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Mô tả được tạo tự động

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**Ho Chi Minh city, 6/2023**

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| --- |
| BOOKSTORE MANAGEMENT SYSTEM |
| Software Requirement Specification |
| v1/2 |

**Record of change**

**\*A - Added M - Modified D – Deleted**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Effective Date** | **Changed Items** | **A\* M, D** | **Change Description** | **New Version** |
| **05/05/23** |  | **A** |  | **v1/1** |
| **30/05/23** |  | **A,M** | **Add more detailed information about the system**  **Modify some use-case of the system** | **v1/2** |
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**LECTURER’S COMMENTS**

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# INTRODUCTION

## Purpose

The purpose of this Software Requirements Specification (SRS) document is to provide a complete and comprehensive description of the requirements for the development of the Bookstore Management System. It aims to fully describe the external behavior of the application or subsystem, capturing both functional and nonfunctional requirements. Additionally, the SRS outlines design constraints, as well as other factors necessary for a thorough understanding of the system's requirements.

By documenting the requirements in this SRS, it serves as a reference for all stakeholders involved in the development, including project managers, developers, testers, and clients. The SRS document ensures a clear and shared understanding of the desired external behavior of the Bookstore Management System, facilitating effective communication and collaboration throughout the software development life cycle.

In summary, the purpose of this SRS document is to provide a comprehensive and detailed description of the requirements, ensuring that the Bookstore Management System meets the needs and expectations of the bookstore business by describing its functionality, performance, constraints, and other crucial factors..

## Scope

The current challenges faced by bookstores, such as limited book information availability, complex book rental and purchase management, and lack of real-time data on sales and customer debt, can be addressed through the implementation of a web-based management system. This system provides a centralized platform for efficient management of book rentals, purchases, supplier relationships, and customer information. Additionally, it offers real-time access to book availability and promotions, enhancing the customer experience. By streamlining operations, improving data accuracy, and providing a better overall experience, bookstores can improve their performance and profitability with the implementation of a web-based management system.

This System is built for Businesses or Stores that need an IT-solution for managing their companies in the field of selling and lending books. It focuses on the managers, the employees and support team, which allow the to manage the information of employees, customers, books, suppliers, discount codes, book purchase, book Rent; make statistics from sales data, report the inventory and customer’s debt monthly; support the users and customers

Because of limitations about time, human, our teams focus to some main features such as:

* + - * Manage customer
      * Manage user
      * Manage supplier
      * Manage Book
      * Manage Book Rent
      * Manage Book purchase
      * Manage discount code
      * Statistics
      * Manage regulation

A detailed description about the survey of current business process is available in the ***Vision and Scope Document for Bookstore Management System***, along with the features that are scheduled for full or partial implementation in this release.

## Definitions, Acronyms, and Abbreviations

* HTML: Hyper Text Transfer Protocol
* PHP: Hyper Text Preprocessor
* GUI: Graphical User Interface
* AS: Assumption
* DE: Dependency
* CO: Constraints
* OE: Operating Environment

## References

|  |  |
| --- | --- |
| [1] | FPT Software, "Software\_Requirements\_Specification\_Template". |

This document is mainly wrote follow with these documents

|  |  |
| --- | --- |
| **Report number** | **Title** |
| RP-0 | Project Introduction |
| RP-1 | Software Requirement Specification *for Bookstore Management System* |
| RP-2 | Software Design Document *for Bookstore Management System* |
| RP-3 | Vision and Scope Document *for Bookstore Management System* |
| RP-4 | Business Rules *for Bookstore Management System* |
| RP-5 | Test Report |
| RP-6 | User Guide |

## Overview

The following paragraphs will briefly summarize chapters mentioned in this document

* **Chapter 1: Introduction**

The first chapter of the report introduces the purpose and scope of the document. It also includes definitions, acronyms, and abbreviations used throughout the report, as well as references for further information. An overview of the report structure is provided to give readers a clear understanding of what to expect.

* **Chapter 2: Overall Description**

This chapter provides a comprehensive description of the project, including its background, objectives, and goals. It highlights the stakeholders involved and any constraints or limitations that may impact the project's scope. This section sets the stage for the subsequent chapters by giving readers a broad understanding of the project context.

* **Chapter 3: Functional Requirements**

In this chapter, the focus shifts to the specific functional requirements of the system. It begins by identifying the actors or users who interact with the system. Then, it describes the various use cases that represent the system's functionality. A use case diagram is included to visualize the relationships between the actors and use cases. Each use case is elaborated with detailed functional requirements, specifying the expected behavior of the system.

* **Chapter 4: Non-Functional Requirements**

This chapter addresses the non-functional requirements of the system, which define its qualities and attributes. It covers aspects such as usability, reliability, performance, supportability, and design constraints. Other considerations include on-line user documentation, purchased components, interfaces, licensing requirements, legal and copyright notices, and applicable standards. These requirements ensure that the system meets the desired criteria beyond its functional capabilities.

* **Chapter 5: Supporting Information**

The final chapter contains any additional supporting information relevant to the requirements outlined in the previous chapters. This may include supplementary documents, references, or any other resources that provide further context or clarification.

By organizing the report into these chapters, readers can easily navigate and understand the purpose, scope, functional and non-functional requirements, as well as any supporting information provided in the document.

# OVERALL DESCRIPTION



## Product Perspective

The Bookstore Management System is a software solution for managing an online bookstore. It will be developed as a standalone application hosted on a dedicated server, with the ability to interface with other software systems. The system will provide features such as inventory management, order processing, customer support, sales reporting,.... It will be developed using modern technologies and designed with a modular architecture for easy integration of new features. The system will focus on scalability, flexibility, and usability to provide a seamless experience for employees and customers.

## User Classes and Characteristics

|  |  |  |
| --- | --- | --- |
| **Index** | **Actors** | **Meaning** |
| 1 | Manager | People can sign in to use all functions of the system |
| 2 | Employee | People can sign in to use limited functions of the system (Create Order, Manage Book, Manage customer,…) |
| 3 | Supporter | People can sign in to use limited functions of the system (Manage user,..) |

## Operating Environment

* 1. Operating system: Window 10 or higher
  2. Web server: Apache HTTP Server
  3. Application server: NodeJS (version 14.17.0)
  4. Database: MySQL
  5. Text Editor: Visual Studio Code

## Design and Implementation constraints

1. The system’s design, code, and maintenance documentation shall conform to the Process Impact Intranet Development Standard, Version 1.3 [2].
2. The system shall use the current corporate standard MySQL database engine.
3. All HTML code shall conform to the HTML 5.0 standard.

## Assumptions and Dependencies

1. It is assumed that bookstore owners have basic computer skills and are familiar with the internet and e-commerce.
2. It is assumed that the system will be hosted on a secure server, and appropriate measures will be taken to ensure the confidentiality and integrity of the data.
3. It is assumed that the system will be accessed using a web browser, and users will have a stable internet connection.
4. It is assumed that the bookstore owners will provide accurate and up-to-date information regarding their inventory, pricing, and financial information.
5. The system will be developed using a combination of programming languages, frameworks, and libraries, including but not limited to HTML, CSS, JavaScript, PHP, and MySQL.
6. The system will depend on third-party services for payment processing and email notifications.
7. The system will require access to a reliable internet connection and a secure server to function correctly.
8. The system will depend on the availability and functionality of the web browsers used to access it, and bookstore owners are responsible for ensuring their browser is up-to-date and compatible with the system.

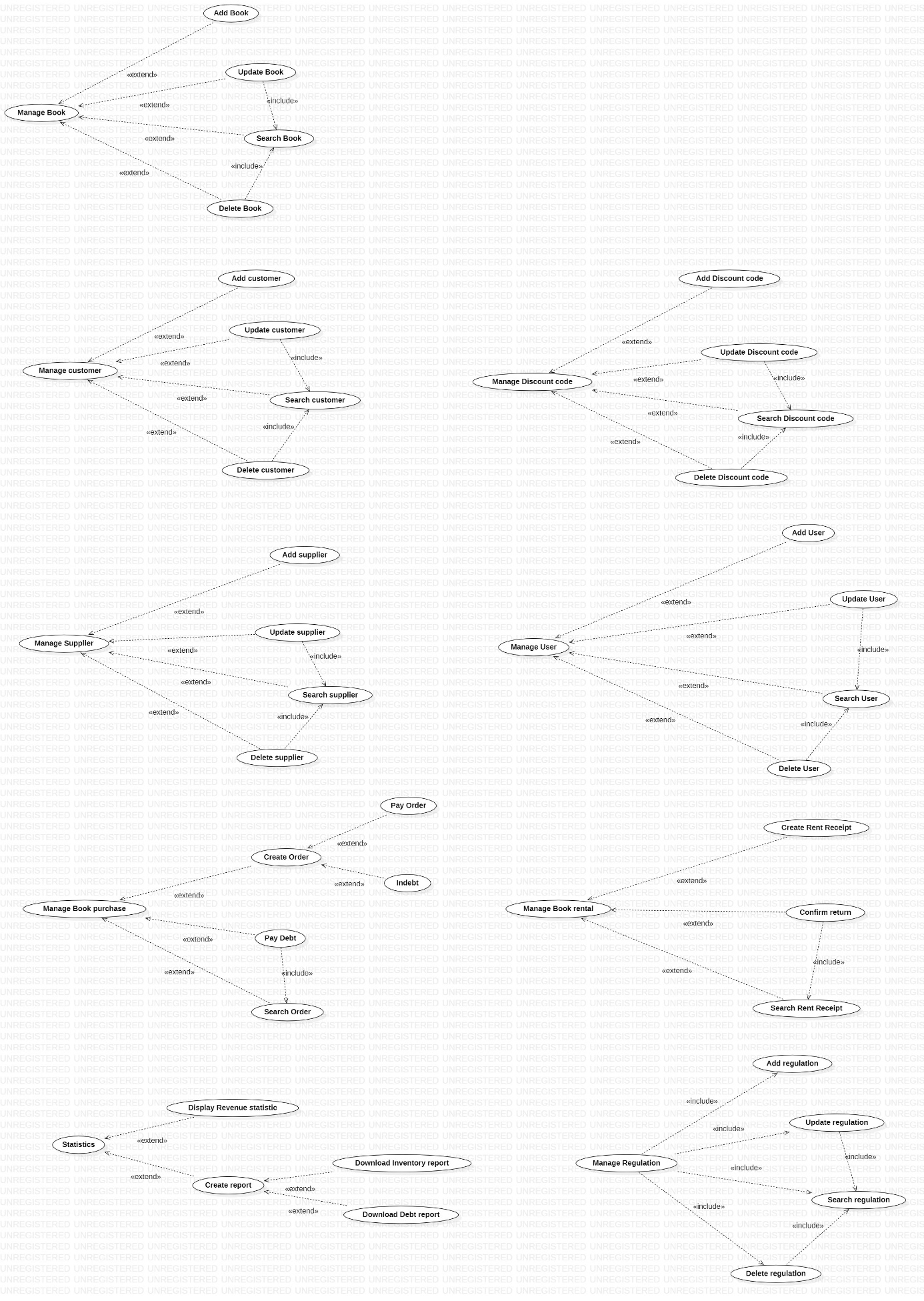
Overall, these assumptions and dependencies are critical to the successful development and operation of the Bookstore Management System. It is essential that all stakeholders understand and accept these assumptions and dependencies before proceeding with the project.

# FUNCTIONAL REQUIREMENTS

1. Ảnh có chứa văn bản, hàng, biểu đồ, Song song

   Mô tả được tạo tự động

## Use-case Diagram



* + 1. List of actors

|  |  |  |
| --- | --- | --- |
| **Index** | **Actors** | **Meaning** |
| 1 | Manager | People can sign in to use all functions of the system |
| 2 | Employee | People can sign in to use limited functions of the system (Create Order, Manage Book, Manage customer,…) |
| 3 | Supporter | People can sign in to use limited functions of the system (Manage user,..) |

* + 1. List of Use-case

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Functional Requirement** | | | **Use-case** | | |
| Authentication function | | | Login | | |
| Authorization levels function | | | Manage User | | |
| Storage & Query functions | | | Manage regulation | | |
| Manage Book | | |
| Manage Book purchase | | |
| Manage Book Rent | | |
| Manage Customer | | |
| Manage Discount code | | |
| Manage Supplier | | |
| Manage User | | |
| Statistical, analysis, reporting functions | | | Statistics | | |
| Automatic functions | | | Manage Book purchase | | |
| Manage Book Rent | | |
| **Role** | **Use-case #** | | **Use-case** | **Meaning** |
| User | UC\_1 | | Login | Users have to login to perform their the role |
| Manager | UC\_2 | | Manage regulation | Add/Delete/Update/Search regulations of the system |
| Employee/Manager | UC\_3 | | Manage Book | Add/Delete/Update/Search Book |
| UC\_4 | | Manage Book purchase | Create Order, Pay Debt, Search Order |
| UC\_5 | | Manage Book Rent | Create Order, Confirm return, Search Order |
| UC\_6 | | Manage Customer | Add/Delete/Update/Search Customer information |
| UC\_7 | | Manage Discount code | Add/Delete/Update/Search Discount code |
| UC\_8 | | Manage Supplier | Add/Delete/Update/Search Supplier |
| UC\_9 | | Statistics | Visualize the revenue data (Total revenue, new customers, Amount of books sold) and Download report for Inventory and Customer’s Debt |
| Supporter | UC\_10 | | Manage User | Add/Update/Delete/Search User of the system |

## Use-case specification and activity diagram (Activity Diagram)

* + 1. Login
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_1** |
| **Use-case name** | **Login** |
| Description | Users have to login to perform their the role |
| Trigger | User go to Login page |
| Pre-condition | User’s device must connect to Internet  User’s account existed |
| Post-condition | User successfully access to the system and redirect to homepage |
| Basic flow | 1. The system displays Login Page 2. User enters their given username and password 3. The system validate the input username and password are in correct format 4. User click the Login button. 5. System validates User information with existed data in database 6. System stores Login information in database 7. The system displays login successful notification and redirect User to Homepage. |
| Alternative flow | 3a. System displays invalid information due to wrong format  Use-case continue at step 4  5a. System displays invalid information due to data was not correct with the data in database  Use-case continue at step 4 |
| Exception flow |  |
| Business Rules |  |

* + 1. Manage regulation
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_2** |
| **Use-case name** | **Manage regulation** |
| Description | Manager can add/update/delete/search regulation |
| Trigger | Manager clicks to button “Add regulation” at regulation management page  Manager clicks to button |
| Pre-condition | Manager’s device must connect to Internet  Manager’s account existed  Manager’s status is signed-in |
| Post-condition | Regulation successfully updated in database (Add/Delete/Update)  Data at Regulation management page is filter and displayed to Manager |
| Basic flow | 1. System display Regulation management page with data loaded from database 2. Manager chooses one function: Add/Update/Delete/Search Regulation.   **Add Regulation**   1. System displays Regulation information form 2. Manager enters Regulation information and click submit 3. System validates Regulation information is in correct format 4. System validates Regulation information with existed data in database 5. System stores Regulation information in database 6. System displays successful notification and displays Regulation management information   **Update Regulation**   1. Manager chooses one Regulation to be updated. 2. System displays Regulation information page. 3. Manager modifies Regulation information and clicks submit. 4. System validates Regulation in correct format.. 5. System validates Regulation with existed in database. 6. System stores Book information in database. 7. System displays successful notification and displays Regulation management page.   **Delete Regulation**   1. Manager chooses one Regulation to be deleted. 2. System shows confirm dialogue 3. Manager confirms delete request 4. System processes Delete request 5. System validates no external data required Regulation and selected item existed in database 6. System deletes Regulation in the database 7. System updates data at Regulation management page with selected item deleted.   **Search Regulation**   1. Manager selects search function and enters keywords 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at Regulation management page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continue at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continue at step 4  12a: System displays invalid information due to wrong format.  User continue at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow | 18a: Use-case stop because the manager don’t confirm to delete  21a: System displays error notification because external data had required that Regulation or no data existed. Use-case stop  26a: System display empty result notification because there is/are no data existed related to the keywords. Use-case stop |
| Business Rules | BR-6, BR-7 |

* + 1. Manage Book
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_3** |
| **Use-case name** | **Manage Book** |
| Description | Manager/Employee can add/update/delete/search book information |
| Trigger | Manager/Employee clicks to button “Add books” at Book management page  Manager/Employee clicks to button |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | Book information successfully updated in database (Add/Delete/Update)  Data at Book management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System display Book management page with data loaded from database 2. Manager/Employee chooses one function: Add/Update/Delete/Search Book  * **Add Book:**  1. System displays Book information form 2. Manager/Employee enters Book information and click submit 3. System validates book information is in correct format 4. System validates book information with existed data in database 5. System stores book information in database 6. System displays successful notification and displays Book management information  * **Update Book:**  1. Employee chooses one book to be updated. 2. System displays Book information page. 3. Employee modifies Book information and clicks submit. 4. System validates Book information in correct format.. 5. System validates Book information with existed in database. 6. System stores Book information in database. 7. System displays successful notification and displays Book management page.  * **Delete Book:**  1. Manager/Employee chooses one book to be deleted. 2. System shows confirm dialogue 3. Manager/Employee confirms delete request 4. System processes Delete request 5. System validates no external data required Book information and selected item existed in database 6. System deletes Book information in the database 7. System updates data at Book management page with selected item deleted.  * **Search Book**  1. Manager/Employee selects search function and enters keywords 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at Book management page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continues at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continues at step 4  12a: System displays invalid information due to wrong format.  User continues at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow | 18a: Use-case stops because the employee don’t confirm to delete  21a: System displays error notification because external data had required that customer information or no data existed. Use-case stops  26a: System displays empty result notification because there is/are no data existed related to the keywords. Use-case stops |
| Business Rules | BR-1, BR-7, BR-9 |

* + 1. Manage Book purchase
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_4** |
| **Use-case name** | **Manage Book Purchase** |
| Description | Manager/Employee can Create Order, Paid Debt and Search Invoice |
| Trigger | Manager/Employee clicks to menu at “Book Purchase” page |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | Order information successfully updated in database (Create Order)  New customer information successfully updated in database (Create Order)  Debt information successfully updated in database (Paid Debt)  Data at Book purchase management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System display Book purchase management page with data loaded from database 2. Manager/Employee chooses one function: Create Order/Paid debt/Search Invoice   **Create Order**   1. System displays Create order form 2. Manager/Employee enters Phone number of customer 3. System processes Search request 4. System queries data related to phone number 5. System displays found customer notification and displays create order form. 6. Manager/Employee enters Voucher ID 7. System processes Search request 8. System queries data related to Voucher ID 9. Manager/Employee selects books and quantity 10. System displays cost of invoice 11. Manager/Employee choose Paid/Debt service.  * Paid  1. System stores invoice information in database 2. System displays successful notification and displays Book purchase management page  * Debt  1. System stores invoice and receipt information in database 2. System displays successful notification and displays Book purchase management page 3. System display new create order form for add new customer and create invoice 4. Manager/Employee enters customer information 5. System validates customer information is in correct format 6. Manager/Employee enters Voucher ID 7. System processes Search request 8. System queries data related to Voucher ID 9. Manager/Employee selects books and quantity 10. System displays cost of invoice 11. Manager/Employee choose Paid/Debt service  * Paid  1. System stores invoice, customer information in database 2. System displays successful notification and displays Book purchase management page  * Debt  1. System stores invoice, customer and receipt information in database 2. System displays successful notification and displays Book purchase management page   **Paid Debt**   1. Manager/Employee chooses one invoice to be pay debt. 2. System display detail invoice page. 3. Manager/Employee enters paid amount and clicks submit. 4. System validates data in correct format.. 5. System stores receipt information in database. 6. System displays successful notification and displays Book purchase management page   **Search Invoice**   1. Manager/Employee selects search function and enters keywords. 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at Book purchase management page |
| Alternative flow | 6a. System displays empty result notification.  Use-case continue at step 18  10a. System displays empty result notification.  Use-case continue at step 11  20a. System displays invalid information due to wrong format.  Use-case continue at step 19  23a. System displays empty result notification.  Use-case continue at step 24  34a. System displays invalid information due to wrong format.  Use-case continue at step 33  40a. System displays empty result notification.  Use-case continue at step 41(no data is retained) |
| Exception flow |  |
| Business Rules | BR-2, BR-3, BR-7, BR-9 |

* + 1. Manage Book Rent
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_5** |
| **Use-case name** | **Manage Book Rent** |
| Description | Manager/Employee can Create rent receipt, Confirm return and Search rent receipt |
| Trigger | Manager/Employee clicks to menu at “Book Rent” page |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | Data at book Rent management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System display Book purchase management page with data loaded from database 2. Manager/Employee chooses one function: Create Rent Receipt/Confirm return /Search Rent Receipt   **- Create Rent Receipt:**   1. System displays Create Rent Receipt form 2. Manager/Employee enters Phone number of customer 3. System processes Search request 4. System queries data related to phone number 5. Manager/Employee selects books and quantity 6. System displays cost of invoice  * **Search Rent Receipt:**  1. Manager/Employee selects search function and enters keywords. 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at Book Rent page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continues at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continues at step 4  12a: System displays invalid information due to wrong format.  User continues at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow |  |
| Business Rules | BR-7, BR-9 |

* + 1. Manage Customer
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_6** |
| **Use-case name** | **Manage customer** |
| Description | Manager/Employee can add/update/delete/search customer information |
| Trigger | Manager/Employee clicks to button “Add Customer” at Customer management page  Manager/Employee clicks to button |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | Customer information successfully updated in database (Add/Delete/Update)  Data at Customer management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System displays Customer management page with data loaded from database 2. Manager/Employee chooses one function: Add/Update/Delete/Search Customer  * **Add Customer:**  1. System displays Customer information form 2. Manager/Employee enters Customer information and click submit 3. System validates customer information is in correct format 4. System validates customer information with existed data in database 5. System stores customer information in database 6. System displays successful notification and displays Customer management information   **- Update Customer:**   1. Employee chooses one customer to be updated. 2. System displays customer information page. 3. Employee modifies customer information and clicks submit. 4. System validates customer information in correct format.. 5. System validates customer information with existed in database. 6. System stores customer information in database. 7. System displays successful notification and displays Customer management page.  * **Delete Customer:**  1. Manager/Employee chooses one customer to be deleted. 2. System shows confirm dialogue 3. Manager/Employee confirms delete request 4. System processes Delete request 5. System validates no external data required customer information and selected item existed in database 6. System deletes customer information in the database 7. System updates data at customer management page with selected item deleted.  * **Search Customer:**  1. Manager/Employee selects search function and enters keywords 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at customer management page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continues at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continues at step 4  12a: System displays invalid information due to wrong format.  User continues at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow | 18a: Use-case stops because the employee don’t confirm to delete  21a: System displays error notification because external data had required that customer information or no data existed. Use-case stop  26a: System displays empty result notification because there is/are no data existed related to the keywords. Use-case stop |
| Business Rules | BR-7, BR-9 |

* + 1. Manage Discount code
       1. Use-case specification

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| --- | --- |
| **Use-case ID** | **UC\_7** |
| **Use-case name** | **Manage Discount code** |
| Description | Manager/Employee can add/update/delete/search Discount code information |
| Trigger | Manager/Employee clicks to button “Add Discount code” at Discount code management page  Manager/Employee clicks to button |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | Discount code information successfully updated in database (Add/Delete/Update)  Data at Discount code management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System displays Discount code management page with data loaded from database 2. Manager/Employee chooses one function: Add/Update/Delete/Search voucher  * **Add Discount code:**  1. System displays Discount code information form 2. Manager/Employee enters Discount code information and click submit 3. System validates Discount code information is in correct format 4. System validates Discount code information with existed data in database 5. System stores Discount code information in database 6. System displays successful notification and displays Discount code management information  * **Update Discount code:**  1. Employee chooses one Discount code to be updated. 2. System displays Discount code information page. 3. Employee modifies Discount code information and clicks submit. 4. System validates Discount code information in correct format.. 5. System validates Discount code information with existed in database. 6. System stores Discount code information in database. 7. System displays successful notification and displays Discount code management page.  * **Delete Discount code:**  1. Manager/Employee chooses one Discount code to be deleted. 2. System shows confirm dialogue 3. Manager/Employee confirms delete request 4. System processes Delete request 5. System validates no external data required Discount code information and selected item existed in database 6. System deletes Discount code information in the database 7. System updates data at Discount code management page with selected item deleted.  * **Search voucher:**  1. Manager/Employee selects search function and enters keywords 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at Discount code management page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continues at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continues at step 4  12a: System displays invalid information due to wrong format.  User continues at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow | 18a: Use-case stop because the employee don’t confirm to delete  21a: System display error notification because external data had required that customer information or no data existed. Use-case stop  26a: System display empty result notification because there is/are no data existed related to the keywords. Use-case stop |
| Business Rules | BR-7, BR-9 |

* + 1. Manage supplier
       1. Use-case specification

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| --- | --- |
| **Use-case ID** | **UC\_8** |
| **Use-case name** | **Manage Supplier** |
| Description | Manager/Employee can add/update/delete/search Supplier information |
| Trigger | Manager/Employee clicks to button “Add Supplier ” at Supplier management page  Manager/Employee clicks to button |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | Supplier information successfully updated in database (Add/Delete/Update)  Data at Supplier management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System display Supplier management page with data loaded from database 2. Manager/Employee chooses one function: Add/Update/Delete/Search Supplier  * **Add Supplier:**  1. System displays Supplier information form 2. Manager/Employee enters Supplier information and click submit 3. System validates Supplier information is in correct format 4. System validates Supplier information with existed data in database 5. System stores Supplier information in database 6. System displays successful notification and displays Supplier management information  * **Update Supplier:**  1. Employee chooses one Supplier to be updated. 2. System displays Supplier information page. 3. Employee modifies Supplier information and clicks submit. 4. System validates Supplier information in correct format.. 5. System validates Supplier information with existed in database. 6. System stores Supplier information in database. 7. System displays successful notification and displays Supplier management page.  * **Delete Supplier:**  1. Manager/Employee chooses one Supplier to be deleted. 2. System shows confirm dialogue 3. Manager/Employee confirm delete request 4. System processes Delete request 5. System validates no external data required Supplier information and selected item existed in database 6. System deletes Supplier information in the database 7. System updates data at Supplier management page with selected item deleted.  * **Search Supplier:**  1. Manager/Employee selects search function and enters keywords 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at Supplier management page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continue at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continue at step 4  12a: System displays invalid information due to wrong format.  User continue at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow | 18a: Use-case stop because the employee don’t confirm to delete  21a: System display error notification because external data had required that Supplier information or no data existed. Use-case stop  26a: System display empty result notification because there is/are no data existed related to the keywords. Use-case stop |
| Business Rules | BR-7, BR-9 |

* + 1. Statistics
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_9** |
| **Use-case name** | **Statistic** |
| Description | Manager/employee can view chart on revenue, new customers, book sold.  Manager/ Employee can download inventory report/ debt report. |
| Trigger | Manager/Employee clicks to menu at home page |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | The data of the chart must be updated on a monthly basis. |
| Basic flow | 1. The system displays the homepage with the data loaded from the database, including: line chart describing revenue, book sold, new customers and inventory report, debt report. 2. Employee month for the report and choose function: inventory report/ debt report.  * **Download inventory report**  1. The system displays the inventory report page corresponding to the selected month. 2. Manager/ employee click the download button. 3. System displays confirm dialog. 4. Employee confirm download action. 5. The system displays a successful loading message as soon as the report file is finished loading and display inventory report page.  * **Download debt report:**  1. The system displays the debt report page corresponding to the selected month. 2. Manager/ employee click the download button. 3. System displays confirm dialog. 4. Employee confirm download action. 5. The system displays a successful loading message as soon as the report file is finished loading and display debt report page |
| Alternative flow |  |
| Exception flow | 5a. Use-case stop because the employee don’t confirm to download inventory report.  6a. Use-case stop because the employee don’t confirm to download debt report. |
| Business Rules | BR-7, BR-9 |

* + 1. Manage User
       1. Use-case specification

|  |  |
| --- | --- |
| **Use-case ID** | **UC\_10** |
| **Use-case name** | **Manage User** |
| Description | Manager/Employee can add/update/delete/search User information |
| Trigger | Manager/Employee clicks to button “Add user” at User management page  Manager/Employee clicks to button |
| Pre-condition | Manager’s/Employee’s device must connect to Internet  Manager’s/Employee’s account existed  Manager’s/Employee’s status is signed-in |
| Post-condition | User information successfully updated in database (Add/Delete/Update)  Data at User management page is filter and displayed to Manager/Employee |
| Basic flow | 1. System display User management page with data loaded from database 2. Manager/Employee chooses one function: Add/Update/Delete/Search User  * **Add User :**  1. System displays User information form 2. Manager/Employee enters User information and click submit 3. System validates User information is in correct format 4. System validates User information with existed data in database 5. System stores User information in database 6. System displays successful notification and displays User management information  * **Update User:**  1. Employee chooses one User to be updated. 2. System display User information page. 3. Employee modifies User information and clicks submit. 4. System validates User information in correct format.. 5. System validates User information with existed in database. 6. System stores User information in database. 7. System displays successful notification and displays User management page.  * **Delete User:**  1. Manager/Employee chooses one User to be deleted. 2. System shows confirm dialogue 3. Manager/Employee confirm delete request 4. System processes Delete request 5. System validates no external data required User information and selected item existed in database 6. System deletes User information in the database 7. System updates data at User management page with selected item deleted.  * **Search User**  1. Manager/Employee selects search function and enters keywords 2. System processes Search request 3. System queries data related to keywords 4. System displays filtered data at User management page |
| Alternative flow | 5a. System displays invalid information due to wrong format  Use-case continue at step 4  6b. System displays invalid information due to data had been existed in the database  Use-case continue at step 4  12a: System displays invalid information due to wrong format.  User continue at step 11  13a: System displays invalid information because data hadn’t been existed in the database.  Use-case continues at step 11 |
| Exception flow | 18a: Use-case stop because the employee don’t confirm to delete  21a: System display error notification because external data had required that User information or no data existed. Use-case stop  26a: System display empty result notification because there is/are no data existed related to the keywords. Use-case stop |
| Business Rules | BR-7, BR-8 |

# NON-FUNCTIONAL REQUIREMENTS



## Usability

* + 1. Training Requirements

The E-commerce Bookstore Management System is designed to be easy to use, and we expect that most users will be able to become productive quickly. However, some training may be required to ensure that users are comfortable with the system and can make the most of its features.

* + - 1. Normal User Training Time

We expect that most normal users will require no more than one hour of training to become proficient in the basic operations of the system. This training will cover topics such as navigating the user interface, adding and editing products, managing orders, and generating reports.

* + - 1. Power User Training Time

Power users are expected to be more experienced with the system and will require less training than normal users. We expect that power users will require no more than 30 minutes of training to become proficient in the system.

* + 1. Measurable Task Times

To ensure that the system meets our usability requirements, we have established the following measurable task times for typical tasks:

* Adding a new product: 2 minutes
* Editing an existing product: 1 minute
* Processing an order: 3 minutes
* Generating a sales report: 1 minute

These task times are based on user testing and feedback from our pilot users. We believe that these task times are achievable for most users, and we will continue to monitor and improve these times as necessary.

* + 1. Conformance to Common Usability Standards

The E-commerce Bookstore Management System conforms to common usability standards, including IBM's Common User Access (CUA) standards and Microsoft's Graphical User Interface (GUI) standards. The system's user interface is designed to be intuitive and easy to use, with standard controls and navigation that are familiar to most users. Additionally, the system has been tested to ensure that it is accessible to users with disabilities, conforming to WCAG 2.1 AA guidelines.

## Reliability

* + 1. Availability

The system should be available for use by employees, managers and support teams at least 99.9% of the time. The system may be taken offline for scheduled maintenance, which should be performed during off-peak hours. In the event of an unplanned outage, the system should be restored within 2 hours of the outage being detected.

* + - 1. Mean Time Between Failures (MTBF)

The system's MTBF should be at least 2,500 hours of continuous operation. This means that the system should be able to operate for at least 2,500 hours without experiencing a failure.

* + - 1. Mean Time To Repair (MTTR)

In the event of a system failure, the system should be repaired and brought back online within 2 hours of the failure being detected. This includes both hardware and software failures.

* + 1. Accuracy

The system's output should be accurate to within 1% of the actual value, based on a known standard. The system should also provide a resolution of at least 0.01 units for all measurements and calculations.

## Performance

* + 1. Response Time

The system should respond to user requests within 2 seconds for 90% of all requests. This includes all actions performed by employees, managers, and support teams. The response time for any transaction should not exceed 5 seconds.

* + 1. Throughput

The system should be capable of handling at least 1000 simultaneous users with a minimum of 100 transactions per second.

* + 1. Scalability

The system should be able to scale up or down based on demand without any loss of functionality or degradation in performance. This means that the system should be able to handle increased traffic during peak periods without any slowdowns or disruptions.

* + 1. Resource Utilization

The system should utilize system resources such as CPU, memory, and disk space efficiently to ensure optimal performance. The system should be designed to minimize resource contention and optimize resource allocation to ensure optimal performance.

* + 1. Security

The system should be designed to ensure that all user data is stored securely and that access to the system is restricted to authorized users only. The system should be able to handle high levels of traffic without any degradation in performance or security.

## Supportability

* + 1. Coding Standards

The system should be developed following industry-standard coding conventions to ensure maintainability and ease of future development. All code should be documented with clear comments and consistent formatting.

* + 1. Naming Conventions

All functions, classes, and variables should have clear and consistent names to aid in code readability and reduce errors during maintenance.

* + 1. Class Libraries

The system should be designed with modular, reusable code blocks that can be easily maintained and updated. Class libraries should be well-documented, easy to use, and thoroughly tested.

* + 1. Maintenance Access

The system should be designed with built-in tools and utilities that allow authorized personnel to access and maintain the system. Maintenance access should be granted only to authorized personnel and monitored to ensure security.

* + 1. Maintenance Utilities

The system should be equipped with maintenance utilities that can detect and correct errors and issues that may arise during system operation. These utilities should be designed to be easy to use and require minimal training for maintenance personnel.

* + 1. Logging and Auditing

The system should be designed to log all system activity, including user actions and errors. These logs should be audited regularly to detect and correct issues before they become critical.

* + 1. Documentation

The system should be thoroughly documented to aid in future maintenance and development. All documentation should be kept up-to-date and accessible to authorized personnel.

## Design constraints

* + 1. Programming Languages

The system must be developed using C# programming language, as specified by the client.

* + 1. Developmental Tools

The development team must use VS Code IDE as the primary development tool for the system. Any other tools used must be approved by the client.

* + 1. Software Process Requirements

The system must be developed using the Agile development process. The development team must follow the client's specific Agile process requirements and provide regular status updates and progress reports.

* + 1. Architectural and Design Constraints

The system must adhere to a layered architecture, with the presentation layer, business logic layer, and data access layer. The system's design must be modular, with clear separation between different components.

* + 1. Purchased Components

The system may use third-party components such as a payment gateway or an email service, but their integration must comply with the client's security and privacy policies.

* + 1. Database

The system must use MySQL as the database management system, as specified by the client.

* + 1. Class Libraries

The system may use open-source or commercial class libraries, but their use must be approved by the client and comply with their licensing terms.

## On-line user Documentation and Help System Requirements

* + 1. User Guide

The system must include a comprehensive user guide that provides step-by-step instructions on how to use the system's features and functionality. The guide must be accessible through the system's interface and available in a printable format.

* + 1. Context-Sensitive Help

The system must have context-sensitive help that provides assistance to users while they are performing specific tasks within the system. The help system must be accessible through the system's interface and available in a searchable format.

* + 1. Error Messages

The system must provide clear and concise error messages that inform the user of the issue and suggest possible solutions to resolve the problem.

* + 1. Accessibility

The online user documentation and help system must be accessible to all users, including those with disabilities. The system must comply with WCAG 2.0 guidelines to ensure accessibility.

* + 1. Language Support

The online user documentation and help system must support multiple languages to accommodate users who prefer to use the system in their native language.

## Purchase Components

## Interfaces

* + 1. User Interfaces

The Bookstore Management System should have a user-friendly interface for all actors (Employee, Manager, Supporter) to perform their respective tasks. The user interface should be designed based on the principles of usability and accessibility. It should provide clear and concise feedback to users for all actions performed.

* + 1. Hardware Interfaces

The Bookstore Management System should be compatible with the hardware components specified in the System Requirements document. The system should also provide support for any hardware components that may be added in the future.

* + 1. Software Interfaces

The Bookstore Management System will interface with other subsystems that are outside of the scope of this SRS. These interfaces should be clearly defined and documented in the System Requirements document. The software should also conform to any applicable software standards.

* + 1. Communication Interfaces

The Bookstore Management System should be able to communicate with other systems and devices such as local area networks, remote serial devices, and so forth. The communication protocols, ports, and logical addresses should be clearly defined in the System Requirements document. The system should also provide support for any additional communication interfaces that may be required in the future.

## Licensing Requirements

This section will not be mentioned in this document

## Legal, Copyright, and Other Notices