ensuring efficiency, accuracy, and security in managing library resources. The system covers the following key areas:

- **Library Operations** – Automation of book borrowing, returning, cataloging, and inventory management.
- **User Management** – Secure registration, authentication, and role-based access control for students, faculty, and library staff.
- **Data Management** – Centralized database for storing book records, user activity logs, and transaction history.
- **Security Controls** – Implementation of authentication, encryption, and access restrictions to protect sensitive data.
- **Compliance** – Adherence to institutional policies and regulatory standards for data privacy and system integrity.

The scope of this audit includes evaluating the IT infrastructure, application system performance, database security, and compliance with regulatory requirements. It ensures that the **LibMS** functions efficiently, maintains data integrity, and meets user needs while preventing unauthorized access or misuse.

### 1.3 Objectives

The primary objectives of the **BCP Library Management System (LibMS)** are as follows:

- To enhance system security and integrity – Ensure that **LibMS** is protected against unauthorized access, data breaches, and cyber threats through secure authentication, encryption, and access control mechanisms.
- To assess compliance with industry standards and regulations – Align the system with educational and data protection policies, ensuring compliance with relevant IT security frameworks and library management best practices.
- To identify potential risks and vulnerabilities – Conduct regular system audits and security assessments to detect weaknesses in the database, application, and network infrastructure, mitigating potential threats before they impact operations.
- To improve IT governance and control mechanisms – Implement effective monitoring, logging, and administrative controls to maintain efficiency, transparency, and reliability of the system.
- To provide an easy and reliable library system – Develop a user-friendly platform that simplifies book search, borrowing, and returns, ensuring a seamless experience for all users.
- To offer a convenient system for students and professors – Enable quick access to library resources, allowing students and faculty to efficiently browse, reserve, and manage books without unnecessary delays.

By achieving these objectives, the **BCP LibMS** will provide a secure, efficient, and user-friendly platform that enhances library services while ensuring data protection, regulatory compliance, and system stability.

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### 1.4 Stakeholders

The success of the **BCP Library Management System (LibMS)** relies on the collaboration of key stakeholders responsible for ensuring its functionality, security, efficiency, and compliance. The primary stakeholders include:

- **Faculty** – Uses the system to access, borrow, and reserve academic resources.
- **Students** – The primary users of **LibMS**, utilizing the system for book search, borrowing, and returning.
- **Librarians** – Manages book cataloging, user accounts, and transactions.
- **Registrar's Office** – Ensures student records are synchronized for borrowing privileges.
- **IT Department** – Manages system infrastructure, maintenance, and security.
- **IT Developers** – Develops, updates, and enhances **LibMS**.

- **School Administration** – Oversees the implementation and development of the system.
- **External Auditors** – Conducts system evaluations for compliance and efficiency.

## **Chapter 2: System Overview**

### **2.1 System Name**

#### **Bestlink College of the Philippines Library Management System (LibMS)**

### **2.2 System Description**

The **BCP Library Management System (LibMS)** is designed to automate and optimize library operations at Bestlink College of the Philippines. The system enhances efficiency in book cataloging, borrowing, returning, and user account management. By centralizing data storage, it ensures improved tracking of library resources and enhances the overall user experience.

LibMS incorporates automated features for book reservations, overdue notifications, and inventory management. This digital solution reduces manual workload, minimizes errors, and improves data accuracy. Additionally, the system employs a secure user authentication mechanism, enforcing role-based access control for students, faculty, and librarians. This ensures enhanced security and compliance with institutional policies.

### **2.3 Key Features**

- **Automated Book Management**

- Facilitates seamless cataloging, borrowing, and returning of books to enhance operational efficiency.

- **User Authentication and Role-Based Access Control**

- Implements a secure authentication system with distinct access levels for students, faculty, and staff, ensuring data protection and compliance.

- **Digital Inventory Management**

- Monitors book availability and borrowing status in real-time, reducing errors and improving resource tracking.

- **Overdue Notification System**

- Sends automated alerts to users regarding overdue books, encouraging timely returns and minimizing penalties.

- **Advanced Search Functionality**

- Provides an efficient and intuitive search system for locating books and digital resources based on various criteria such as title, author, and subject.

- **User Activity Logs**

-Records user transactions, borrowing history, and overdue instances to enhance accountability and facilitate audit processes.

- **E-Book and Digital Resource Integration**

- Supports access to electronic books, research papers, and other digital materials, expanding the library's offerings beyond physical books.

- **Self-Service Kiosk Support**

- Enables students and faculty to check out and return books independently through a self-service kiosk, improving convenience and reducing librarian workload.

## **2.4 Technology Stack**

- Frontend: HTML5, CSS3, JavaScript for responsive and user-friendly interfaces.
- Backend: PHP / Laravel framework for robust system functionality.
- Database: MySQL for secure and structured data storage.
- Infrastructure: Local server setup for on-premises data management with potential for cloud migration.
- Security: Implemented through encryption, password hashing, and role-based permissions.

## **2.5 Assumptions and Constraints**

- The system is designed for deployment within the **Bestlink College of the Philippines (BCP)** campus network, with provisions for future cloud integration to enhance scalability and accessibility.
- User roles are strictly defined to ensure security and proper access control. The system categorizes users into four distinct roles: **students, faculty, librarians, and administrators**, each with specific permissions and responsibilities.
- The system is engineered to support a **high volume of concurrent users**, particularly during peak periods such as **enrollment and examinations**, ensuring optimal performance and minimal disruptions.