



**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY**

**SEMESTER 1 2022/2023**

**BITU 3923**

**WORKSHOP 2**

**FINAL REPORT**

**PROJECT TITLE:  
BOOKSTORE INVENTORY MANAGEMENT SYSTEM**

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## **ACKNOWLEDGEMENT**

We would like to express our deepest appreciation and gratitude to all those who have contributed to the successful completion of the Bookstore Inventory Management System project. We are extremely fortunate to have had the guidance and support of [REDACTED] [REDACTED] our project supervisor, who has been a constant source of encouragement and inspiration throughout the project. We would also like to extend our sincere thanks to the members of our project team, Haw Yuan Kang, [REDACTED] [REDACTED] for their tireless efforts, dedication, and valuable contributions to the project. Their expertise and willingness to go above and beyond were essential to the success of the project.

We would also like to acknowledge the support of our families and friends, who have provided emotional and moral support throughout the project. Without their love and understanding, this project would not have been possible.

Finally, we would like to thank all the people who have been involved in the project in one way or another, your contributions have been invaluable. We look forward to continuing our collaboration in the future.

In conclusion, we are truly grateful for the unwavering support and guidance that has been provided to us throughout the project. We hope that the Bookstore Inventory Management System project will serve as a valuable tool for the bookstore and will continue to improve the efficiency and accuracy of bookstore's book inventory management.

## **ABSTRACT**

The Bookstore Inventory Management System is a software solution that helps bookstore staff and administrators manage their inventory more effectively and efficiently. It includes features such as a search bar for quickly accessing specific books, a database to store all book, staff and customer data, automated notifications for stock shortages, and the ability to add and update book details. The system was developed using the Agile method, allowing for flexibility and adaptability in addressing the needs of the bookstore. The system has been tested in a real-world bookstore with positive results, including reduced time for searching for books, improved accuracy of inventory, and increased efficiency in managing inventory. The system also enables customers to purchase books easily and efficiently. Overall, the Bookstore Inventory Management System is a powerful solution that can help improve the performance and profitability of a bookstore.

## TABLE OF CONTENTS

<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
1.1    Introduction.....	1
1.2    Problem Statements .....	1
1.3    Objectives.....	2
1.4    Project Scope .....	2
1.5    Project Significance .....	3
1.6    Hardware and Software .....	3
<b>CHAPTER 2: METHODOLOGY.....</b>	<b>5</b>
2.1    System Development Methodology.....	5
2.2    System Development Technique.....	6
2.3    Conclusion .....	8
<b>CHAPTER 3: SYSTEM ANALYSIS .....</b>	<b>9</b>
3.1    Analysis of Current System.....	9
3.2    Analysis of Proposed System.....	10
3.2.1    Context Diagram for current system .....	10
3.2.2    Data Flow Diagram.....	11
3.2.3    Flow Chart .....	12
3.3    Structured chart of Proposed System .....	19
3.4    Work Breakdown.....	19
3.5    Conclusion .....	22
<b>CHAPTER 4: SYSTEM DESIGN.....</b>	<b>23</b>
4.1    Introduction.....	23
4.2    System Architecture.....	23
4.3    Database Design .....	26
4.3.1    Entity Relationship Diagram.....	26
4.3.2    Data Dictionary .....	27
4.4    Module integration and Interface Design .....	32
4.4.1    Module Integration.....	32
4.4.2    Website Interfaces.....	35
4.5    System Design.....	66
4.6    Conclusion .....	68
<b>CHAPTER 5: SYSTEM IMPLEMENTATION .....</b>	<b>69</b>
5.1    Introduction.....	69
5.2    System Development Environment .....	69

5.2.1	Sublime Text.....	69
5.2.2	XAMPP (Apache, MySQL).....	69
5.3	<b>System Configuration Management</b> .....	70
5.4	<b>Security Characteristics</b> .....	73
5.5	<b>Conclusion</b> .....	74
<b>CHAPTER 6: SYSTEM TESTING</b> .....		75
6.1	<b>Testing Method</b> .....	75
6.2	<b>Test Result Analysis</b> .....	75
6.3	<b>System Constraints</b> .....	103
6.4	<b>Conclusion</b> .....	103
<b>CHAPTER 7: CONCLUSION</b> .....		104
7.1	<b>Introduction</b> .....	104
7.2	<b>Achievement</b> .....	104
7.3	<b>Project Limitation</b> .....	104
7.4	<b>Suggestions for Improvement</b> .....	105
7.5	<b>Potential Commercialisation</b> .....	105
7.6	<b>Conclusion</b> .....	106

## TABLE OF FIGURES

Figure 2.1: Agile Methodology.....	6
Figure 3.1: Context Diagram of Bookstore Inventory Management System.....	10
Figure 3.2: Data Flow Diagram of Bookstore Inventory Management System.....	11
Figure 3.3: User Authentication Module .....	12
Figure 3.4: User Management Module for Admin.....	13
Figure 3.5: Admin's Report Module.....	14
Figure 3.6: User Management Module for Staff .....	15
Figure 3.7: View Feedback Module for Staff and Admin .....	16
Figure 3.8: Book Inventory Module for Staff and Admin .....	17
Figure 3.9: Customer purchase, view history and feedback .....	18
Figure 3.10: Structure Chart of Bookstore Inventory Management System.....	19
Figure 3.11: Team's Work Allocation.....	19
Figure 3.12: Gantt Chart of The Bookstore Inventory Management System .....	21
Figure 4.1: System Architecture of Bookstore Inventory Management System.....	23
Figure 4.2: Entity Relationship Diagram .....	26
Figure 4.3: First Home Page .....	35
Figure 4.4: Second Home Page.....	35
Figure 4.5: Home Page (Mobile View).....	36
Figure 4.6: Login Page.....	36
Figure 4.7: Login Page (Mobile View).....	37
Figure 4.8: Login Page (Create Account) .....	38
Figure 4.9: Login Page (Mobile View Create Account) .....	38
Figure 4.10: Login Page (Forget Password) .....	39
Figure 4.11: Login Page (Mobile View Forgot Password) .....	39
Figure 4.12: Reset Password Page .....	40
Figure 4.13: Reset Password Page (Mobile View) .....	40
Figure 4.14: First Book Gallery Page .....	41
Figure 4.15: Second Book Gallery Page .....	41
Figure 4.16: Book Gallery Page (Mobile View) .....	42
Figure 4.17: First Feedback Page (Customer) .....	43
Figure 4.18: Second Feedback Page (Customer) .....	43
Figure 4.19: Feedback Page (Mobile View Customer Feedback) .....	44
Figure 4.20: View Feedback Page (Admin).....	44
Figure 4.21: View Feedback Page (Mobile Horizontal View Admin Check Feedback).....	45
Figure 4.22: Reply Feedback Page (Admin).....	45
Figure 4.23: Reply Feedback Page (Mobile View Admin Reply Feedback).....	46
Figure 4.24: Profile Page .....	46
Figure 4.25: Profile Page (Update Password) .....	47
Figure 4.26: Profile Page (Mobile View Update Password).....	47
Figure 4.27: View Book Page (In Table Form) .....	48
Figure 4.28: View Book Page (Mobile View Book Info in Table Form) .....	48
Figure 4.29: View Book Page (In Details Form) .....	49
Figure 4.30: View Book Page (Mobile View Book Info in Details Form) .....	49
Figure 4.31: Book Cart Page.....	50

Figure 4.32: Book Cart Page (Mobile View).....	50
Figure 4.33: View Purchase History Page .....	51
Figure 4.34: View Purchase History Page (Mobile Horizontal View) .....	51
Figure 4.35: Sales Report & Statistic Page (Popular Genre) .....	52
Figure 4.36: Sales Report & Statistic Page (Mobile View Popular Genre) .....	52
Figure 4.37: Sales Report & Statistic Page (Month Income).....	52
Figure 4.38: Sales Report & Statistic Page (Mobile View Month Income).....	53
Figure 4.39: Sales Report & Statistic Page (Year Income).....	53
Figure 4.40: Sales Report & Statistic Page (Mobile View Year Income).....	54
Figure 4.41: Add New Book Page .....	55
Figure 4.42: Add New Book Page (Mobile View) .....	55
Figure 4.43: First Update Book Info Page .....	56
Figure 4.44: Second Update Book Info Page.....	56
Figure 4.45: Third Update Book Info Page.....	57
Figure 4.46: Update Book Info Page (Mobile View).....	57
Figure 4.47: View Book Inventory Page .....	58
Figure 4.48: View Book Inventory Page (Mobile View Horizontal View).....	58
Figure 4.49: First Lock Access Page .....	59
Figure 4.50: Second Lock Access Page .....	59
Figure 4.51: Lock Access Page (Mobile View) .....	60
Figure 4.52: Add New Staff Page .....	60
Figure 4.53: Add New Staff Page (Mobile View) .....	61
Figure 4.54: First Remove Staff Account Page .....	61
Figure 4.55: Second Remove Staff Account Page .....	62
Figure 4.56: Third Remove Staff Account Page .....	62
Figure 4.57: Forth Remove Staff Account Page .....	63
Figure 4.58: Fifth Remove Staff Account Page .....	63
Figure 4.59: Remove Staff Account Page (Mobile View) .....	64
Figure 4.60: View User Account Page.....	65
Figure 4.61: View User Account Page (Mobile View Horizontal).....	65
Figure 4.62: Use Case for Customer.....	66
Figure 4.63: Use Case for Admin and Staff .....	67
Figure 5.1: Sublime Text destination location .....	70
Figure 5.2: Sublime Text additional task .....	71
Figure 5.3: Sublime Text ready to Install. ....	71
Figure 5.4: Sublime Text installation completed. ....	72

## LISTS OF TABLES

Table 1.1: Hardware and Software Tools .....	3
Table 3.1: Role and Responsibility of Team Members.....	20
Table 4.1: Data Dictionary of User.....	27
Table 4.2: Data Dictionary of Book.....	28
Table 4.3: Data Dictionary of Cart.....	29
Table 4.4: Data Dictionary of Sale.....	29
Table 4.5: Data Dictionary of Feedback.....	30
Table 4.6: Data Dictionary of History .....	31
Table 6.1: Test Case 01.....	75
Table 6.2: Test Case 02.....	77
Table 6.3: Test Case 03.....	78
Table 6.4: Test Case 04.....	79
Table 6.5: Test Case 05.....	80
Table 6.6: Test Case 06.....	81
Table 6.7: Test Case 07.....	82
Table 6.8: Test Case 08.....	83
Table 6.9: Test Case 09.....	84
Table 6.10: Test Case 10.....	85
Table 6.11: Test Case 11.....	86
Table 6.12: Test Case 12.....	87
Table 6.13: Test Case 13.....	88
Table 6.14: Test Case 14.....	89
Table 6.15: Test Case 15.....	90
Table 6.16: Test Case 16.....	91
Table 6.17: Test Case 17.....	92
Table 6.18: Test Case 18.....	93
Table 6.19: Test Case 19.....	94
Table 6.20: Test Case 20.....	95
Table 6.21: Test Case 21 .....	96
Table 6.22: Test Case 22.....	97
Table 6.23: Test Case 23.....	98
Table 6.24: Test Case 24.....	99
Table 6.25: Test Case 25.....	100
Table 6.26: Test Case 26.....	101
Table 6.27: Test Case 27.....	102

## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction**

The production of books has increased gradually nowadays, although it is good for people who seek more knowledge, but it also makes the job of bookstore's staff difficult. Since the staff worker of the bookstore is manually managing the bookstore inventory and turns out it is strenuous and consumes a lot of time to manage those books like counting the stock of each title. Therefore, an effective bookstore inventory management system must be designed to overcome the issues for the purpose of bringing convenience to every bookstore staff and even the customer. Thus, there is a need to have a system to manage book inventory efficiently and help customers query whether a book is available at UTeM/ FTMK/ BENGKEL 2 3 or not. Customers can find their intended book by searching the title of the book through the system. This system will automatically notify staff when there is any stock of the book that reaches a minimum value so they can replenish the book in time. In addition, this system will generate reports for the admin to check the sales and others. Overall, this system can bring lots of benefits to the bookstore and their staff.

### **1.2 Problem Statements**

- Time taken for staff to search manually for the information of a needed book is long and makes customers become impatient.
- Massive amounts of information data for the books have the risk of the data lost due to the lack of backup for each of the books and the information data might be incorrectly stored.
- The books may run out of stock if staff forget to check and replenish the stock of books when that book reaches the minimum value of stock.
- Admin and staff must update all the stock for a book's details one by one if there is any change making for one of the books.

### **1.3 Objectives**

- To design a system that can help staff find the target books easily and faster.
- To create an error free system that stored every information data of the bookstore's books in the database correctly and backed up.
- To build a convenient system that can automatically notify the staff when the stock of certain books is insufficient.
- To develop a system that will allow staff and admin to manage the inventory of books by adding new books or editing the existing books in the store at once.

### **1.4 Project Scope**

Module developed:

#### **a) Authentication**

Authentication module is one of the significant modules to make the book inventory management system more secure. This module allows user, which is administrator, staff or customer, to register an account for the first-time use. Then, in this module also provides a method for password recovery for users who have forgotten their passwords.

#### **b) User Profile Management**

In this module, administrator and staff have the ability to add user, edit user data or remove user from the book inventory management system to ensure that no redundant user data or account are involved. Staff can only manage customer profiles, but administrator can manage other admin profiles, staff profiles, and customer profiles.

#### **c) Inventory Management**

Administrator and staff can add new books or restock a number of books, edit book information and remove books that have been sold out from the system. This is for prohibited customers to purchase a book that is out of stock, customers can also buy the same book in large quantity and help them to keep up to date with the latest book information.

#### **d) Sales Record**

Administrator and staff can view the purchase payment record especially for successful or unsuccessful online transactions. Staff must also ensure that the purchase payment

and sales record are checked on a daily routine to ensure that no money is lost in a single day. In this module also provide customer feedback where staff and administrator can view and respond the feedback to improve their system and abilities.

#### e) Reporting

The reporting section enabled administrator and staff to track statistics such as sales and user type on a yearly, monthly, weekly, or daily basis. This module may also inform us of the greatest books in the genre that have been sold with the overall purchase of the books.

### 1.5 Project Significance

Motivation and inspiration for the project:

- Replace the manual system of the bookstore inventory to a computerized digital system.
- Ease the admin to retrieve data from the bookstore inventory system.
- Admin can manage the bookstore inventory system easily.
- Avoid data loss from the bookstore inventory system.

### 1.6 Hardware and Software

*Table 1.1: Hardware and Software Tools*

Tool	Description
Microsoft Word	Prepare project proposal, progress report, and final report.
Microsoft Excel	Develop Gantt chart.
Microsoft PowerPoint	Create documentation and slides presentation.
Canva	Design poster.
Sublime text	As text editor for coding purposes.
XAMPP (Apache, MySQL)	A software that has web server solutions includes Apache and MySQL.
Laptop	Device for programming documentation and testing

## **1.7 Conclusion**

The conclusion is how this system development works and the process till the end-user is able to utilize the system successfully. The main focus is the development of the web-based application named "Bookstore Inventory Management System" in order to minimize manual work and the problems associated with it. It is a simple technique to collect information on past information that is available in the marketplace. This project is a computerized system for preserving all an organization's relevant information facts. This project may also simplify the fact that the program was created to decrease personnel and numerous complexities.

## CHAPTER 2: METHODOLOGY

### 2.1 System Development Methodology

In the Book Inventory Management System, the system development methodology that is most suitable is the Agile model. Agile methodology is one of the project management methods that is mainly applied to the creation of software. The Agile methodology establishes phase divisions for project management. It also required continuous collaboration with stakeholders as ongoing improvement at each level. Once the project is launched, the team's cycle will go through a process of planning, carrying out and assessing the system.

Small, cross-functional, self-organizing teams working under agile approaches are intended to produce the right product while allowing for frequent customer feedback and course correction as necessary. Agile strives to address the problems associated with old "waterfall" methods of producing huge items over extended periods of time while often changing customer needs led to the production of the incorrect products.

Agile is one of the most popular approaches to project management due to its flexibility, adaptability to change, and reduced risk. In terms of flexibility, Agile is far more adaptable and allows for trying out various strategies. Instead of having a set deadline, the schedule changes as the project goes along. A group of software engineers published the Agile Manifesto online in 2001. It states that team members should "Deliver working software regularly, from a couple of weeks to a couple of months, with a bias to the shorter term."

Next, Agile is chosen because of its adaptability. Agile teams are adaptable to change and can do so without much disturbance, even at the last minute. Since project deliverables are flexible, teams can readily change their plans and rearrange their priorities to conform to modified objectives. Teams that are flexible can deliver consistently and successfully handle clients' shifting requirements.

Finally, by using Agile methodology, it can reduce the risk. Developers constantly evaluate their progress during sprints, giving them increased project visibility and the ability to identify possible roadblocks rapidly. These minor problems can be resolved before they become more

serious, resulting in an efficient risk mitigation procedure and increasing the project's likelihood of success.

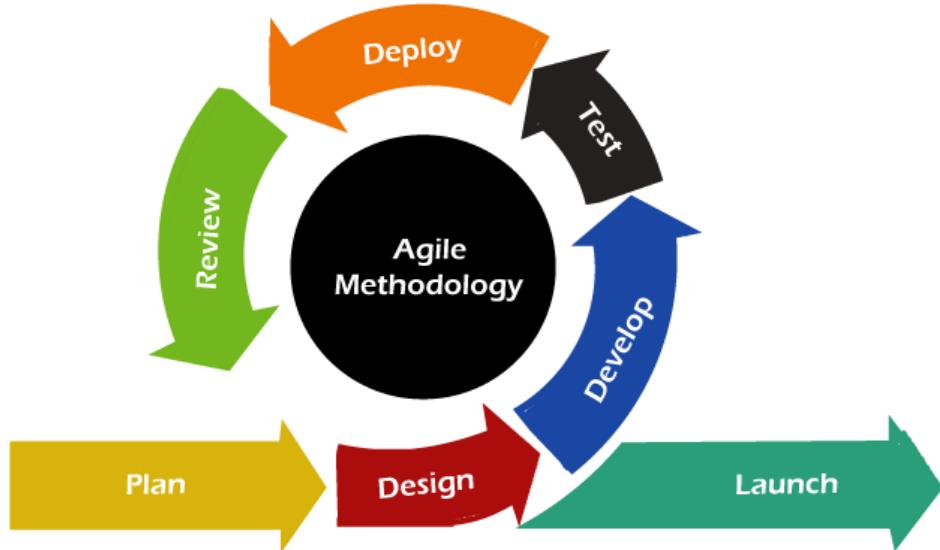


Figure 2.1: Agile Methodology

## 2.2 System Development Technique

### 1. Requirement

- The project was discussed among team members and they were assigned with their designated task in order to complete the projects within the allocated time frame which is 14 weeks. A proposal was made where relevant problem statements and provide suitable solutions from the problem arises through observations. Several modules were made to tackle each problem accordingly.
- All the requirements required for this project were discussed. The requirements are problem statement, objectives, scope and module that need to be available in the Bookstore Inventory Management System.

### 2. Design

- The project began by providing User Interface Design as a draft to create a rough idea on how the system will look like. The process is to ensure that the user can understand generally how the system will function.

Feedback received from the team is vital in making the system and to rectify any problems found in the User Interface Design.

- The design phase began by sketching every GUI required for the system.

### 3. Development

- From the User Interface Design, the system begins its build until it is ready for usage by the user. Adjustments will be made from the feedback received from the stage prior and further improvements and new features could be introduced within the system. Each module was developed by each team to be included within the system. Until the system reaches a satisfactory level, the design process will progress until the desired outcome is achieved.

### 4. Testing

- Every function and button found in this system were tested to ensure that it works as what it was initially intended to work. Functional and non-functional requirements will also be tested by the team to rectify any errors or bugs found in the system.

### 5. Deployment

- In this phase, the system is ready to be used by the user and is ready to be distributed to the user. Continuous aids were given by the development team to the user in case any fault is encountered throughout the user experience with the system.

### 6. Review

- After presenting the system to the client, they provide evaluations and feedback regarding the system. The feedback received will be used in optimizing the system for better user experience in the future. The system will be successful if all modules made meet and satisfy the users' needs.

### **2.3 Conclusion**

The Agile methodology is a project management method that is well-suited for the development of software, such as the Book Inventory Management System, because it is flexible, adaptable to change, and reduces risk. Agile emphasizes small, cross-functional, self-organizing teams that work together to deliver working software regularly, with a bias towards shorter timeframes. The Agile approach allows for frequent customer feedback and course correction as necessary. The project development technique used in this project is a four-stage process that includes Requirements, Design, Development, and Testing. Each stage builds on the previous one, with feedback and adjustments made as necessary to ensure the final product meets the desired outcome.

## **CHAPTER 3: SYSTEM ANALYSIS**

### **3.1 Analysis of Current System**

One of the main problems that a bookstore may face when trying to manage its inventory effectively is accurate tracking of inventory. It can be difficult to maintain an accurate record of the bookstore's inventory, especially if the bookstore has a high turnover of stock. This can lead to stockouts or overstocking, which can negatively impact the store's sales and profitability. For example, if a bookstore overstocks on a particular book, it may not be able to sell all of them before they become outdated. On the other hand, if the bookstore understocks on a popular book, it may miss out on potential sales.

Another problem that a bookstore may face is the loss of data. Without a proper backup system in place, the bookstore's inventory management system could be at risk of losing data due to system crashes or other issues. This could lead to inaccuracies in the bookstore's inventory records, making it difficult to track stock levels and reorder books as needed. This can be detrimental to the bookstore's operations as it can lead to stockouts or overstocking, which can negatively impact the store's sales and profitability.

Limited flexibility can also be an issue in bookstore inventory management system. Some inventory management systems may not be able to adapt to changes in the bookstore's operations, such as changes in suppliers or new product lines. This can make it difficult for the bookstore to keep its inventory up-to-date and responsive to customer demand. This can lead to inefficiencies in the bookstore's operations as they can miss out on new trends or products.

Finally, updating the stock and details for a book can be time-consuming, as staff and administrators must update each book individually. This can lead to inefficiencies in the bookstore's operations. It can also lead to inaccuracies in the bookstore's inventory records, making it difficult to track stock levels and reorder books as needed.

Overall, these are some of the real-life problems of bookstore inventory management system, that can impact the bookstore's performance and profitability. An efficient inventory management system can help bookstores overcome these challenges and improve their performance.

### 3.2 Analysis of Proposed System

#### 3.2.1 Context Diagram for current system

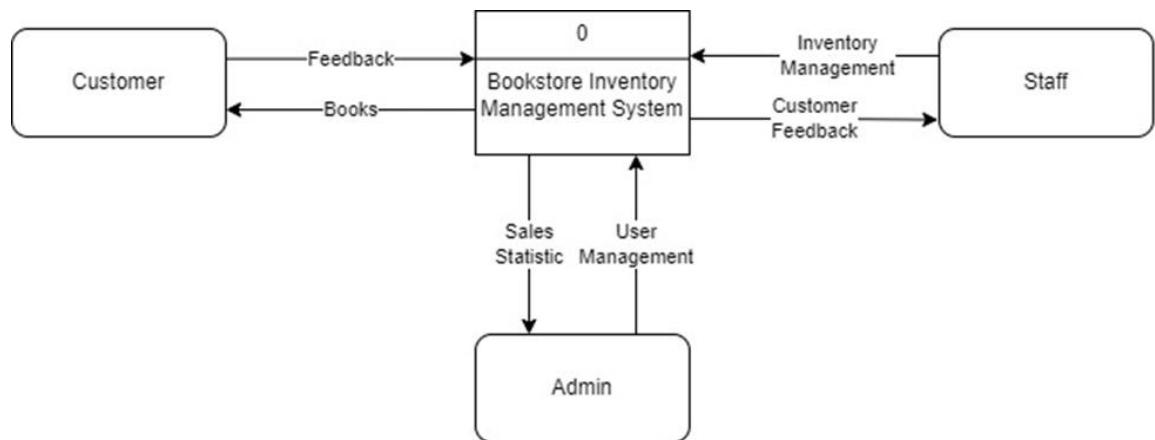


Figure 3.1: Context Diagram of Bookstore Inventory Management System

### 3.2.2 Data Flow Diagram

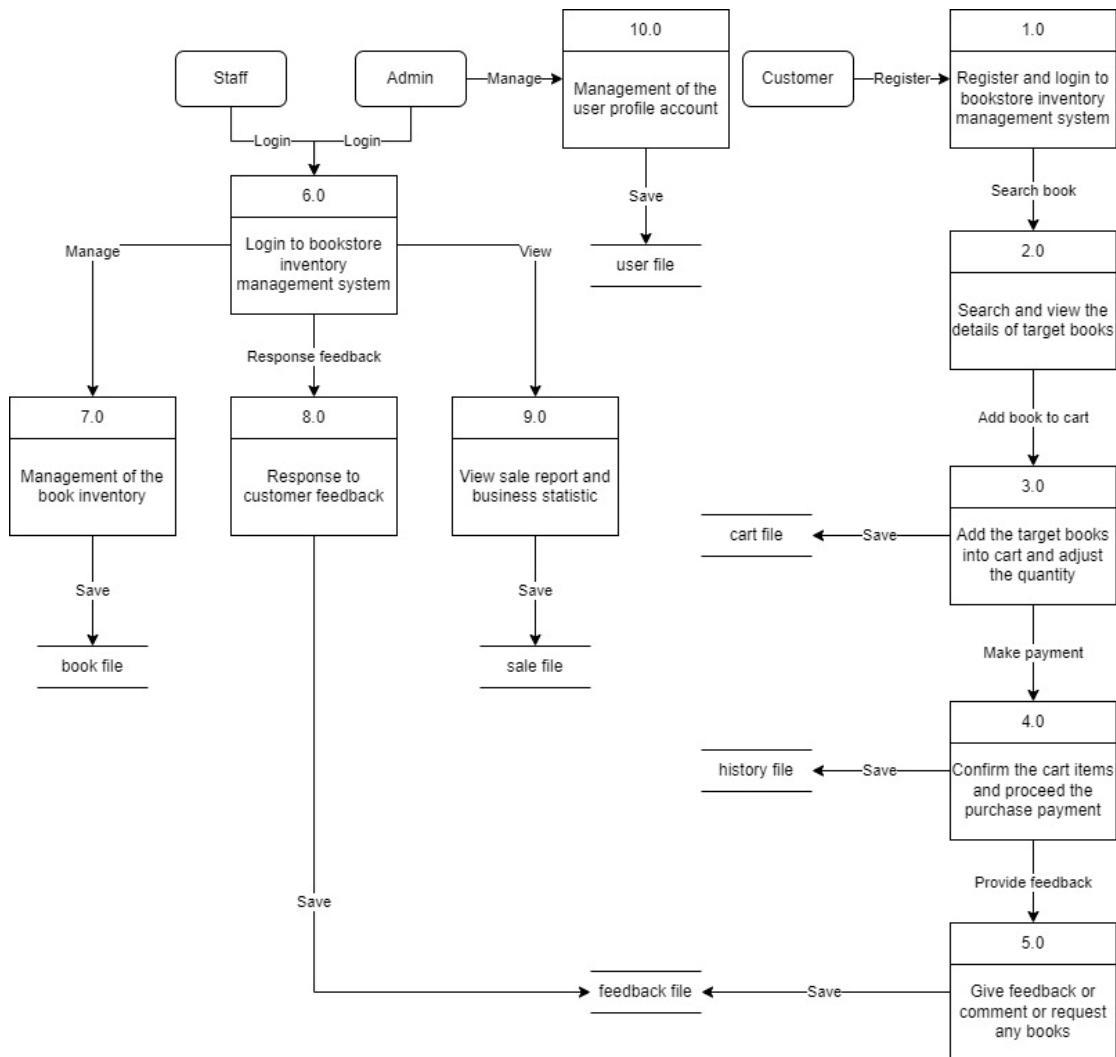


Figure 3.2: Data Flow Diagram of Bookstore Inventory Management System

### 3.2.3 Flow Chart

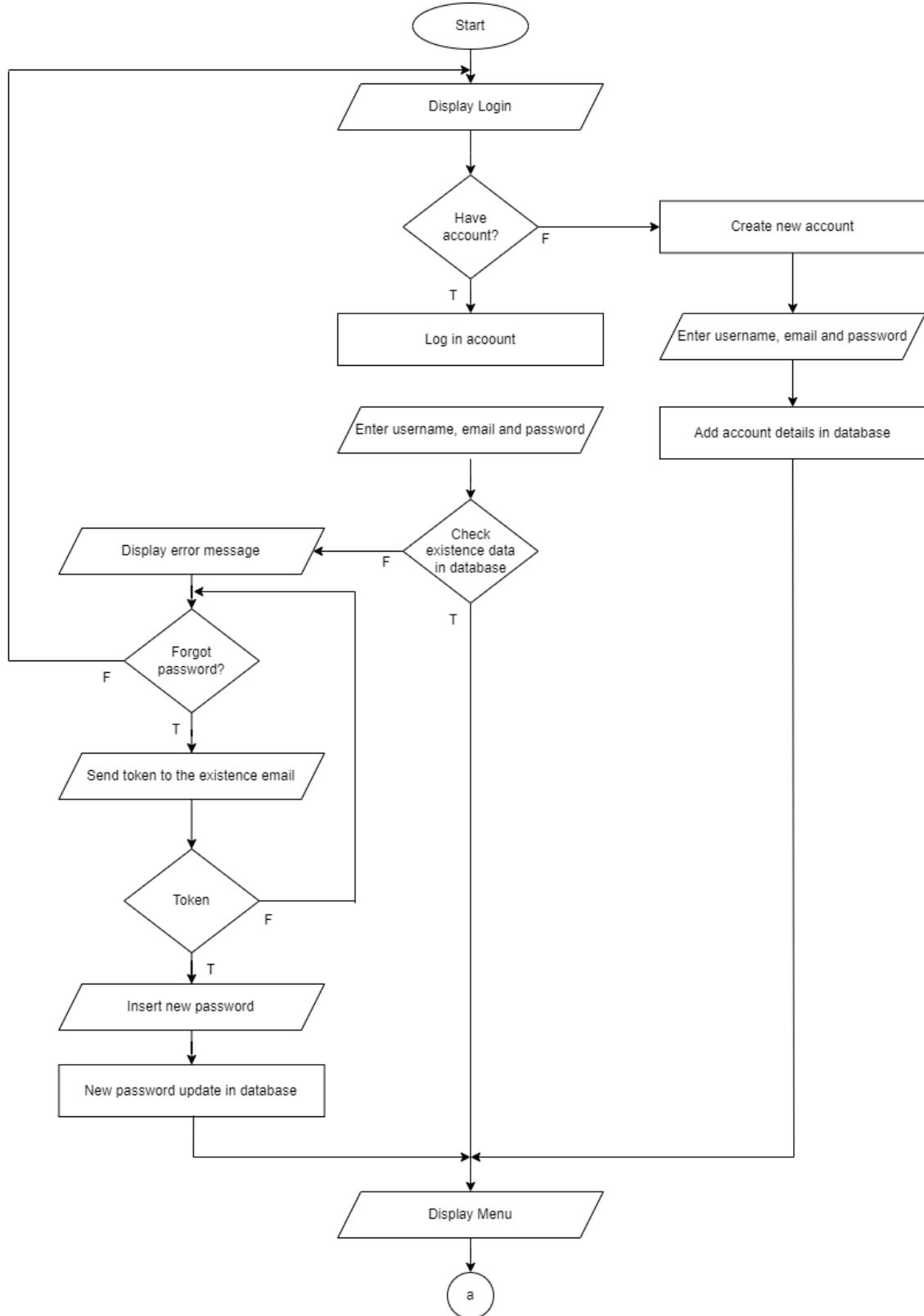
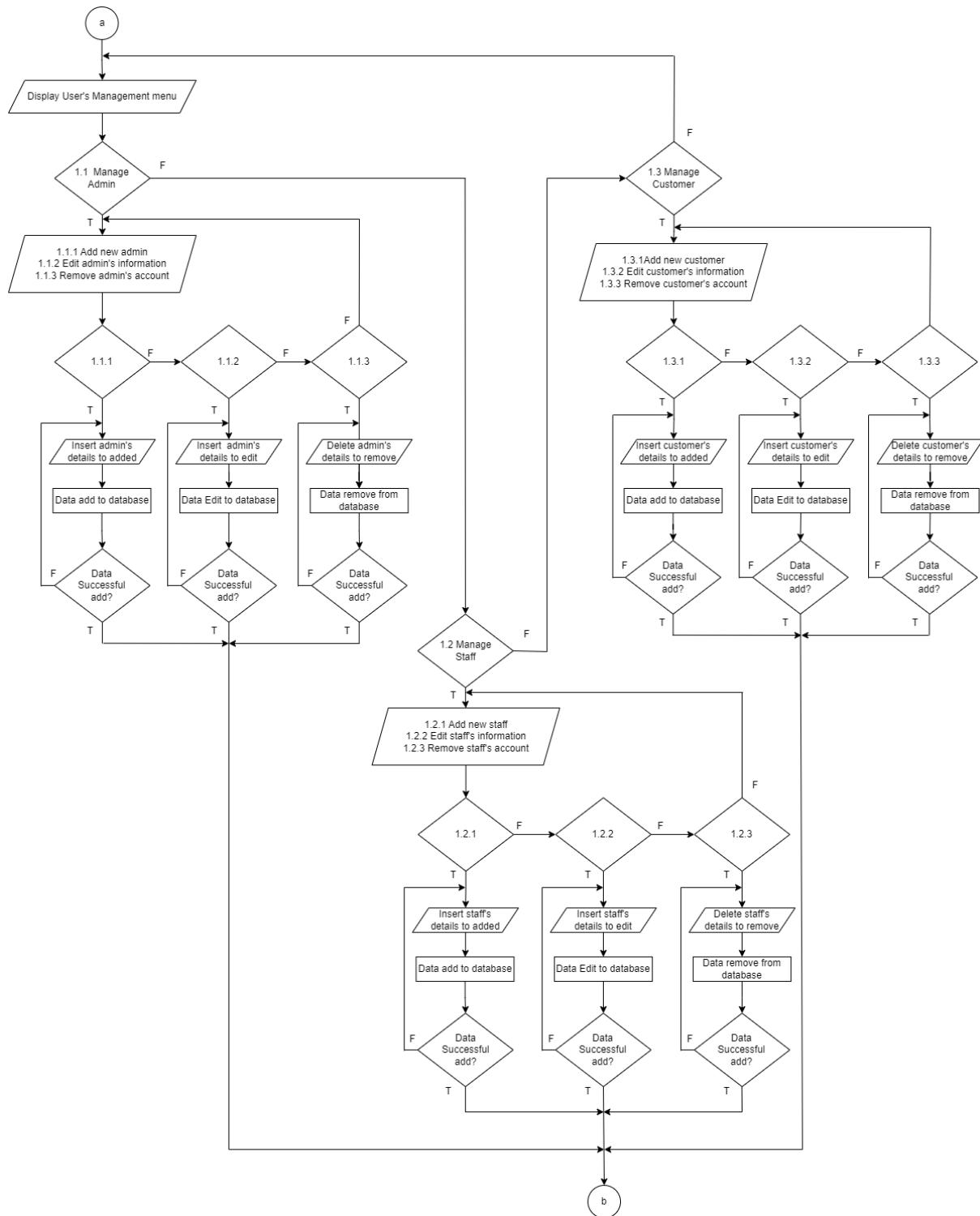


Figure 3.3: User Authentication Module



*Figure 3.4: User Management Module for Admin*

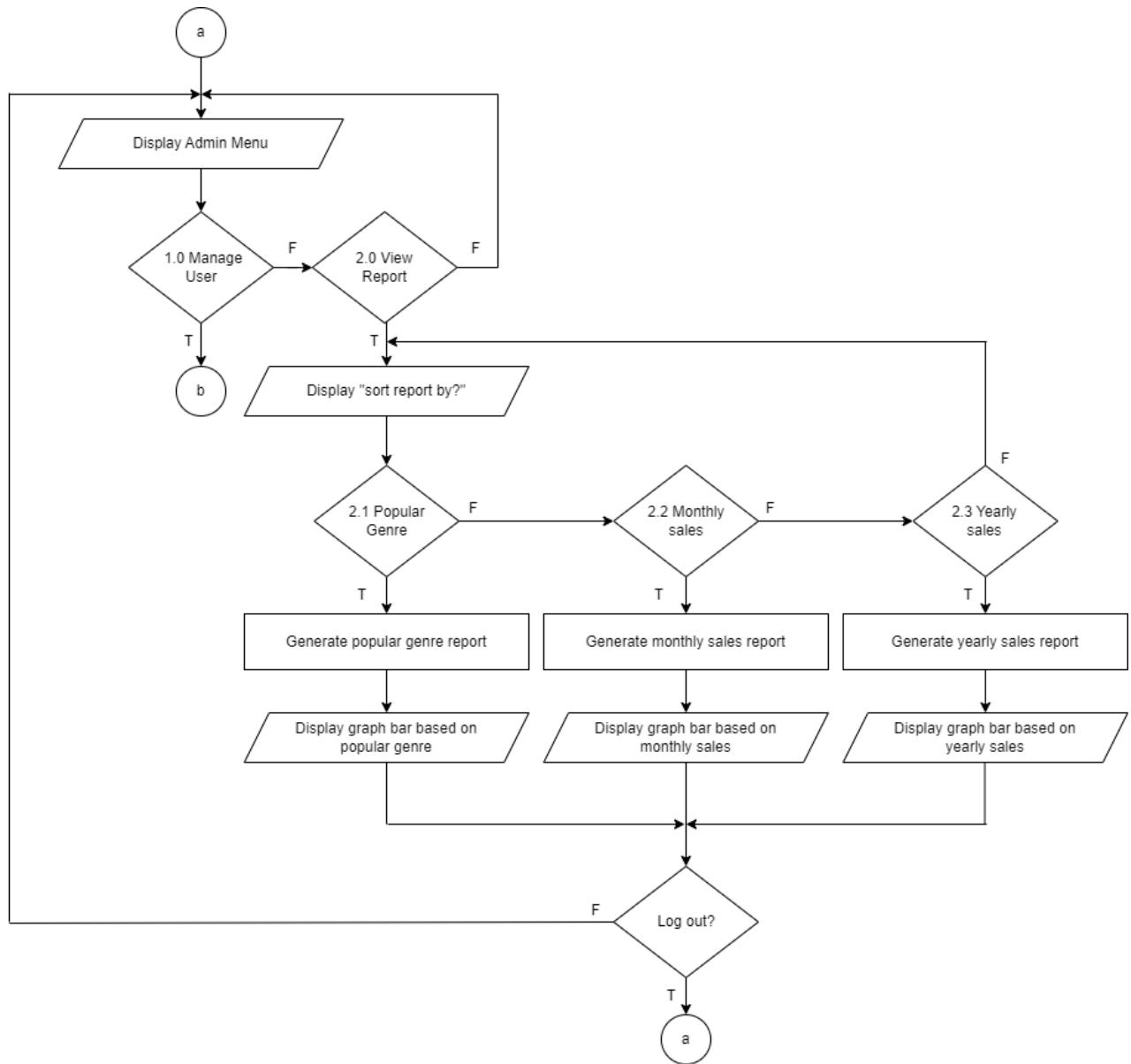
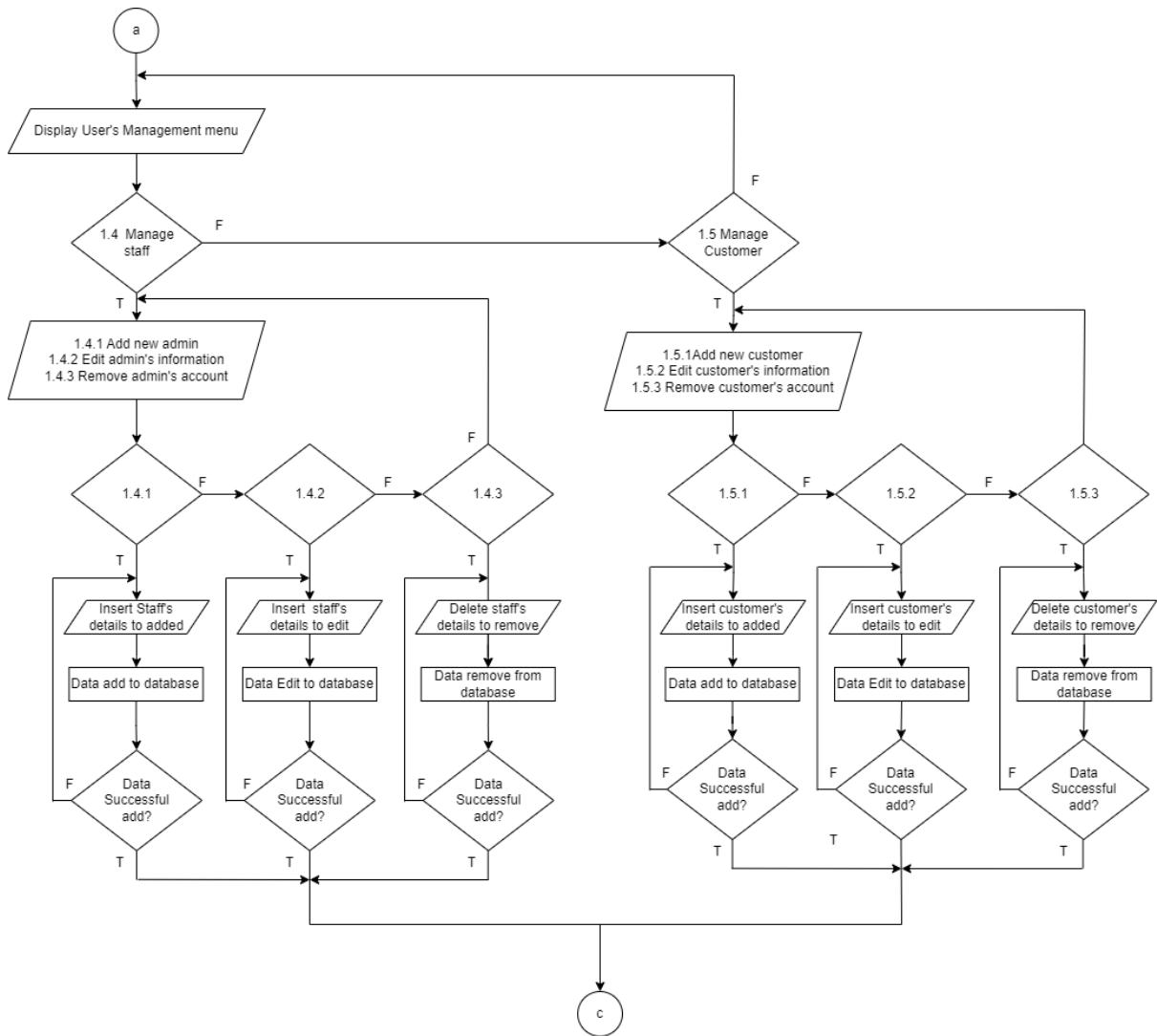
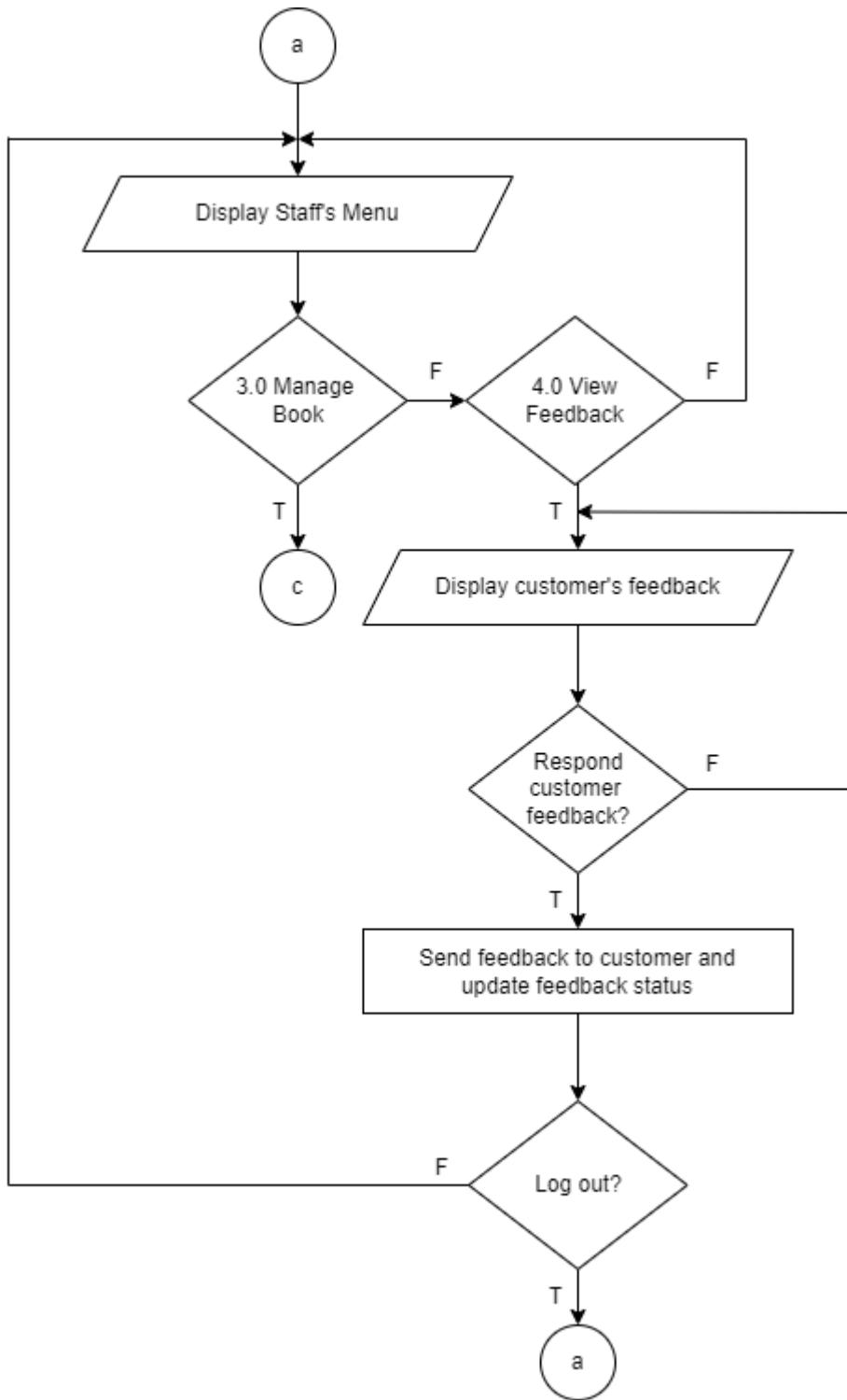


Figure 3.5: Admin's Report Module



*Figure 3.6: User Management Module for Staff*



*Figure 3.7: View Feedback Module for Staff and Admin*

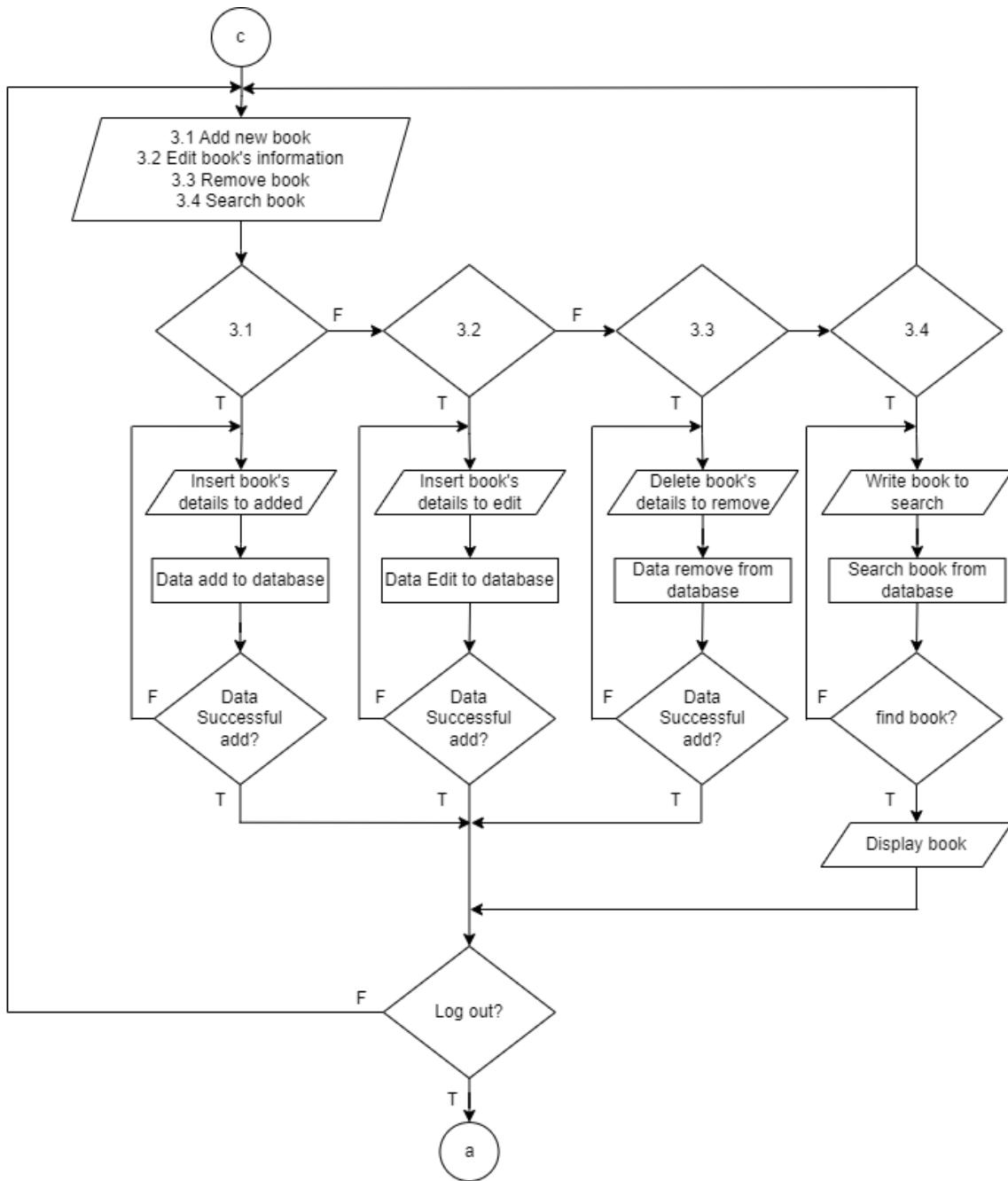


Figure 3.8: Book Inventory Module for Staff and Admin

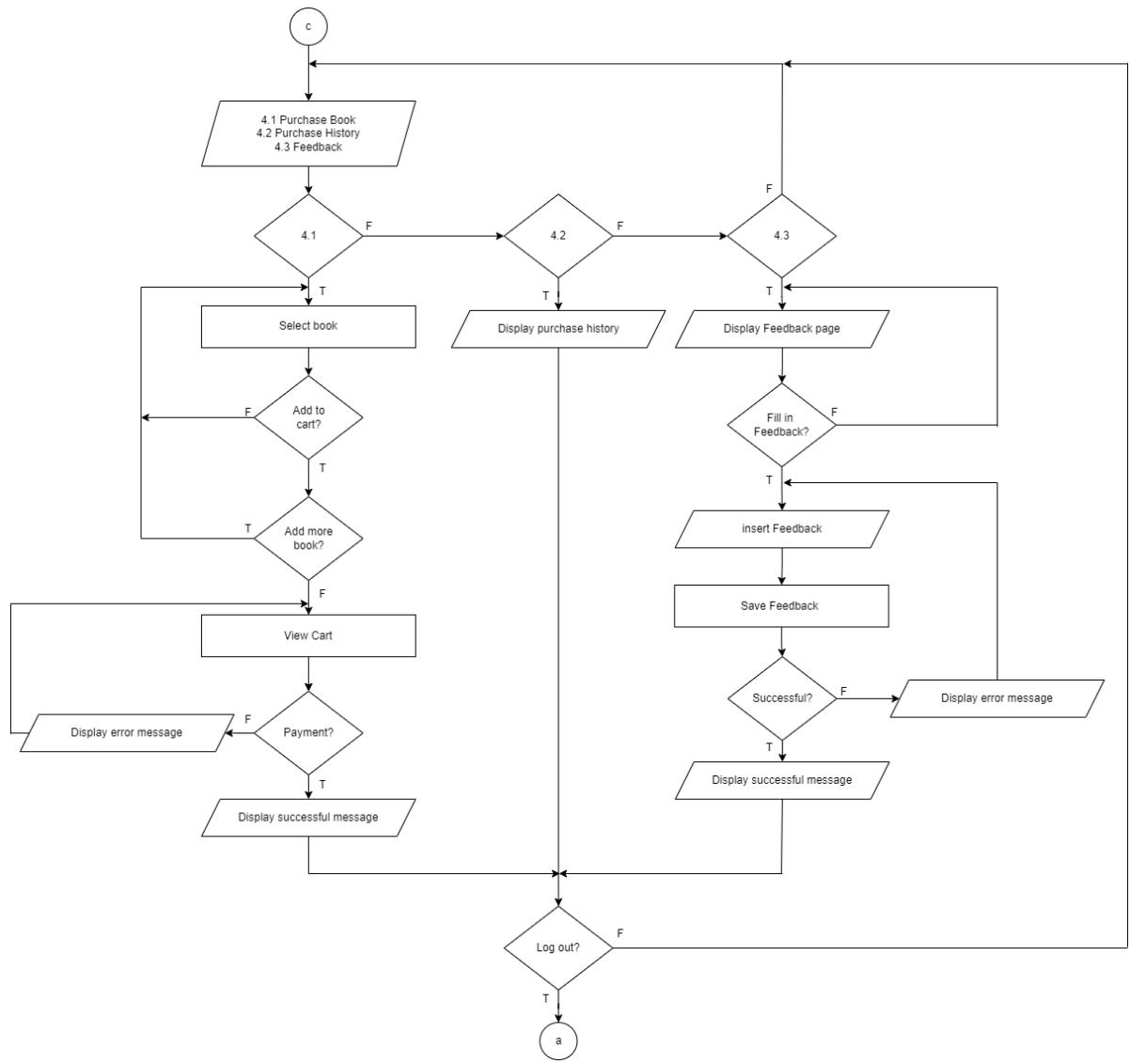


Figure 3.9: Customer purchase, view history and feedback

### 3.3 Structured chart of Proposed System

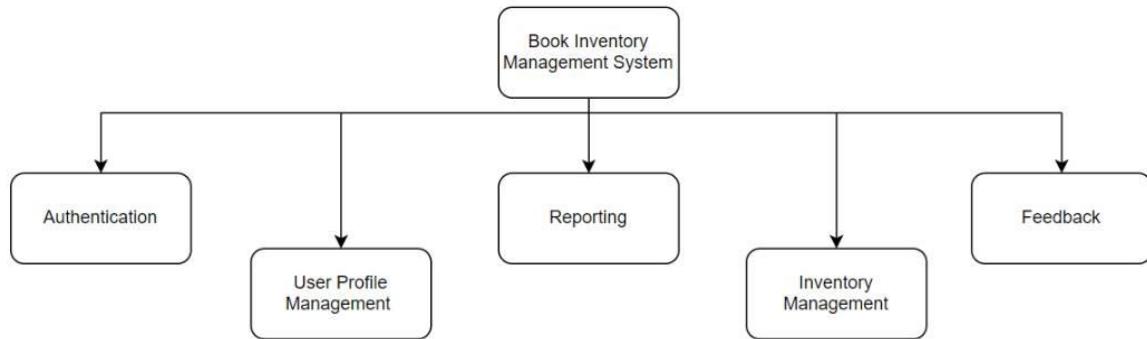


Figure 3.10: Structure Chart of Bookstore Inventory Management System

### 3.4 Work Breakdown

#### 3.4.1 Work Allocation

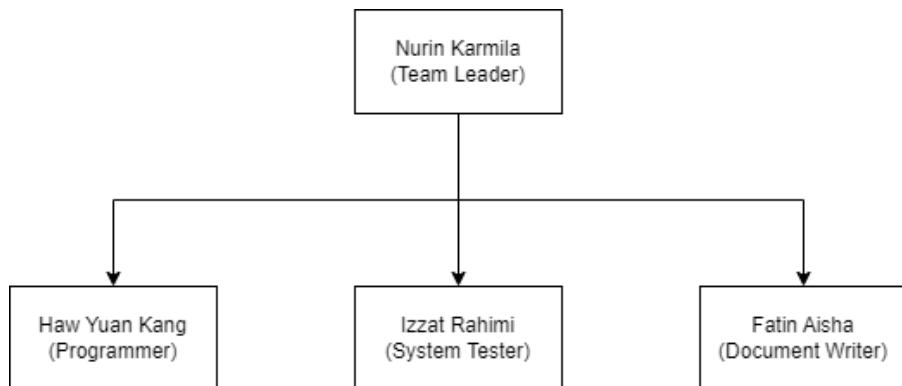
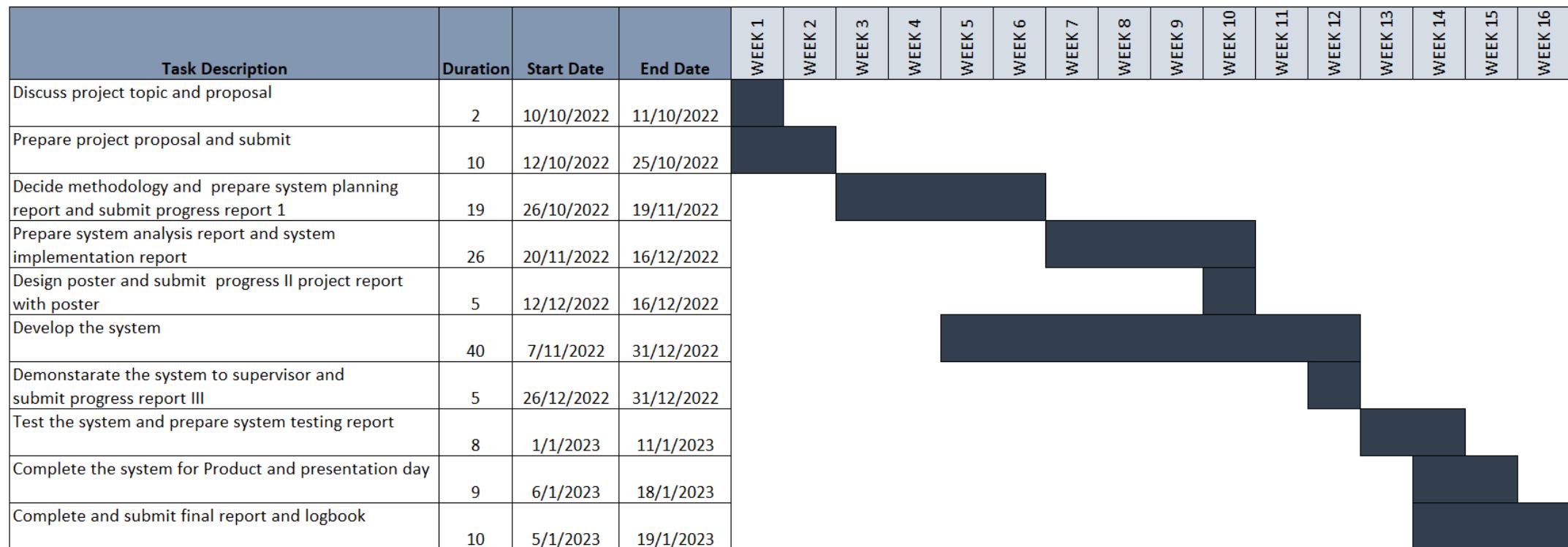


Figure 3.11: Team's Work Allocation

*Table 3.1: Role and Responsibility of Team Members*

<b>Role</b>	<b>Responsibility</b>
Team Leader	<ul style="list-style-type: none"> <li>• Give instruction to the team members</li> <li>• Improve team weaknesses and developing team strengths</li> <li>• Determine team goals and assess team progress</li> <li>• Resolving disputes</li> <li>• Develop team activities.</li> </ul>
Programmer	<ul style="list-style-type: none"> <li>• Coding and debugging</li> <li>• Design the System</li> <li>• Troubleshoot the system errors</li> <li>• Implementing build systems</li> <li>• Provides technical support</li> </ul>
System Tester	<ul style="list-style-type: none"> <li>• Examining software specifications and developing test scenarios</li> <li>• Conducting software usability tests</li> <li>• Analysing test results to determine database effect, faults or bugs, and usability</li> <li>• Preparing reports on all elements of software testing performed and reporting to the design team</li> </ul>
Document Writer	<ul style="list-style-type: none"> <li>• Provide help and documentation</li> <li>• Determine system quality</li> <li>• Assess risks</li> <li>• Resolve production issues</li> <li>• Provide and receive user input</li> <li>• Recommend operational modifications</li> </ul>

### 3.4.2 Gantt Chart



*Figure 3.12: Gantt Chart of The Bookstore Inventory Management System*

### **3.5 Conclusion**

The critical phase in system development is system analysis, and the first step is to analyze the present system to identify the problem and find a solution. Then, proposed solve the problems of the current system. It consists of a flowchart and a structure chart that explain how the system should be, look, and function.

## CHAPTER 4: SYSTEM DESIGN

### 4.1 Introduction

System design is the process of creating a blueprint for a software or hardware system. It defines the architecture, components, modules, interfaces, and data needed to meet the requirements that drive the system. It starts with understanding the problem or opportunity and determining the best solution. The design process includes a high-level design that outlines the overall structure of the system and detailed design that includes specific implementation details of each component. It is a critical step in the software development life cycle (SDLC) as it lays the foundation for the development and implementation of the system. This system interface can be used for both mobile and computer devices.

### 4.2 System Architecture

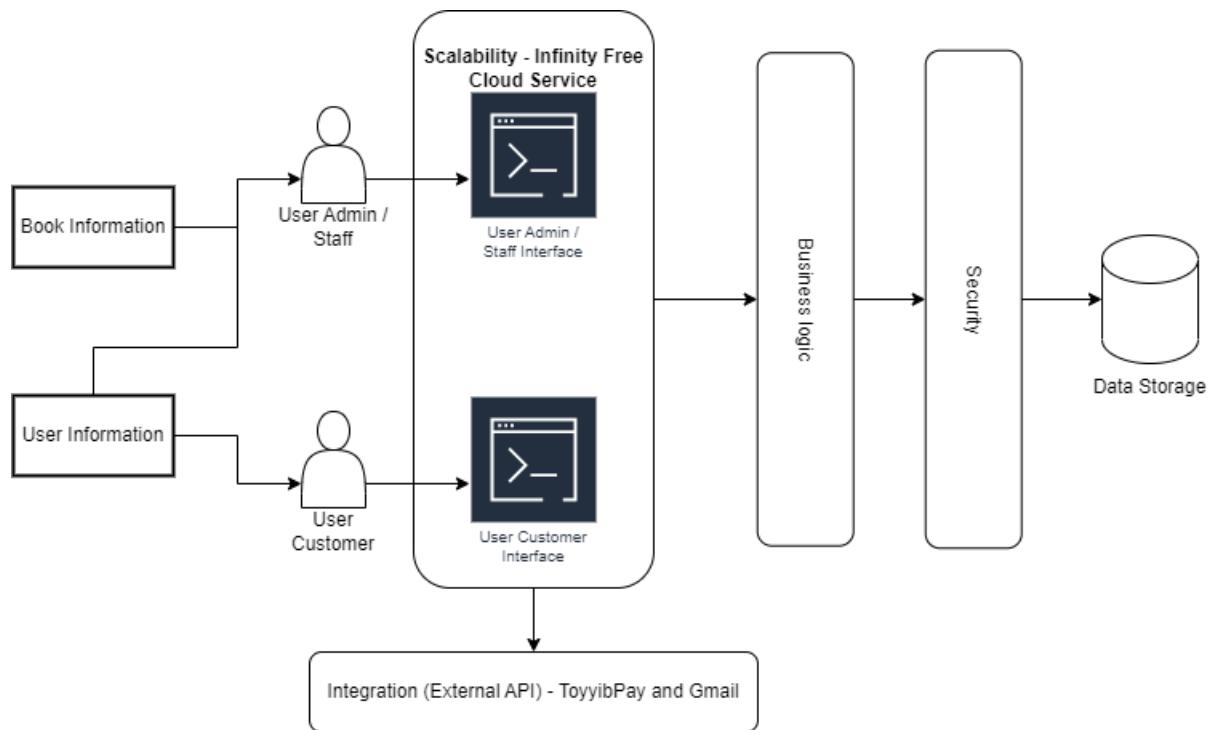


Figure 4.1: System Architecture of Bookstore Inventory Management System

**Book Information:** The raw data that needs to store into data storage by admin or staff. The book information includes book title, book ISBN, book description, book price, book stock and so on. The stored book information will appear in the book inventory of the system for management convenience.

**User Information:** The raw data that needs to store into data storage by admin and customer. The user information includes username, user email, user phone number, user password that is encrypted and so on. The stored user information will allow users to easily access the system next time they login.

**Data Storage:** A relational database such as MySQL and phpMyAdmin would be used to store and manage the book information, customer shopping cart, users' information, sales & statistic reports, and order history.

**User interface (Customer / Admin / Staff):** The system would have a web-based and mobile platform interface that allows customers to browse the book catalog, place orders, make some feedback or comments and view their order history. A separate interface would also be provided for employees, who would be able to manage the book inventory, reply feedback or comment, view business reports and a same interface but extra features provided for admin to manage user's account.

**Business logic:** The system would have a separate layer for handling the business logic, such as calculating the book inventory stock, processing customer purchase, and automatically generate and update latest business reports. This layer would interact with both the user interface and the data storage layers.

**Security:** The system would implement appropriate security measures such as SSL for encrypting the data during transmission, password hashing for storing the password, role-based access control to limit the access of certain users to certain functionality and firewalls to protect the system from unauthorized access.

**Scalability:** The system would be designed to be scalable to handle an increase in the number of users and the volume of data. It could be achieved by using cloud-based infrastructure

(Infinity Free) and implementing load balancers to distribute the workload across multiple servers.

Integration: The system could potentially integrate with other systems such as a payment gateway (ToyyibPay) to process the payments for every purchase of the book. Another integration used in the system is an email service (Gmail) to send purchase receipt to email and account verification token for the purpose of forget password.

## 4.3 Database Design

### 4.3.1 Entity Relationship Diagram

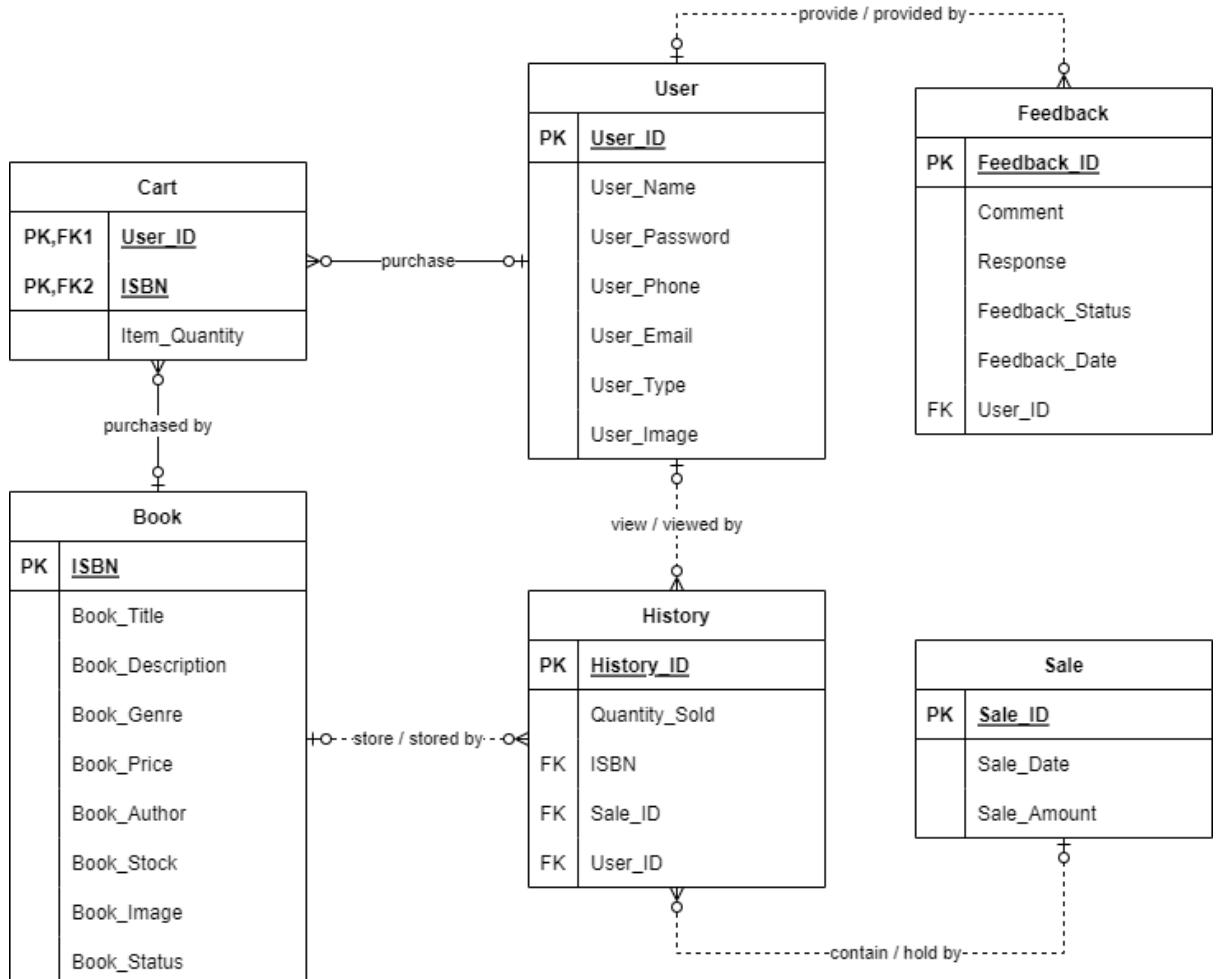


Figure 4.2: Entity Relationship Diagram

### 4.3.2 Data Dictionary

Table User

*Table 4.1: Data Dictionary of User*

User									
Name	Description	Data Type & Size	Format	Range	Null	Default Value	Unique?	PK or FK	FK Referenced Table
User_ID	User unique id that will auto increment	int (10)	XXXXXXXXXX		No		Yes	PK	
User_Name	User unique name	varchar (50)	XXXXXXXXXXXX		No				
User_Password	User account password	varchar (50)	XXXXXXXXXXXX		No				
User_Phone	User phone number	varchar (50)	XXX-XXXXXXX		No				
User_Email	User email address	varchar (50)	XXXXXX@XXX.com		No				
User_Type	User type in the system	varchar (50)	XXXXXXXXXXXX	Customer / Admin / Staff	No	Customer			
User_Image	User avatar	varchar (50)	XXXXXXX.XXX	.jpeg / .png / .jpg	No	User.png			

## Table Book

*Table 4.2: Data Dictionary of Book*

Book									
Name	Description	Data Type & Size	Format	Range	Null	Default Value	Unique?	PK or FK	FK Referenced Table
<b>ISBN</b>	International Standard Book Number that uniquely identifies books	varchar (17)	XXX-X-XXXX-XXXX-X		No		Yes	PK	
<b>Book_Title</b>	Book title	varchar (200)	XXXXXXXXXXXX		No				
<b>Book_Description</b>	Book content description or recommendation	varchar (2000)	XXXXXXXXXXXX		No	This book has no description			
<b>Book_Genre</b>	Book genre	varchar (50)	XXXXXXXXXXXX		No				
<b>Book_Price</b>	Sale price for the book	double (6,2)	XXXX.XX	> 1	No				
<b>Book_Author</b>	Author of the book	varchar (50)	XXXXXXXXXXXX		No				
<b>Book_Stock</b>	Current stock of the book	int (50)	XXXXXXXXXXXX	> 1	No				
<b>Book_Image</b>	Book cover image	varchar (50)	XXXXXXX.XXX	.jpeg / .png / .jpg	No	noimg.jpg			
<b>Book_Status</b>	Current book sale status	varchar (50)	XXXXXXXXXXXX	Available / Disable	No	Available			

## Table Cart

*Table 4.3: Data Dictionary of Cart*

Cart									
Name	Description	Data Type & Size	Format	Range	Null	Default Value	Unique?	PK or FK	FK Referenced Table
User_ID	User unique id that will auto increment	int (10)	XXXXXXXXXXXX		No		Yes	FK	User
ISBN	International Standard Book Number that uniquely identifies books	varchar (17)	XXX-X-XXXX-XXXX-X		No		Yes	FK	Book
Item_Quantity	The quantity of each book on the cart	int (50)	XXXXXXXXXXXX	>1 and < Maximum Number Book Stock	No	1			

## Table Sale

*Table 4.4: Data Dictionary of Sale*

Sale									
Name	Description	Data Type & Size	Format	Range	Null	Default Value	Unique?	PK or FK	FK Referenced Table
Sale_ID	A unique id for each sale made	int (10)	XXXXXXXXXXXX		No		Yes	PK	
Sale_Date	The date when a sale is made	date	XX-XX-XXXX		No	Today Date			

Sale_Amount	The total sale amount	double (6,2)	XXXX.XX		No				
-------------	-----------------------	--------------	---------	--	----	--	--	--	--

## Table Feedback

Table 4.5: Data Dictionary of Feedback

Feedback									
Name	Description	Data Type & Size	Format	Range	Null	Default Value	Unique?	PK or FK	FK Referenced Table
Feedback_ID	A unique id for each user feedback	int (10)	XXXXXXXXXXXX		No		Yes	PK	
Comment	The feedback that writes by customer	varchar (2000)	XXXXXXXXXXXX		No				
Response	The response that writes by staff	varchar (2000)	XXXXXXXXXXXX		No	No Response Yet			
Feedback_Status	The status of customer feedback	varchar (50)	XXXXXXXXXXXX	No Response / Responded	No	No Response			
Feedback_Date	The date of feedback made	date	XX-XX-XXXX		No	Today Date			
User_ID	The customer unique id	int (10)	XXXXXXXXXXXX		No		Yes	FK	User

## Table History

*Table 4.6: Data Dictionary of History*

History									
Name	Description	Data Type & Size	Format	Range	Null	Default Value	Unique?	PK or FK	FK Referenced Table
<b>History_ID</b>	A unique id for each user history	int (10)	XXXXXXXXXXXX		No		Yes	PK	
<b>Quantity_Sold</b>	The quantity of each book sold	int (50)	XXXXXXXXXXXX		No				
<b>ISBN</b>	International Standard Book Number that uniquely identifies books	varchar (17)	XXX-X-XXXX-XXXX-X		No		Yes	FK	Book
<b>Sale_ID</b>	A unique id for each sale made	int (10)	XXXXXXXXXXXX		No		Yes	FK	Sale
<b>User_ID</b>	The customer unique id	int (10)	XXXXXXXXXXXX		No		Yes	FK	User

## **4.4 Module integration and Interface Design**

### **4.4.1 Module Integration**

#### **Authentication Module**

An authentication module is a software component responsible for verifying the identity of a user attempting to access a system or application. Its features provide secure access to the system and its resources. The first feature of an authentication module is user registration and account creation. This allows users to create an account with the system and register their information, such as a username and password. This information is then used to verify the user's identity when they attempt to log in to the system. The second feature is user login and logout. This allows the user to access the system by providing their credentials such as username and password and logging out of the system when they are finished. The third feature is password management. This includes the ability to reset forgotten passwords. This is a security measure to ensure that if a user forgets their password, they can still gain access to the system by resetting it. Another important feature of an authentication module is verifying the identity of the user by checking the credentials provided, such as a username and password. This ensures that only authorized users can access the system and its resources. Lastly, the module also checks the user's permissions and roles to determine their level of access to the system, this is known as access control. This ensures that users only have access to the resources and functionality that they are authorized to use.

#### **User Profile Management Module**

A user profile management module is a software component that is responsible for managing the staff's profile and personal information within a system or application. It allows the admin to view customers and manage staff. A user profile management module can also provide tools for users to manage their account settings, such as changing their passwords. This is important for security and helps to ensure that users can maintain control over accounts. An example feature of the user profile management module is the ability for the admin to add the staff to this system. Another example feature of the user management module is the ability for the admin to remove the staff only from this system but not customers because staff may resign but customers will always be a customer whenever they want. Overall, a user profile

management module is an important tool for managing user information, and settings within a system or application, as well as allowing users to manage their account settings, privacy, and access to resources.

## **Book Inventory Management Module**

A book inventory management module is a software component that is responsible for managing the inventory of books within a bookstore. It allows for the tracking, organization, and management of books and related information. One of the key features of a book inventory management module is the ability to track and manage the physical inventory of books. This can include information such as the title, author, ISBN, price, and the number of copies. Additionally, it can track the books' status, such as if it's available or disabled at the time. Another feature of a book inventory management module is the ability to manage the metadata of the books. This can include information such as the image, genre, and summary of the book. This information can be used to search and filter the books, allowing users to easily find the books they are looking for. One of the main features of the book inventory management module is it will always notify admin and staff if there is any of the books are running low on stock. Overall, a book inventory management module is an important tool for managing the physical inventory of books within a bookstore. It allows for the tracking, organization, and management of books and related information, as well as selling it to users. It also works as a reminder for admin and staff to keep an eye on the stock of each book.

## **Reporting Module**

A reporting module is a software component that is responsible for generating and displaying reports within a system or application. It allows users to view, analyze and understand the data and information within the system. One of the key features of a reporting module is the ability to generate reports based on the data within the system. This can include information such as sales data and inventory data. The module can take this data and create a report that can be easily understood by the user. A reporting module is displayed as visualization graphs to help the user better understand the data. This can make it easier to spot trends, patterns, and outliers in the data. Another feature of a reporting module is the ability to generate statistical information such as the most popular genre of books. Overall, a reporting module is an

important tool for generating and displaying reports within a system or application. It allows users to view, analyze, and understand the data and information within the system and help the owner to make wise decision when replenishing a new stock of books.

## **Feedback Module**

A feedback module is a software component that allows users to provide feedback or comments on a product, service, or experience of the website. It is a tool that helps businesses to understand and improve the customer experience. One of the features of the feedback module is it provides tools for responding to feedback. This is including that the staff can view all feedback lists that had been made by customers and choose any of the feedback to make the response. Overall, a feedback module is an important tool for gathering and analysing customer feedback, and it helps businesses to understand and improve the customer experience.

## **Shopping Cart Module**

A shopping cart module is a software component that allows users to purchase books. It provides the functionality for customers to browse and purchase books. One of the key features of a shopping cart module is the ability for users to browse and search for books. This can include options such as filtering by price, category, or any key information of a book. This allows customers to find the books they are looking for quickly and easily. Another feature of a shopping cart module is the ability to add items to a virtual cart and manage the cart. This can include options such as adjusting the number of items or removing items from the cart. This allows customers to easily make changes to their orders before they proceed to checkout. A shopping cart module can also provide tools for managing the checkout process. This can include options such as calculating the total cost of the order and providing online payment options. Additionally, a shopping cart module is providing the ability for customers to view their past orders. Overall, a shopping cart module is an important tool as it provides the functionality for customers to browse, purchase and manage books online. It allows users to add items to a virtual cart, manage the checkout process and provide customer purchase history.

#### 4.4.2 Website Interfaces

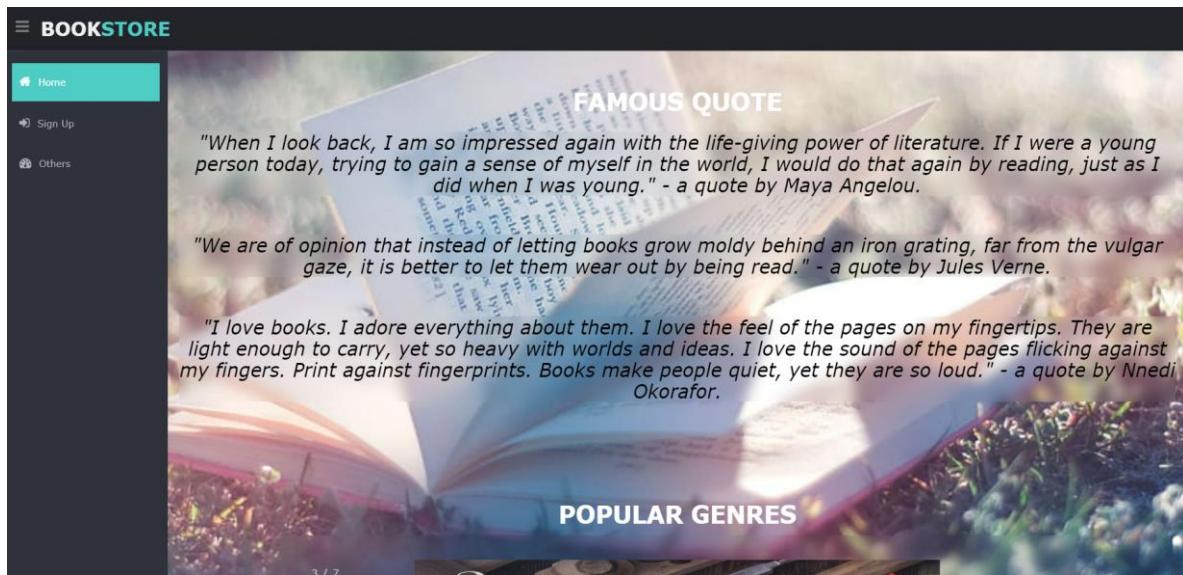


Figure 4.3: First Home Page



Figure 4.4: Second Home Page



Figure 4.5: Home Page (Mobile View)

The home page of the bookstore website includes navigation elements that help users navigate and find the section they are looking for. A large banner that promotes a new release and sale is placed prominently on the page. It is followed by a navigation menu that allows users to go to the desired section such as login or view popular release books. Overall, the home page is designed to be user-friendly and easy to navigate, with clear calls to action that guide users to the section they're looking for.

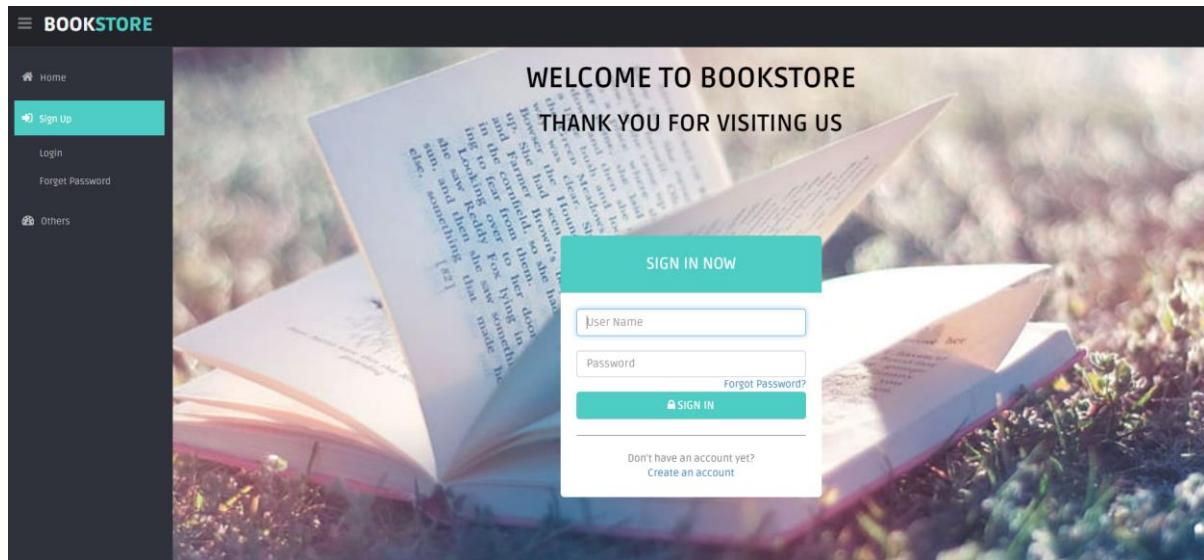
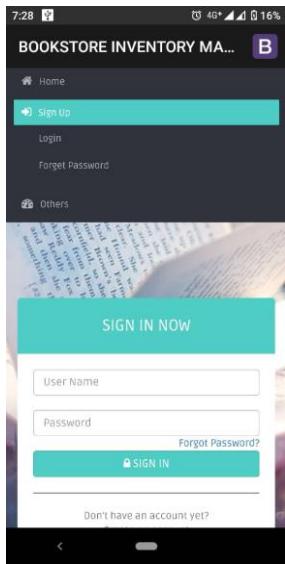


Figure 4.6: Login Page



*Figure 4.7: Login Page (Mobile View)*

The login page allows users to enter their credentials such as username and password, to access the bookstore's website. This login page includes a form that prompts the user to enter their login information, with fields for the username and password. This login page also includes a "Forgot password" link, which allows users to reset their password if they have forgotten it. Moreover, this login page includes a "Create an account" link for new users who have not yet created an account. This button will pop up a window where users can create a new account. Overall, the login page is designed to be user-friendly, with clear instructions and a simple layout that makes it easy for users to enter their login information and access the bookstore's website.

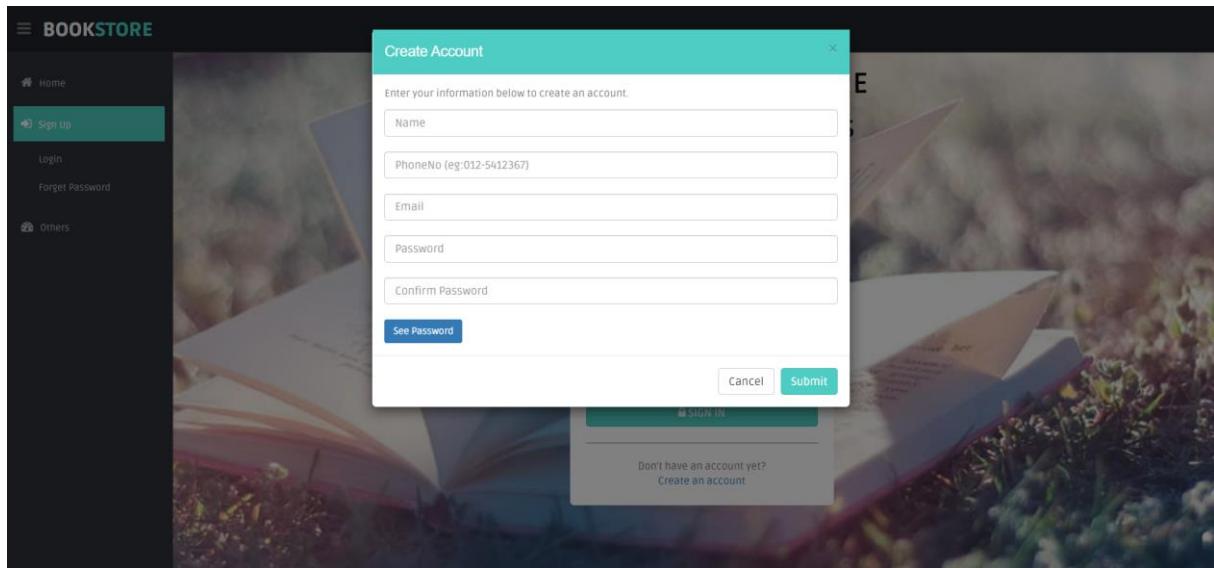


Figure 4.8: Login Page (Create Account)

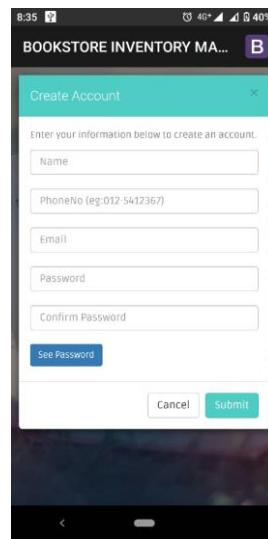


Figure 4.9: Login Page (Mobile View Create Account)

The create account window form allows users to register and create a new account on the bookstore's website. This window form includes a window form that prompts users to enter their personal information, such as their name, email address, phone number, and password. This window form will check and validate the information that entered by the users such as the phone number and email must follow the required format, if the username, email, or phone number is existing on this website then it will prompt users about that account already existed. Once the user has filled out the form and successfully submitted their information, they will be redirected to the login page. This creates an account window form designed to be user-friendly, with clear instructions and a simple layout that makes it easy for users to enter their information and create an account. It also makes sure that the user won't open the same account twice.

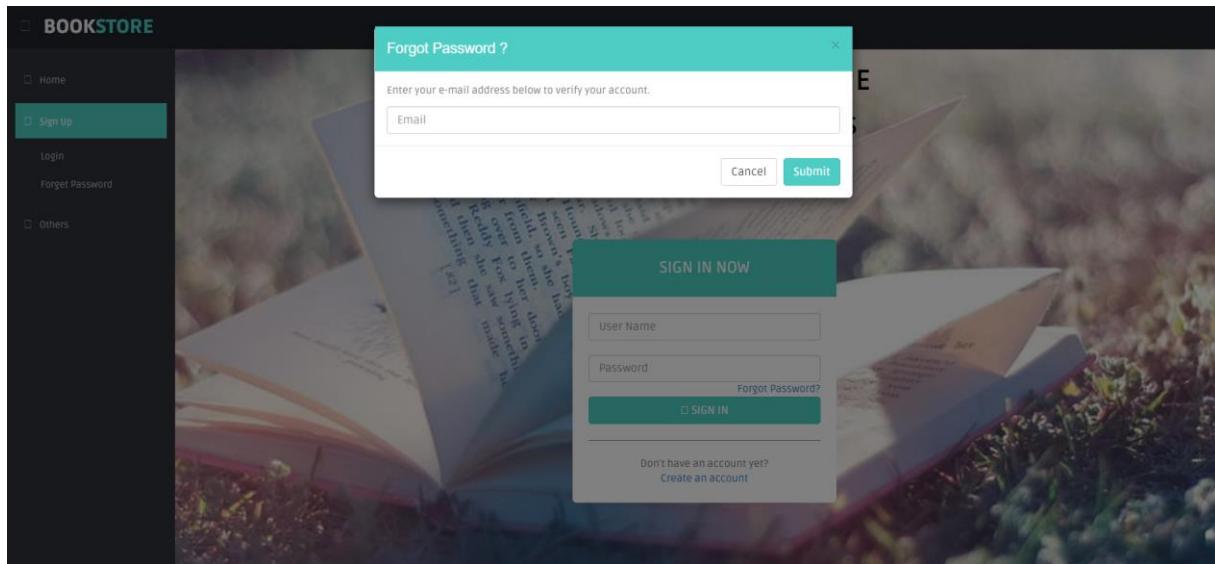


Figure 4.10: Login Page (Forget Password)

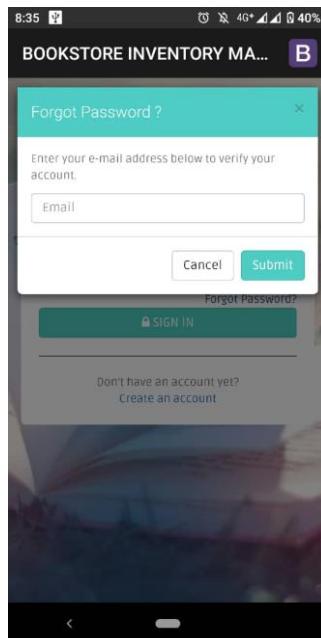


Figure 4.11: Login Page (Mobile View Forgot Password)

This forgot password window form allows users to enter their email addresses to proceed with the forget password action. The window form will validate and check if the email entered by users is in the correct format and exists in the system if the entered email address is valid in the system then it will redirect users to the reset password page for further action. This forget password window form is designed to be user-friendly, with clear instructions and a very simple layout that makes it easy for users to enter their email. It also makes sure that the user's email address is existing in the system before proceeding to the reset password stage.

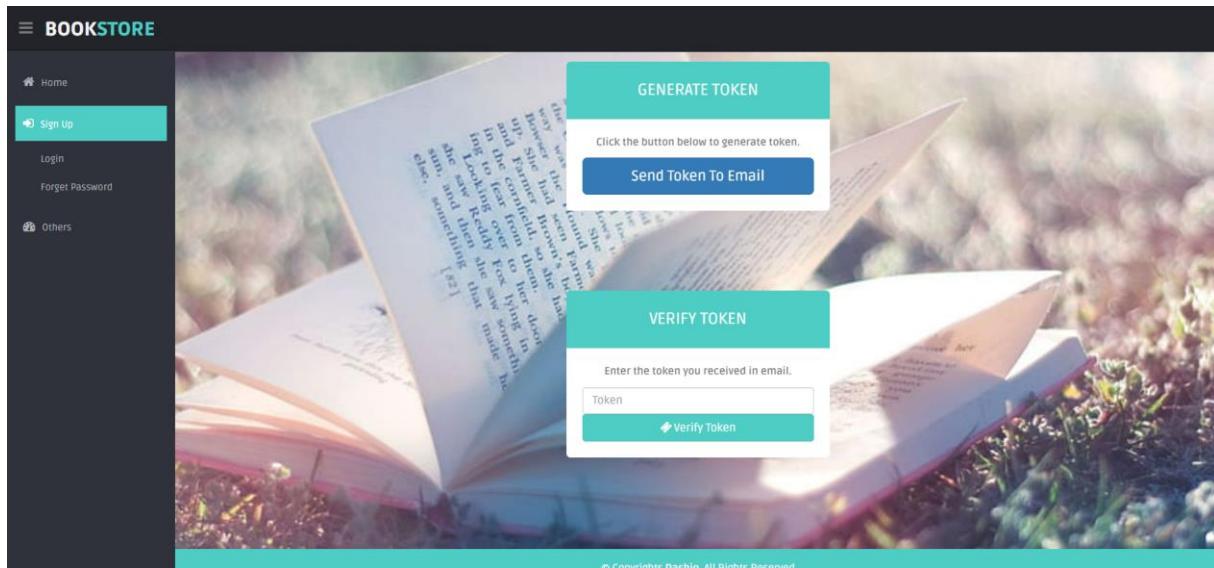


Figure 4.12: Reset Password Page

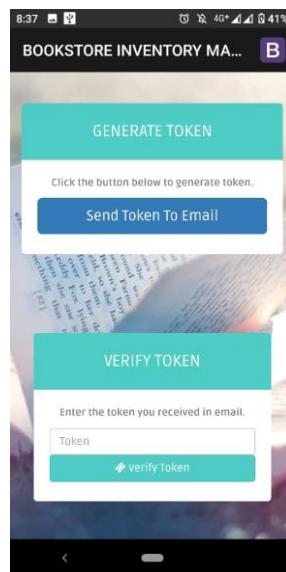


Figure 4.13: Reset Password Page (Mobile View)

The reset password page only can be accessed when users enter their email address correctly which is associated with the account in the system. It allows a user to reset their password if they have forgotten it. This page will let users generate a reset password verification code through the email when users clicked the button. Once users click the button, the website will send a password reset token to the email address associated with the account. The user can then follow the instructions to reset their password and regain access to their account.

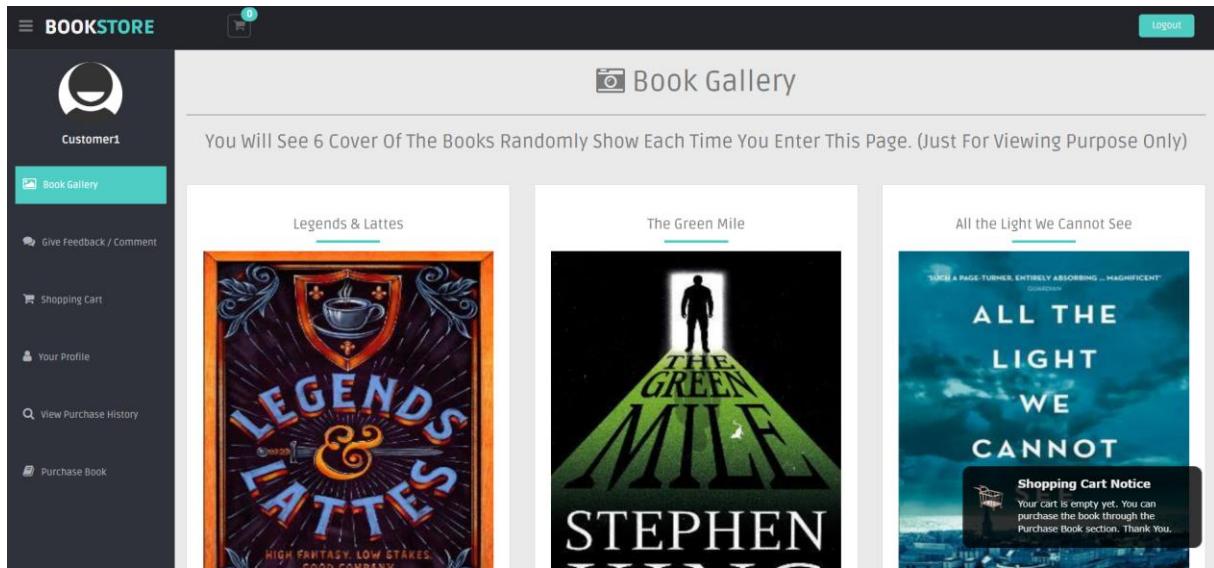


Figure 4.14: First Book Gallery Page

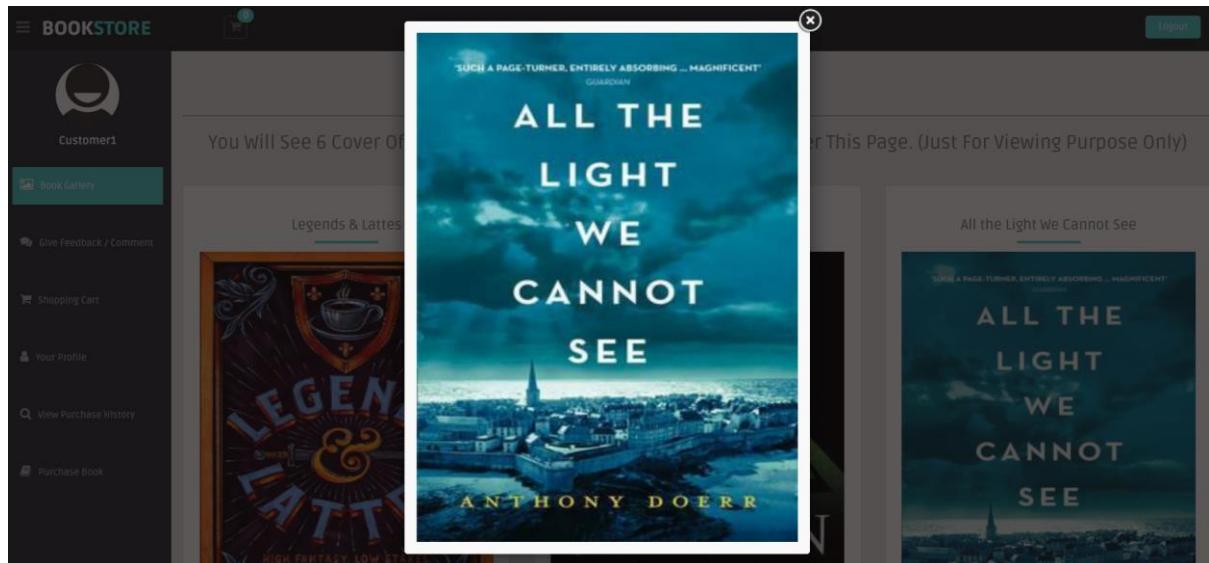


Figure 4.15: Second Book Gallery Page

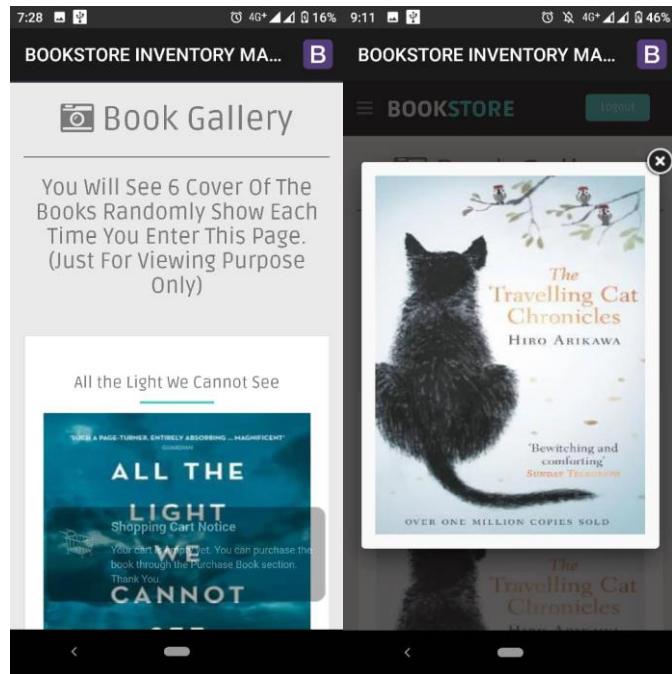


Figure 4.16: Book Gallery Page (Mobile View)

The book gallery page is the customer's main page after logging into bookstore's website. The navigation elements are on the side of each page of the customer site to help users navigate and find the section they're looking for. The banner above also included a logout button for users to log out once they are finished and a shopping cart icon that keeps updating users about the items in the cart they have. This gallery page is showing the cover of the books that are on sale. The displayed books are randomly shown based on the status of the books in the inventory. This page also gives a soft reminder if the shopping cart is empty. This book gallery page allowed users to click on those books in order to enlarge the image for a better view.

**BOOKSTORE**

**Customer1**

Book Gallery

Give Feedback / Comment

Shopping Cart

Your Profile

View Purchase History

Purchase Book

## Feedback / Comment

Please Do Not Hesitate Give Your Opinion Or Advice. You Are Welcome To Ask The Questions Through Here Too. We Will Reply And Make Improvement For Better User Experience. Thank You For Visiting Our Website.

Your Account ID	19
Make Feedback Date (Today)	01-15-2023
Your Feedback Status	
Response From Admin	
Your Feedback / Comment	Write your feedback / comment here.

**Send**    **Clear**

Figure 4.17: First Feedback Page (Customer)

**BOOKSTORE**

**Customer1**

Book Gallery

Give Feedback / Comment

Shopping Cart

Your Profile

View Purchase History

Purchase Book

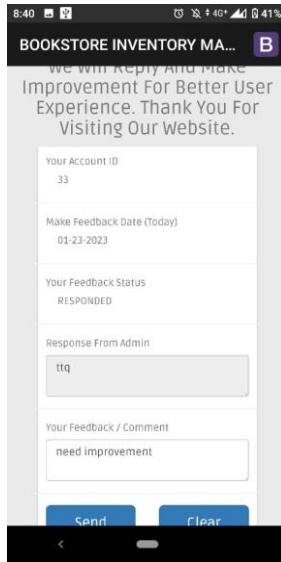
## Feedback / Comment

Please Do Not Hesitate Give Your Opinion Or Advice. You Are Welcome To Ask The Questions Through Here Too. We Will Reply And Make Improvement For Better User Experience. Thank You For Visiting Our Website.

Your Account ID	19
Make Feedback Date (Today)	01-15-2023
Your Feedback Status	NO RESPONSE
Response From Admin	NO RESPONSE YET
Your Feedback / Comment	wow , this website is so convenient for us to make the search for looking books and proceed to checkout. The shopping cart system also work nice. But there is some improvement needed to perfect the ca

**Send**    **Clear**

Figure 4.18: Second Feedback Page (Customer)



*Figure 4.19: Feedback Page (Mobile View Customer Feedback)*

The feedback page allows users to provide feedback or suggestions about the website or request a new brand of books. This contains a text field for the user to provide their feedback or comment. Once the user submits the form, the feedback is sent to the website's admin or staff for review. In addition, users can check their feedback status to see whether their feedback is responded to or not yet. Moreover, users can edit the feedback that they already made. The feedback page serves as a way for users to communicate their thoughts and opinions to the website admin or staff and to help improve the overall user experience.

A screenshot of the admin dashboard showing the 'User Feedback' section. The left sidebar has a navigation menu with items like Sales Report, Book Management, User Management, Others (which is selected), View User Feedback, Reply User Feedback, and View Profile. The main content area has a title 'User Feedback' with a search bar. It displays a table of feedback entries:

USER NAME	COMMENT	DATE	STATUS	RESPONSE	REPLY
Customer2	I like the gallery that always show random cover of books for me to discover new book. Keep it up (Edited)	2023-01-12	RESPONDED	Thank you for the positive feedback, we intend to add more kind of gallery in future, please look forward for it. (Edited)	
Customer3	This is a feedback from a mobile user, in mobile there is a lot of things might not works nicely	2023-01-12	NO RESPONSE	NO RESPONSE YET	
Customer1	wow ,This website is so convenient for us to make the search for looking books and proceed to checkout. The shopping cart system also work nice. But there is some improvement needed to perfect the cart feature so that we can always see the latest calculation without refreshing the page. (Edited)	2023-01-14	NO RESPONSE	NO RESPONSE YET	

At the bottom, it says 'Showing 1 to 3 of 3 entries' and has navigation buttons for 'Previous' and 'Next'.

*Figure 4.20: View Feedback Page (Admin)*

The screenshot shows a mobile application interface for the Bookstore Inventory Management System. At the top, there is a header bar with the text "BOOKSTORE INVENTORY MANAGEMENT SYSTEM" and a logo. Below the header, the title "User Feedback" is displayed with a speech bubble icon. A table lists feedback entries with columns for User Name, Comment, Date, Status, Response, and Reply. The first entry is green, indicating it has been responded to. The second entry is white, indicating it has not been responded to yet. There are search and filter options at the top of the table.

USER NAME	COMMENT	DATE	STATUS	RESPONSE	REPLY
	gudluck 10/10	2023-01-17	RESPONDED	thank you	
	I like the gallery that always show random cover of books for me to discover new	2023-01-12	RESPONDED	Thank you for the positive feedback, we intend to add more kind of	

Figure 4.21: View Feedback Page (Mobile Horizontal View Admin Check Feedback)

The view feedback page allows users to view all feedback from the customers in a table form for searching and overview convenient purposes. Users can filter the table list by using the search box and entering the keyword. The feedback from the customer will be shown in 2 colours which are red and green. The colour is referring to the status of each feedback. This colour option includes red colour row which means the feedback is not responded to yet and a green colour row which means the feedback is responded to. Users can click on the button to reply to that selected feedback.

The screenshot shows a desktop application interface for the Bookstore Inventory Management System. The left sidebar contains navigation links for Sales Report, Book Management, User Management, and Others (which is currently selected). The main content area displays a feedback reply page titled "Reply To Customer1". It shows a user comment and a response from the admin. The footer contains copyright information and a link to the template creator.

Wow, This website is so convenient for us to make the search for looking books and proceed to checkout. The shopping cart system also work nice. But there is some improvement needed to perfect the cart feature so that we can always see the latest calculation without refreshing the page. (Edited)

Thank you for the very positive comment given. We will consider the advice and continue to make the website better. Please keep visiting us for more interesting books.

[Reply](#)
[Back](#)

© Copyrights Dashio. All Rights Reserved  
Created with Dashio template by TemplateMag

Figure 4.22: Reply Feedback Page (Admin)

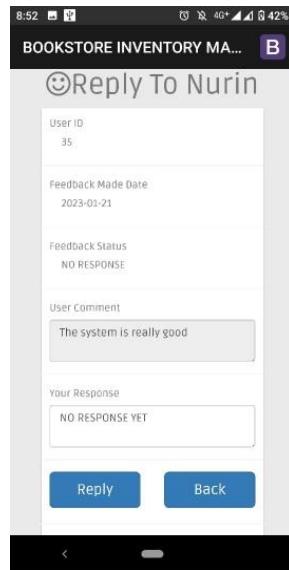


Figure 4.23: Reply Feedback Page (Mobile View Admin Reply Feedback)

This reply feedback page allowed users to reply to the feedback made by customers. Users can view the date of the feedback made and the feedback or comments given by the customers. On this page, users are provided a text field to enter their responses and replies to the customer based on the feedback given. Moreover, users can edit the response that they already made. Once the feedback is replied to, the status of that feedback will change to RESPONDED and the colour will also become green in the table list of feedback.

Figure 4.24: Profile Page

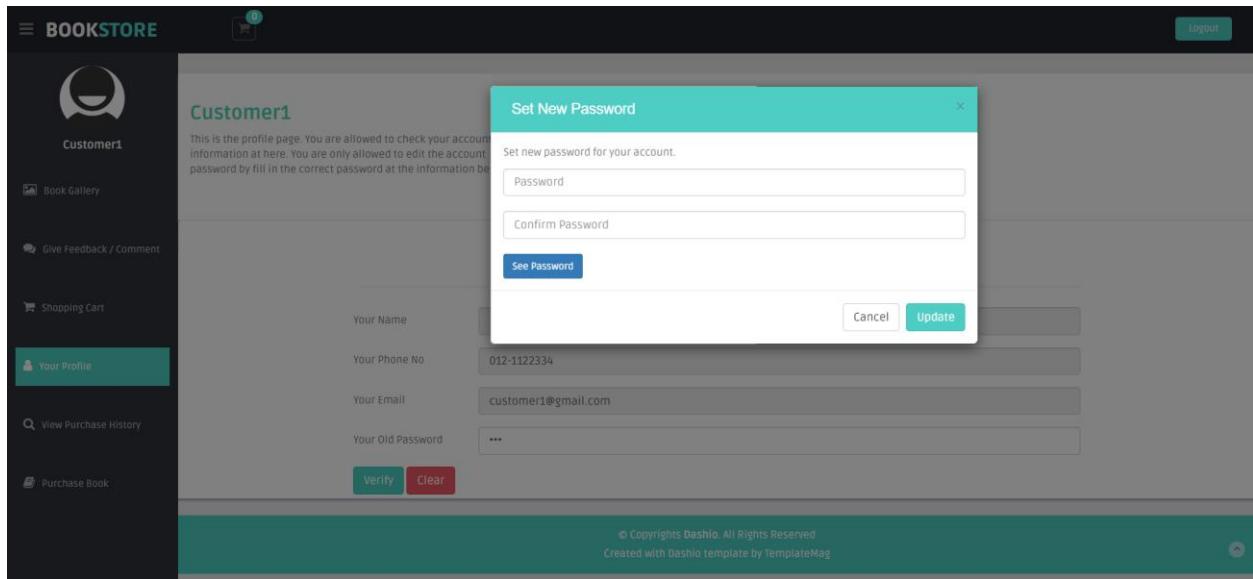


Figure 4.25: Profile Page (Update Password)



Figure 4.26: Profile Page (Mobile View Update Password)

The profile page displays information about a user of their account in the system. It includes details such as a user's name, contact number, and email address. The users are only allowed to make changes to their password by entering the old correct password. Once the user is verified, a small set new password window form will pop out for users to set the new password for their account.

**BOOKSTORE**

Customer1

Logout

0

### Table List Of Book

TITLE	DESCRIPTION	GENRE	AUTHOR	PRICE	IMAGE	ACTION
A Game of Thrones	A Game of Thrones is the first novel in A Song of Ice and Fire, a series of fantasy novels by American author George R. R. Martin. It was first published on August 1, 1996. The novel won the 1997 Locus Award and was nominated for both the 1997 Nebula Award and the 1997 World Fantasy Award.	Fantasy	George R. R. Martin	RM 52.20		<a href="#">Add To Cart</a>
Legends & Lattes	Legends & Lattes: A Novel of High Fantasy and Low Stakes is a fantasy novel written by American author Travis Baldree.	Fantasy	Travis Baldree	RM 23.00		<a href="#">Add To Cart</a>
Pinocchio	The Adventures of Pinocchio is a children's fantasy novel by Italian author Carlo Collodi. It is about the mischievous adventures of an animated marionette named Pinocchio and his father, a poor woodcarver named Geppetto.	Fairy Tale	Carlo Collodi	RM 36.92		<a href="#">Add To Cart</a>
The Hobbit	The Hobbit, or There and Back Again is a children's fantasy novel by English author J. R. R. Tolkien. It was published in 1937 to wide critical acclaim, being nominated for the Carnegie Medal and awarded a prize from the New York Herald Tribune for best juvenile fiction.	Action Adventure	J. R. R. Tolkien	RM 56.98		<a href="#">Add To Cart</a>
The Song of Achilles	The Song of Achilles is a 2011 novel by American writer Madeline Miller. Set during the Greek Heroic Age, it is an adaptation of Homer's Iliad as told from the perspective of Patroclus.	Fantasy	Madeline Miller	RM 56.98		<a href="#">Add To Cart</a>

Showing 1 to 5 of 5 entries (filtered from 39 total entries)

← Previous 1 Next →

Figure 4.27: View Book Page (In Table Form)

8:45 ☼ ¥ 4G+ 44% 42%

BOOKSTORE INVENTORY MANAGEMENT SYSTEM B

Beauty and the Beast	tale written by French novelist Gabrielle-Suzanne Barbot de Villeneuve and published in 1740 in La Jeune Américaine et les contes marins.	Fairy Tale	Gabrielle-Suzanne de Villeneuve	RM 17.00		<a href="#">Add To Cart</a>
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Showing 1 to 10 of 39 entries

← Previous 1 2 3 4 Next →

Figure 4.28: View Book Page (Mobile View Book Info in Table Form)

The screenshot shows a web-based bookstore interface. On the left, a sidebar for 'Customer1' displays links for Book Gallery, Give Feedback / Comment, Shopping Cart, Your Profile, View Purchase History, and Purchase Book. The main area is titled 'Detail List Of Book' and lists three books:

- Food Hacker : Clever cooking for busy people** by Rosie Mansfield, ISBN 978-0-1437-8878-2, categorized as Cookbook, priced at RM 181.64. An 'Add To Cart' button is present.
- The Science of Cooking : Every Question Answered to Perfect your Cooking** by Dr. Stuart Harrimond, ISBN 978-0-2412-2978-1, categorized as Cookbook, priced at RM 109.74.
- Cooking: A Commonsense Guide** by Jane Price, ISBN 978-0-6813-3197-6, categorized as Cookbook, priced at RM 3.39.

Figure 4.29: View Book Page (In Details Form)



Figure 4.30: View Book Page (Mobile View Book Info in Details Form)

The view book page provides detailed information about every book that is currently in stock and available for purchase. It includes the book's title, author, description of the book's contents, and price for each of them. Additionally, the view book page also includes a cover image of the book for a better user experience when they are looking for books. Besides, users are allowed to add the selected book to the cart by clicking on the button "Add to Cart". Once the button is clicked, the target book will add to the shopping cart with 1 quantity, if users intend to increase the quantity of that book, users can click again the button to increase the quantity by 1. Moreover, the view book page in table form helps users to search the looking book by entering the related keyword of the book.

**Customer1**

**Book Cart**

Book Title	Price	Quantity	Sub Total	Action
To Kill A Mockingbird: 60th Anniversary Edition	RM 49.90	1	RM 49.9	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>
All the Light We Cannot See	RM 55.68	1	RM 55.68	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>
A Game of Thrones	RM 52.20	1	RM 52.2	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>
Miss Peregrine's Home For Peculiar Children	RM 39.38	1	RM 39.38	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>

**TOTAL PRICE: RM 197.16**

CLEAR CART CHECK OUT

Figure 4.31: Book Cart Page

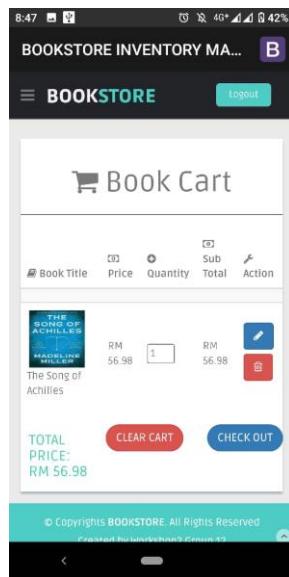


Figure 4.32: Book Cart Page (Mobile View)

The book cart page displays a summary of the items a customer has added to their cart while shopping online. It includes the item name, image, quantity, price, and subtotal for each item. It also has a summary of the total cost of the items in the cart at the bottom of the page. The book cart page has options to update the cart, such as removing items or changing the quantity of an item. It also provides a button for customers to clear all the items in the cart at once and a button to proceed to checkout, where the customer can enter their payment information to complete the purchase.

BOOKS	QUANTITY BOUGHT	SUB TOTAL AMOUNT	BUYING DATE	RECEIPT ID
To Kill A Mockingbird: 60th Anniversary Edition	X 1	RM 49.9	2023-01-15	59
All the Light We Cannot See	X 1	RM 55.68	2023-01-15	59
A Game of Thrones	X 1	RM 52.2	2023-01-15	59
Miss Peregrine's Home For Peculiar Children	X 1	RM 39.38	2023-01-15	59

Figure 4.33: View Purchase History Page

BOOKS	QUANTITY BOUGHT	SUB TOTAL AMOUNT	BUYING DATE	RECEIPT ID
The Dark Side of Winter	X 5	RM 104.95	2023-01-17	64

Figure 4.34: View Purchase History Page (Mobile Horizontal View)

The view purchase history page allows a user to view a record of their previous purchases. This includes information such as the date of purchase, the books purchased, the quantity, and their price. This page can be accessed by a user after logging into their account. This page allows the user to keep track of their past purchases, view the details of the purchase, and also in some cases provide the ability to return or exchange items.

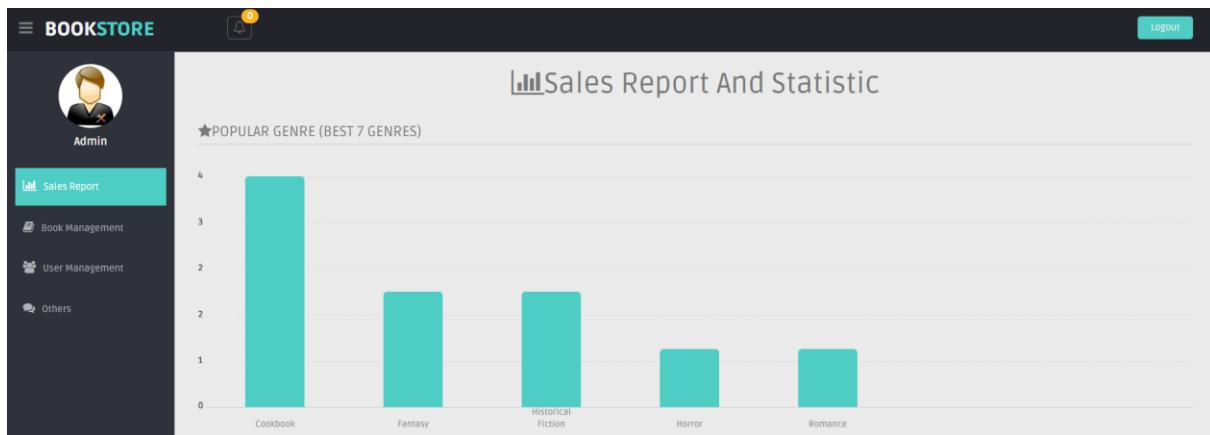


Figure 4.35: Sales Report & Statistic Page (Popular Genre)

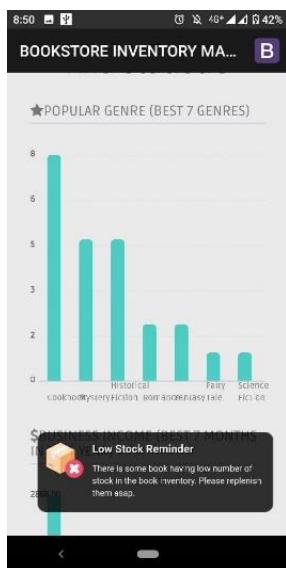


Figure 4.36: Sales Report & Statistic Page (Mobile View Popular Genre)

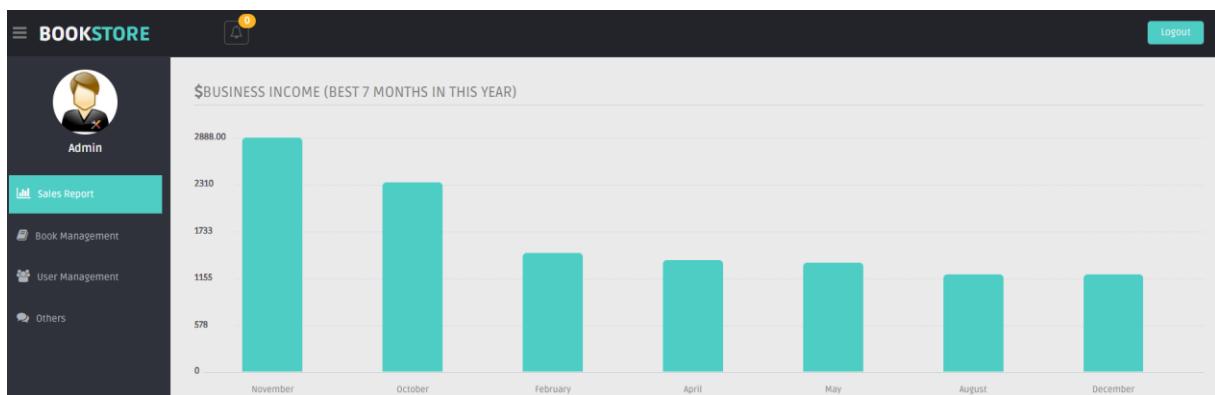
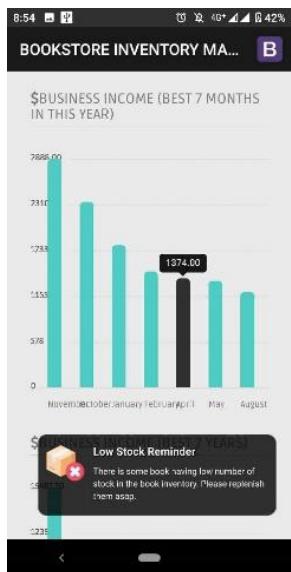
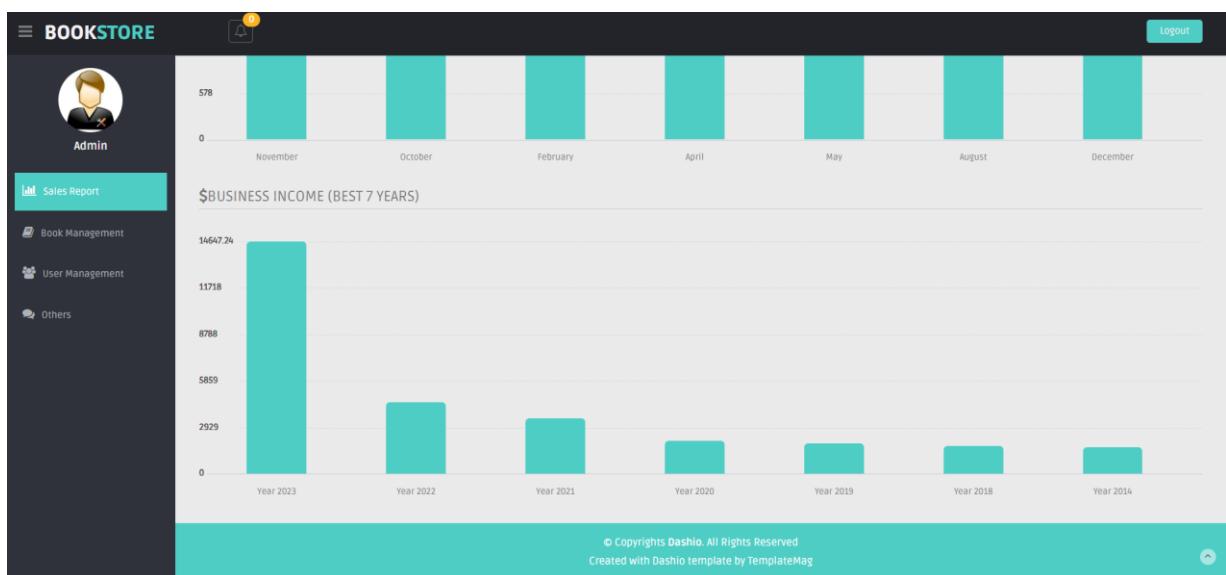


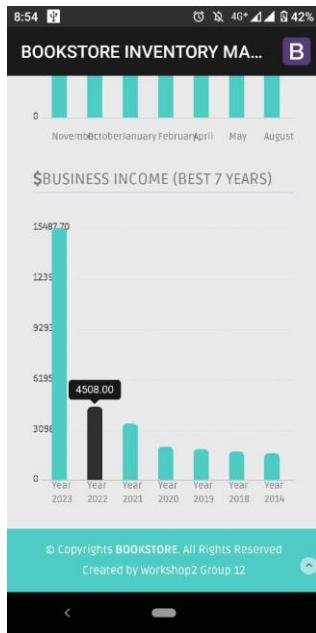
Figure 4.37: Sales Report & Statistic Page (Month Income)



*Figure 4.38: Sales Report & Statistic Page (Mobile View Month Income)*



*Figure 4.39: Sales Report & Statistic Page (Year Income)*



*Figure 4.40: Sales Report & Statistic Page (Mobile View Year Income)*

The sales report and statistic page is the main page of admin and staff after they log in to the system, this page will notify the users if there is any of the books are running low on stock. The sales report and statistic page display data in a structured and organized way, it is in the form of graphs. It is used to present information in a clear and easy-to-understand format and is used for data analysis and decision-making. It also can be used to provide information about past performance as well as to give predictions about future trends such as the popular genre of the books. This page has a total of 3 kinds of reports or statistics given. This includes popular genre statistic that shows the best-selling of the genre of books, the best monthly income in the current year that show the best 7 months which earn the most income in the current year, and the best 7 years' income from all the past of years.

Figure 4.41: Add New Book Page

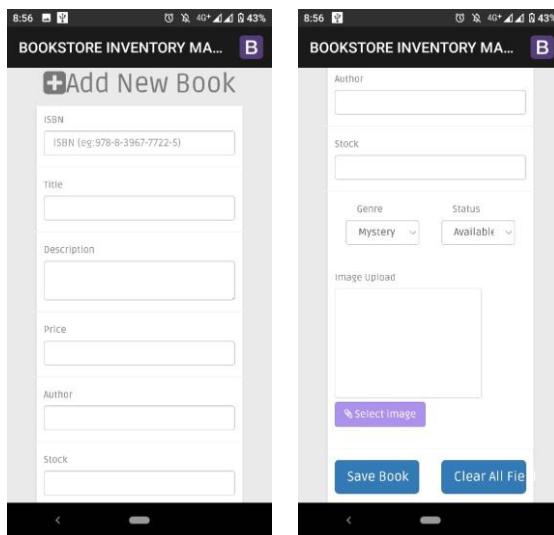


Figure 4.42: Add New Book Page (Mobile View)

The add new book page allows users to enter information about a new book and add it to a database. It includes fields for the book's title, author, ISBN, and description of the book's contents. It also includes fields for other relevant information such as genre, stock, and status of the books. The page also has options for uploading a cover image of the book and has a button to submit the form for adding it into the database. In addition, each text field on this page has its own validation such as the existing book in the database cannot be added again, and the ISBN of the books must follow the required format.

Figure 4.43: First Update Book Info Page

Figure 4.44: Second Update Book Info Page

BOOKSTORE

Logout

Sales Report

**Book Management**

Add New Book

Update Book Info

View Book List

User Management

Others

Search Book Here

ISBN: 978-5-6367-7874-1

Title: The Martian

Description: Six days ago, astronaut Mark Watney became one of the first people to walk on Mars.

Price: \$1.64

Author: Andy Weir

Stock: 100

Genre: Science Fiction

Status: Available

Image Upload: Select Image

Edit Book Close All Field

Figure 4.45: Third Update Book Info Page

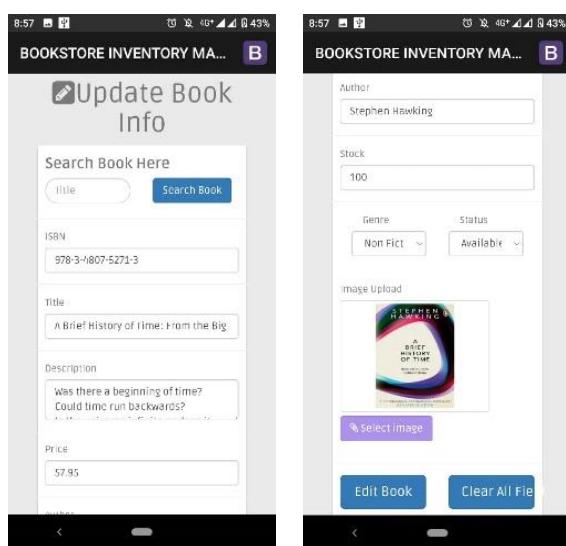


Figure 4.46: Update Book Info Page (Mobile View)

The update book info page allows users to search for the existing book from the inventory by entering the keyword of the books and it will automatically show the suggestion that is related to the keyword. When users selected any of the suggestions given, the text field below will display the information of that selected book for users to view and make changes. Users can click on the button edit book once they are finished editing the info of the book to update the info in the database.

Book Inventory List						
ISBN	TITLE	GENRE	PRICE	STOCK	STATUS	EDIT
978-3-4807-5271-3	A Brief History of Time: From the Big Bang to Black Holes	Non Fiction	57.95	100	Available	
978-5-3991-9456-1	A Game of Thrones	Fantasy	52.20	98	Available	
978-3-2985-4803-4	Aladdin	Fairy Tale	45.00	100	Available	
978-5-1684-6694-3	All the Light We Cannot See	Romance	55.68	99	Available	
978-3-4303-2471-7	Beauty and the Beast	Fairy Tale	17.00	100	Available	
978-0-6813-3197-6	Cooking: A Commonsense Guide	Cookbook	3.39	100	Available	
978-2-4676-1130-2	Dead Man's Walk	Westerns	13.06	100	Available	
979-8-5644-7518-1	Don't Go There	Mystery	17.95	100	Available	
978-6-9692-2977-5	Dune	Science Fiction	59.90	100	Available	
978-5-3918-2956-0	Expert Secrets - Critical Thinking	Educational	1352.00	100	Available	

Showing 1 to 10 of 109 entries

← Previous 1 2 3 4 Next →

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Figure 4.47: View Book Inventory Page

BOOKSTORE INVENTORY MANAGEMENT SYSTEM						
Book Inventory List						
ISBN	TITLE	GENRE	PRICE	STOCK	STATUS	EDIT
978-3-4807-5271-3	A Brief History of Time: From the Big Bang to Black Holes	Non Fiction	57.95	100	Available	
978-5-3991-9456-1	A Game of Thrones	Fantasy	52.20	98	Available	

Figure 4.48: View Book Inventory Page (Mobile View Horizontal View)

The view book inventory page allows users to search for any existing book from the inventory list by entering the keyword of the books and it will filter and display only books that are related to the keyword. This page displays information about the books such as title, ISBN, genre, price, stock, and status of the books. The purpose of this page is intended to be used by bookstore owners, admin, or staff to view and manage the books in their collection. It also includes options to sort, filter, and search the books. Admin or staff are able to perform editing action of the selected books from the inventory by clicking on the edit icon and it will redirect them to the update book info page with the details of books displayed there.

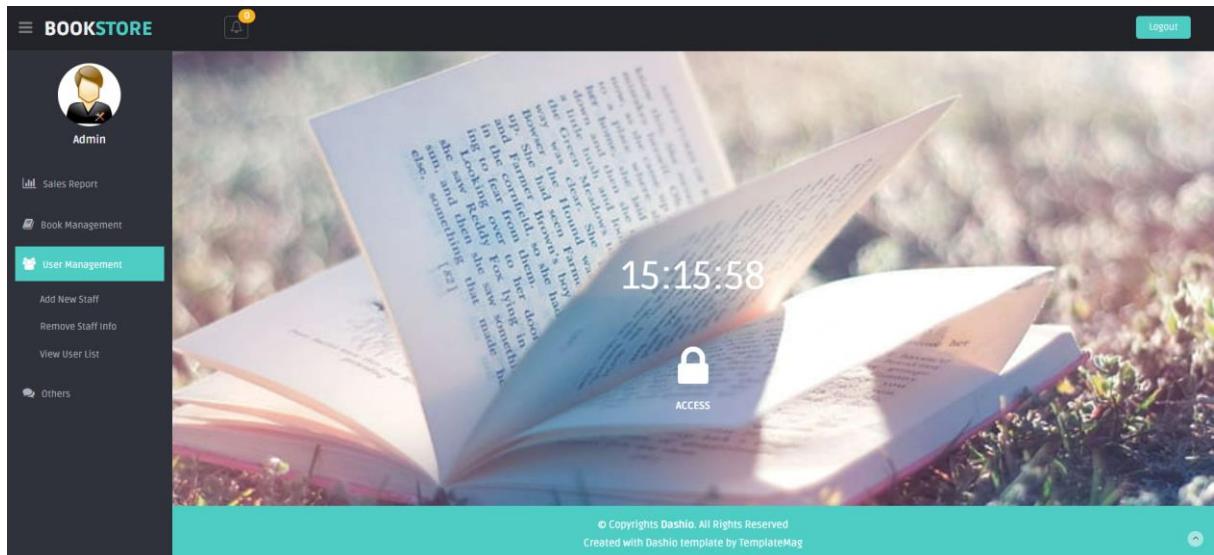


Figure 4.49: First Lock Access Page

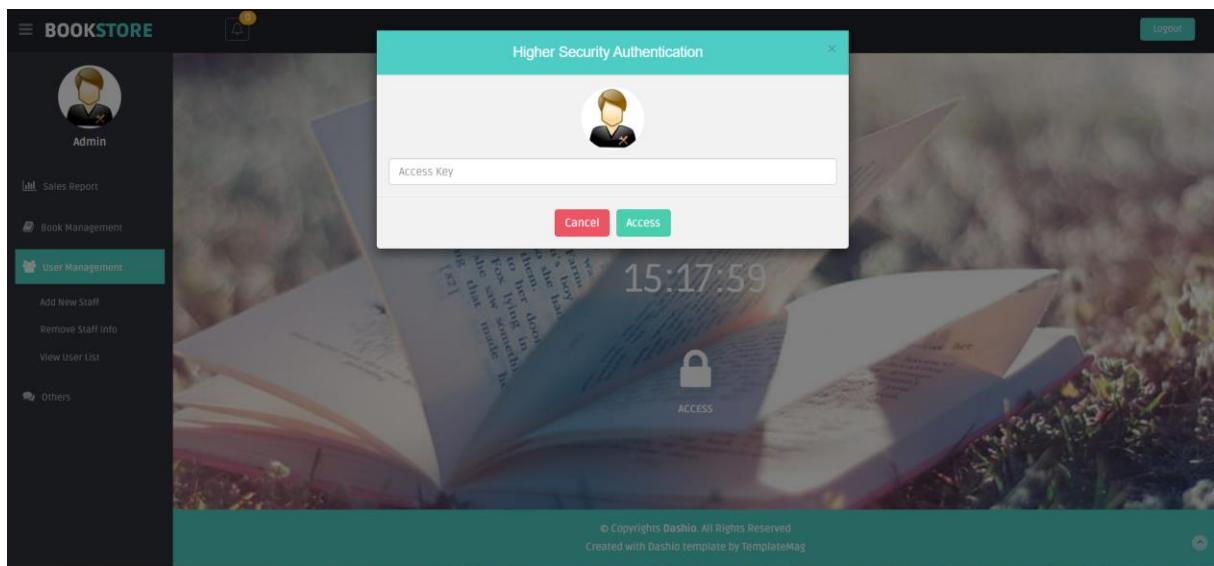


Figure 4.50: Second Lock Access Page

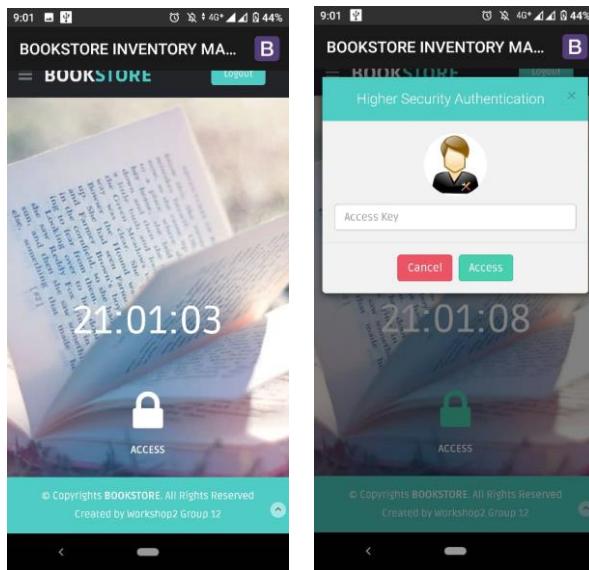


Figure 4.51: Lock Access Page (Mobile View)

The lock access page restricts users to access the user management page. It prompts users to enter the correct access key before they can proceed to the user management page. There are two conditions for users to successfully access the user management page. This includes the correct access and the account level of the users, users need to enter “Admin123” correctly and they can access if the account type of the users is recognized as “Admin” only. The purpose of this page is to ensure the credential information of the users of this website would not leak to others for privacy reasons. Once users successfully pass the verification process, users have 3 options to choose whether they want to add new staff, remove staff, or view all user information.

Figure 4.52: Add New Staff Page

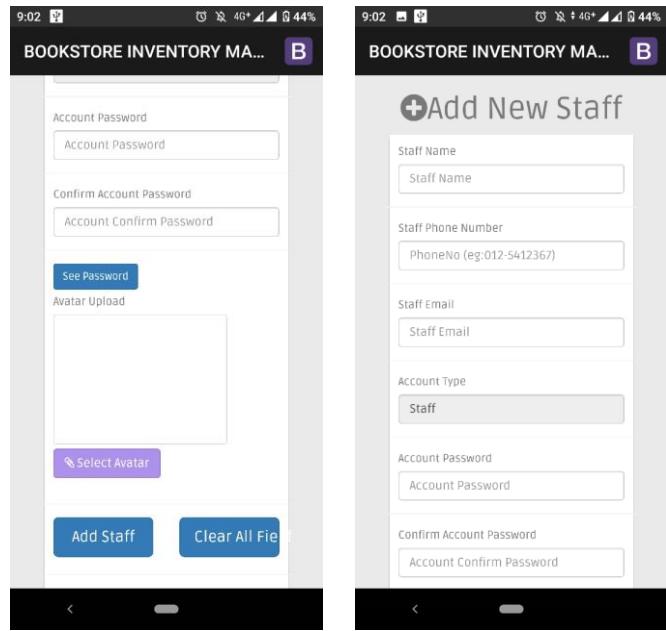


Figure 4.53: Add New Staff Page (Mobile View)

The add new staff page allows the admin to create and add new staff members to the system. It includes fields for the staff member's details such as name, contact information, and email address. It also includes fields for the staff access level. The page also has options for uploading a staff's image. Once a staff member is added to the system, they can log in to the system as a staff to work. These fields also validate users such as the email must follow the required format and if there is an existing phone number, email, or name in the system it would not allow to be added again to the system.

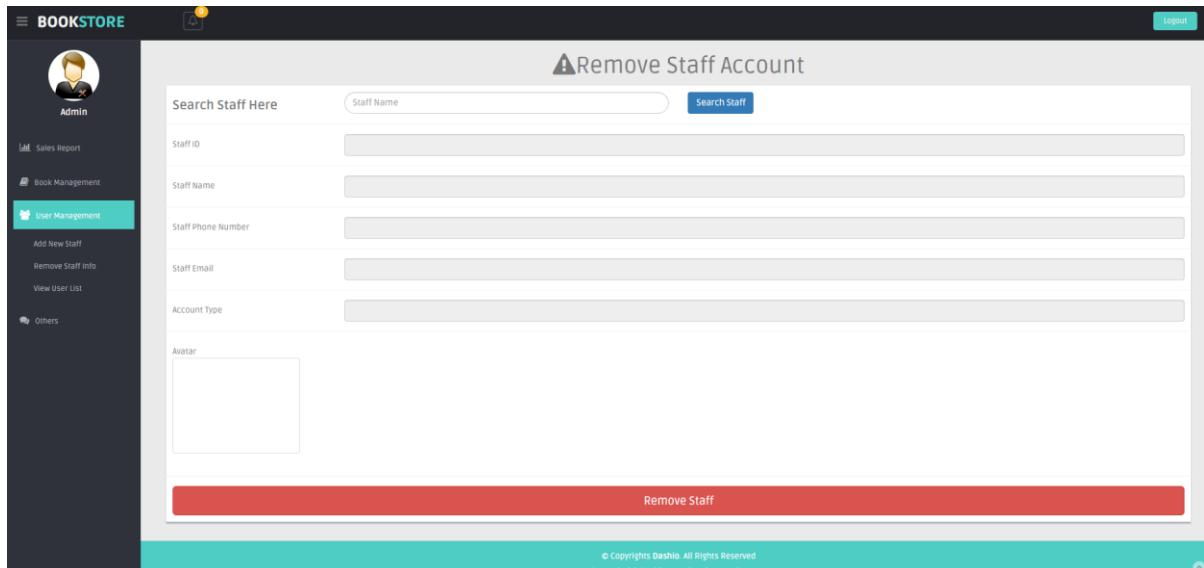


Figure 4.54: First Remove Staff Account Page

BOOKSTORE

Logout

Admin

Sales Report

Book Management

User Management

Add New Staff

Remove Staff Info

View User List

Others

Search Staff Here

Staff ID

Staff Name

Staff Phone Number

Staff Email

Account Type

Avatar

Remove Staff

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Figure 4.55: Second Remove Staff Account Page

BOOKSTORE

Logout

Admin

Sales Report

Book Management

User Management

Add New Staff

Remove Staff Info

View User List

Others

Search Staff Here

Staff ID

Staff Name

Staff Phone Number

Staff Email

Account Type

Avatar

Remove Staff

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Figure 4.56: Third Remove Staff Account Page

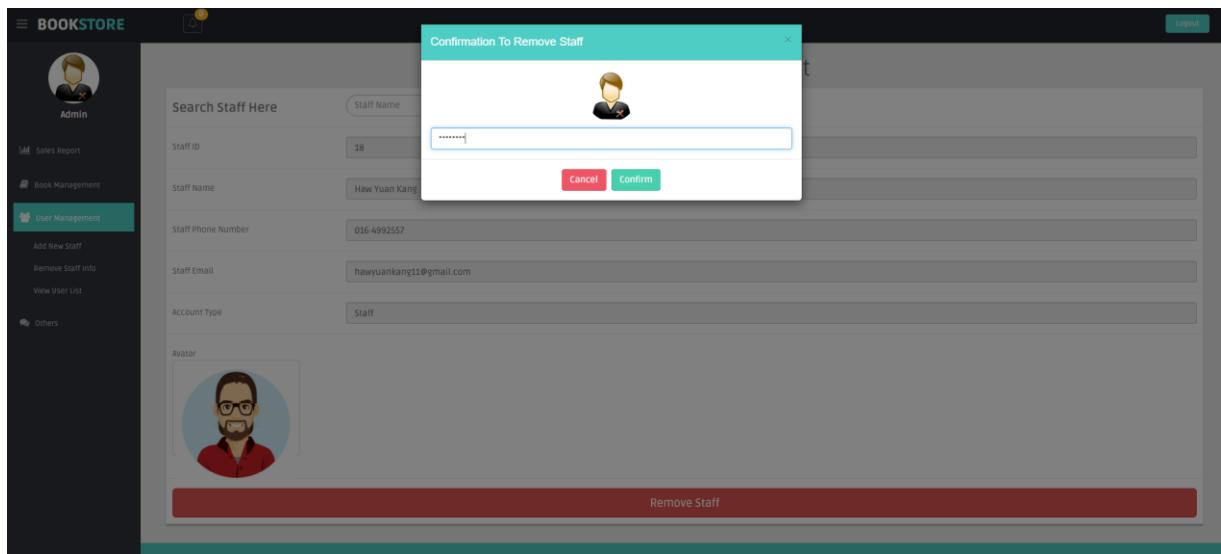


Figure 4.57: Forth Remove Staff Account Page

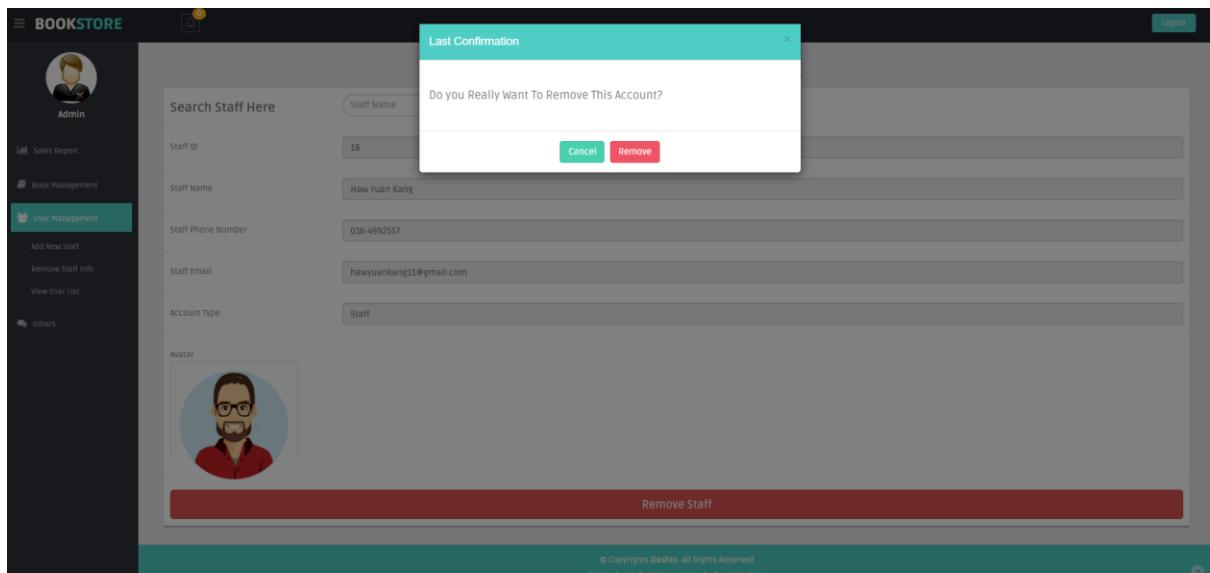
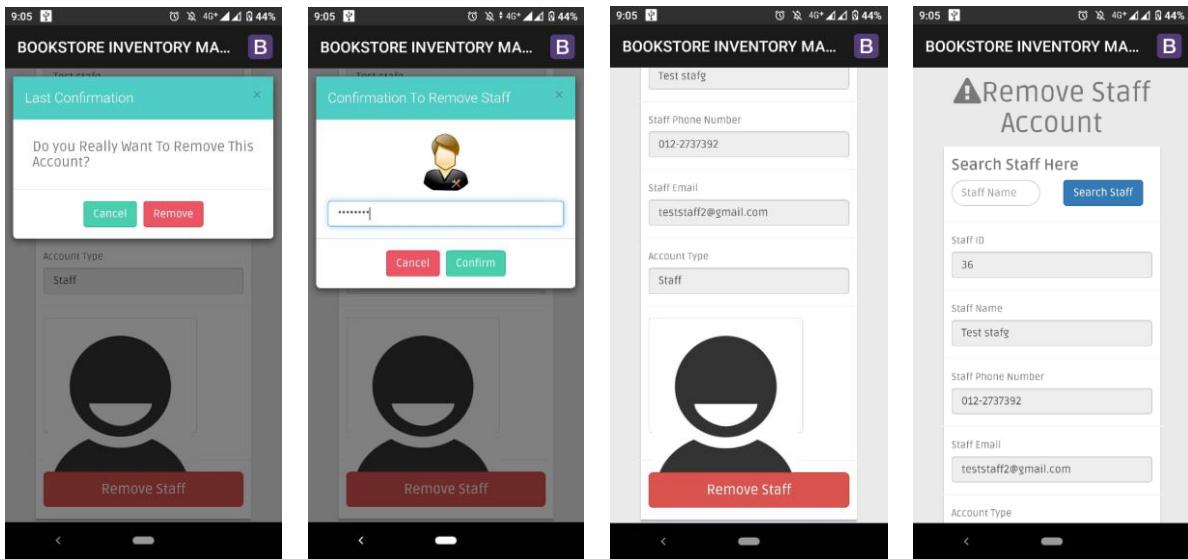


Figure 4.58: Fifth Remove Staff Account Page



*Figure 4.59: Remove Staff Account Page (Mobile View)*

The remove staff account page allows the admin to delete or remove a staff member's account from the system. It helps the admin to search for the target staff by entering the name of the staff in the search box and it will automatically show the suggestion based on the keyword entered. Once the admin clicks the search button the selected staff details will display on the field for the admin to view and check. When the admin clicks the remove staff button, it has a confirmation step before the account is deleted to ensure that the action is intentional. This page is built for administrators to delete or remove staff members that are no longer working with the bookstore. It is important to note that removing a staff member's account will also remove access to any resources or information they had while they were employed.

ID	NAME	PHONE NO	EMAIL	ACCOUNT TYPE	IMAGE
19	Customer1	012-1122334	customer1@gmail.com	Customer	
21	Customer2	016-5748975	customer2@gmail.com	Customer	
22	Customer3	014-7373829	customer3@gmail.com	Customer	
23	customer4	014-8575614	customer4@gmail.com	Customer	
18	Haw Yuan Kang	016-4992557	hawyuankang11@gmail.com	Staff	

Figure 4.60: View User Account Page

ID	NAME	PHONE NO	EMAIL	ACCOUNT TYPE	IMAGE
32	ali	023-1231241	ali@gmail.com	Customer	

Figure 4.61: View User Account Page (Mobile View Horizontal)

The view user account page allows the admin to view and check the account information of every user in the system. The information includes the account id, user name, phone number, email address, and account type in this system. The password of the users will not display to the admin to protect the credential privacy of users.

## 4.5 System Design

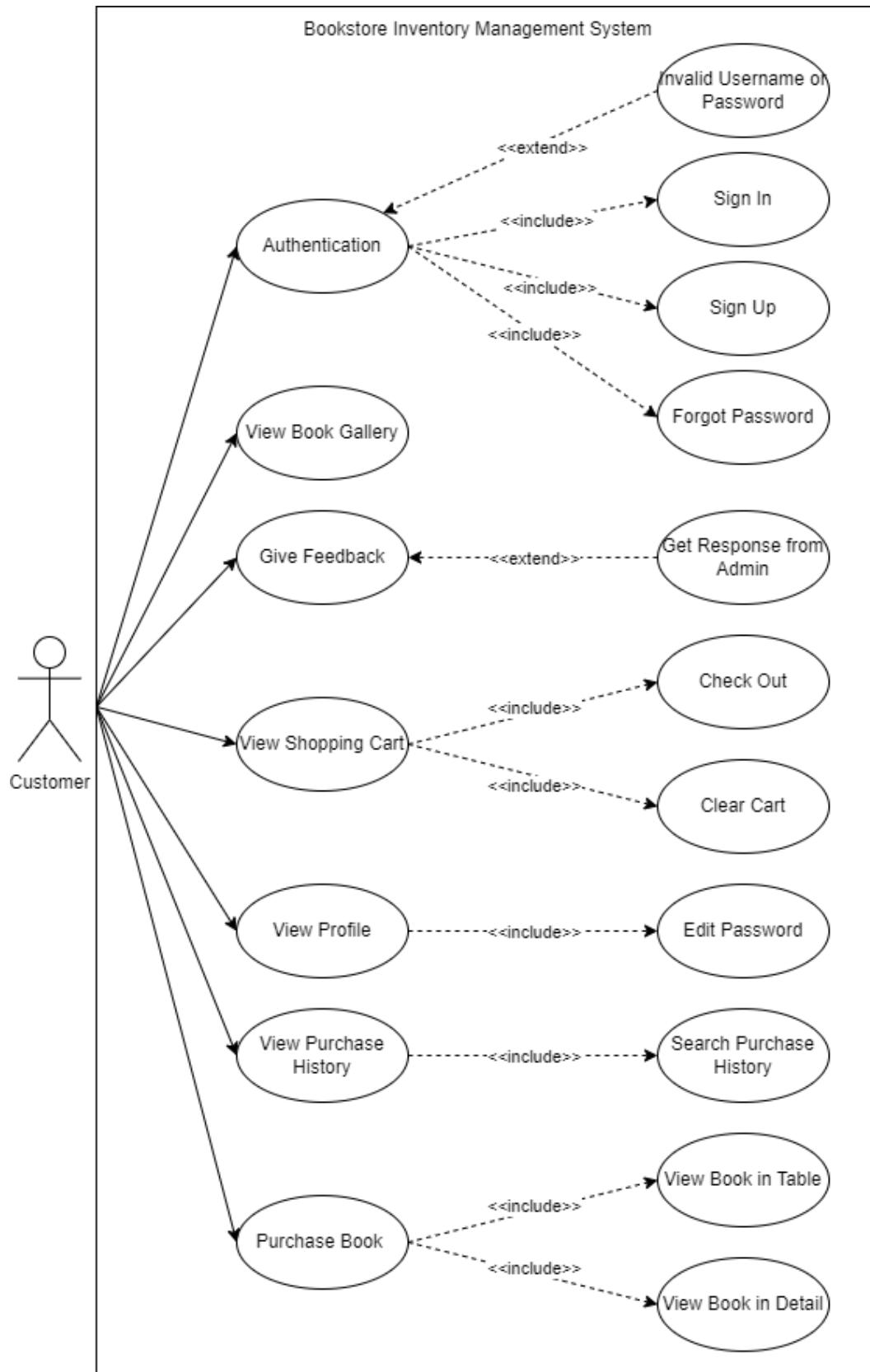


Figure 4.62: Use Case for Customer



Figure 4.63: Use Case for Admin and Staff

#### **4.6 Conclusion**

The system design of the Book Inventory Management System is a crucial step in the software development life cycle. It creates a blueprint for the system that defines the architecture, components, modules, interfaces, and data to meet the requirements. It includes high-level and detailed design, data storage and retrieval mechanism, user interface, and security mechanism. The final design serves as a foundation for the next phase of development and implementation, ensuring that the system meets the needs of its users.

## CHAPTER 5: SYSTEM IMPLEMENTATION

### 5.1 Introduction

This chapter will discuss the implementation phase of system development. In this phase, the system begins to take shape as the construction of the system begins. The implementation described in this chapter will ensure that the system is operational and meets the downstream quality level.

### 5.2 System Development Environment

#### 5.2.1 Sublime Text

Sublime Text is one of the world's most popular text editors. It includes multi-line editing, build systems for dozens of programming languages, regex search and replace, a Python API for writing plugins, and more. Sublime Text is not like standard text editors, it allows you to run code right within the program. This is incredibly convenient for basic tasks.

Sublime text also the most powerful feature Text snippets are Sublime Text's most effective feature, especially for coders and the reason of text snippets even better is that they are simple to grasp and compose. This tool saves developers time and eliminates numerous mistakes during development.

#### 5.2.2 XAMPP (Apache, MySQL)

XAMPP is a popular cross-platform web server that allows developers to write and test their programmes on a local web server. The audience can amend or modify its native source code. It includes the Apache HTTP Server, MariaDB, and interpreters for many programming languages like PHP and Perl (JavaTpoint, 2011-2021). It is available in 11 languages and is supported by a variety of platforms, including the IA-32 package for Windows and the x64 package for macOS and Linux.

The components are also part of this collection of software that has been used:

**Apache:** cross-platform HTTP web server. It is widely used to transport online material all across the world. The server program has been made available for free installation and usage

by the developer community under the aegis of the Apache Software Foundation. Apache's remote server sends the user the requested files, pictures, and other documents (JavaTpoint, 2011-2021).

**phpMyAdmin:** It is a tool for working with MariaDB. It is presently used in XAMPP in version 4.0.4. Its primary function is DBMS administration (JavaTpoint, 2011-2021).

### 5.3 System Configuration Management

Installation of Sublime text

1. Download Sublime text through website <https://www.sublimetext.com/3>.
2. Select location to place the Sublime Text.

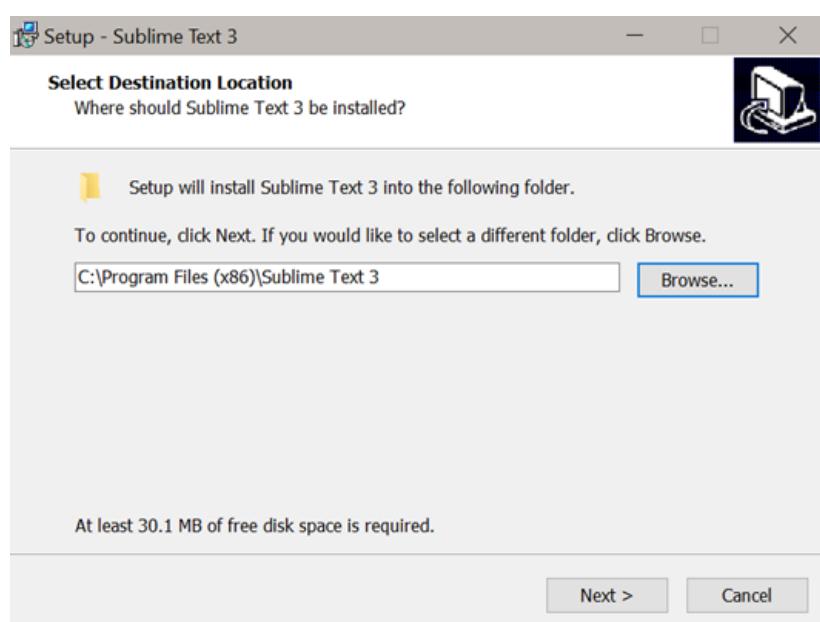


Figure 5.1: Sublime Text destination location

3. If you want Sublime Text 3 to appear in your right-click menu, then mark the checkbox and click on the Next button.

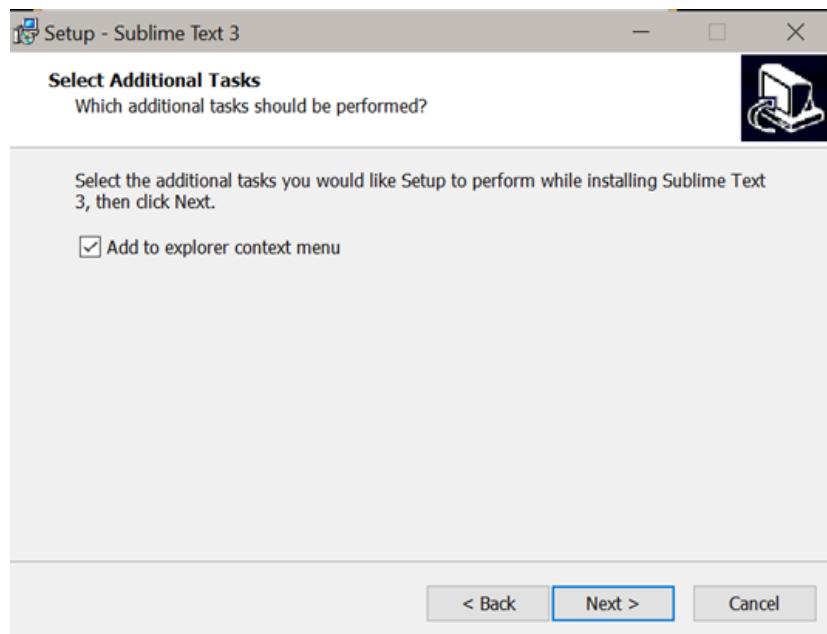


Figure 5.2: Sublime Text additional task

4. Press the install button.

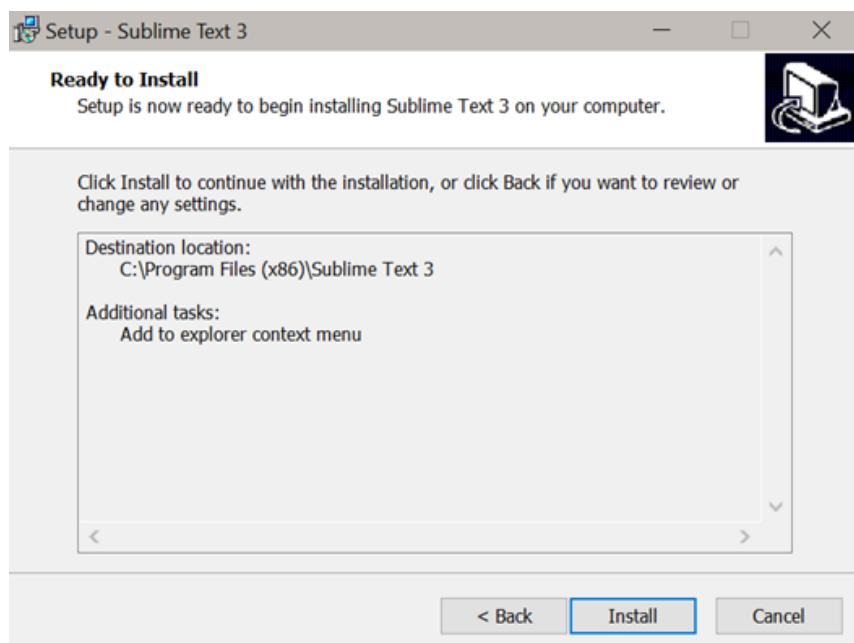
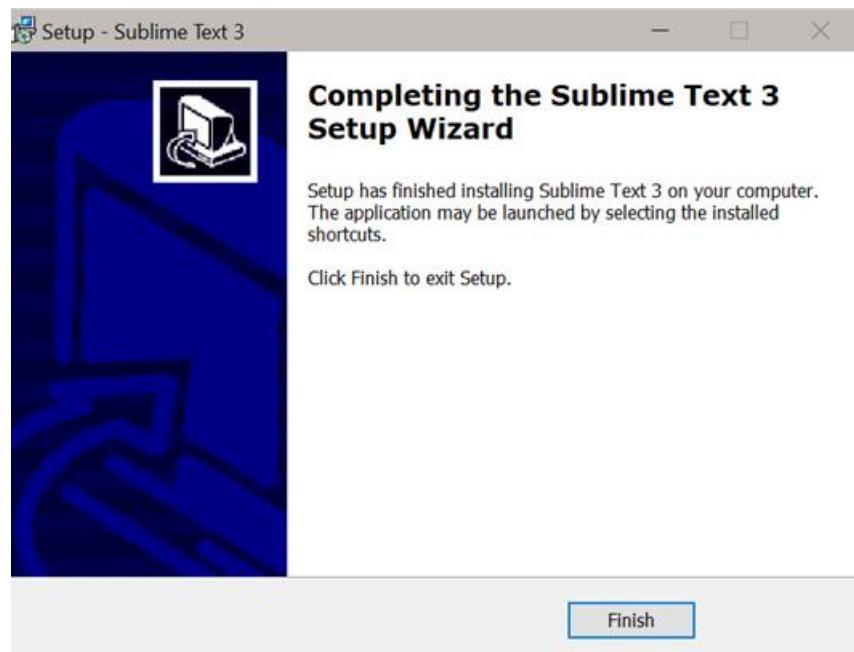


Figure 5.3: Sublime Text ready to Install.

5. Finish the installation process.



*Figure 5.4: Sublime Text installation completed.*

## **5.4 Security Characteristics**

### **Confidentiality**

Measures to maintain confidentiality are intended to guard against illegal information dissemination. The confidentiality principle's goal is to guarantee that confidential information stays confidential and can only be seen or accessed by those who require it to carry out their work responsibilities.

Data breach is not desired by anyone. Consequently, serious efforts need to be taken to implement document security, set up security controls for important files, and create concise information security guidelines for devices. Confidentiality refers to a variety of access restrictions and security precautions that guard against unwanted access to your information. Implementing safeguards is the best method to protect your data privacy and avoid a data breach.

Inability to retain confidentiality indicates there is an unauthorised individual managed to grasp private data. Whether it is by accident or intentional, breach in confidentiality would only lead to unimaginable catastrophe. Some information security basics to keep your data confidential are encryption, password, two-factor authentication, and biometric verification.

This system makes all the information of the users which are their password, name, phone number, address and email becomes confidential preventing anyone from breaching the data.

### **Integrity**

Integrity in the context of information security refers to the precision and comprehensiveness of data. Integrity-focused security measures are intended to stop unauthorised parties from altering or abusing data. Integrity is the preservation of data's reliability and consistency over its full life cycle. Data must not be altered while in transit, and security measures must be made to prevent unauthorised individuals from changing the data.

For instance, a hacker may take data and alter it before transferring it to the intended recipient in a data breach that undermines integrity. Some security controls designed to maintain the

integrity of information include encryption, user access controls, version control, backup and recovery procedures and error detection software.

## **5.5 Conclusion**

This chapter has outlined the various steps and processes that have been put in place to ensure a successful implementation of the project. This includes the selection and utilization of a specific system development environment, the management and tracking of the system configuration to ensure proper installation and execution, as well as the incorporation of security measures to protect the system. Overall, the goal is to ensure that the implementation phase proceeds efficiently and effectively.

## CHAPTER 6: SYSTEM TESTING

### 6.1 Testing Method

The testing method used in this book inventory management system is use case testing, which is included in the Blackbox technique. With the help of the use case, how the product should work is known. And it is a graphical representation of the software and its multiple features, as well as how they should work.

### 6.2 Test Result Analysis

*Table 6.1: Test Case 01*

Test Case ID	TC-01
Use Case Name	Validate Login
Use Case Description	The system accepts user correct email and password
Actor	User
Pre-Condition	User must have registered account
Test Data	Email: [REDACTED] Password: [REDACTED]
Basic Flow	<ol style="list-style-type: none"><li>1. User enter the correct email.</li><li>2. User enter the correct password.</li><li>3. User click login button.</li></ol>
Post Conditions	User Login to the website and be restricted to user main page.
Alternate Flow	Error message will display if the customer enters an incorrect email and password.

Expected Result	Customer Login to the website and be restricted to customer main page.
Actual Results	Customer Login to the website and be restricted to customer main page.
Status	Pass

Table 6.2: Test Case 02

Test Case ID	TC-02
Use Case Name	Validate Registration
Use Case Description	The system accepts user to enter name, phone number, email, password and confirm password.
Actor	User
Pre-Condition	User must have internet to access the website
Test Data	Name: [REDACTED] Phone No: [REDACTED] Email: [REDACTED] Password: [REDACTED] Confirm Password: [REDACTED]
Basic Flow	1. Users enter name. 2. Users enter phone number. 3. Users enter email. 4. Users enter password. 5. User enter confirm password, 6. Users click submit button.
Post Conditions	Account is not created and constraint message will appear.
Alternate Flow	Account created and users will be redirected to login page.
Expected Result	Account is not created and constraint message will appear.
Actual Results	Account is not created and constraint message will appear.
Status	Pass

*Table 6.3: Test Case 03*

Test Case ID	TC-03
Use Case Name	Validate Login
Use Case Description	The system accepts user correct email and password
Actor	User
Pre-Condition	User must have registered account
Test Data	Email: [REDACTED] Password: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Users enter the correct email.</li> <li>2. Users enter the correct password.</li> <li>3. Users click login button.</li> </ol>
Post Conditions	User Login to the website and be restricted to user main page.
Alternate Flow	Error message will display if the customer enters an incorrect email and password.
Expected Result	Customer Login to the website and be restricted to customer main page.
Actual Results	Customer Login to the website and be restricted to customer main page.
Status	Pass

*Table 6.4: Test Case 04*

Test Case ID	TC-04
Use Case Name	Validate Login
Use Case Description	The system accepts user correct email and password
Actor	User
Pre-Condition	User must have registered account
Test Data	Email: [REDACTED] Password: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Users enter the correct email.</li> <li>2. Users enter the incorrect password.</li> <li>3. Users click login button.</li> </ol>
Post Conditions	User Login to the website and be restricted to user main page.
Alternate Flow	Error message will display if the customer enters an incorrect email and password.
Expected Result	Customer Login to the website and be restricted to customer main page.
Actual Results	Customer Login to the website and be restricted to customer main page.
Status	Pass

*Table 6.5: Test Case 05*

Test Case ID	TC-05
Use Case Name	Validate forget password
Use Case Description	The system allows the user to login if they forget the password.
Actor	User
Pre-Condition	User must have invalid email that have been registered
Test Data	Email: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Click Forget password in login page.</li> <li>2. Enter valid email and click submit button.</li> <li>3. Click send token to email.</li> <li>4. Enter token that received from email.</li> </ol>
Post Conditions	Users can Login and allow them to create new passwords.
Alternate Flow	Error message will display if customer insert wrong token.
Expected Result	Users can Login and allow them to create new passwords.
Actual Results	Users can Login and allow them to create new passwords.
Status	Pass

*Table 6.6: Test Case 06*

Test Case ID	TC-06
Use Case Name	Validate forget password
Use Case Description	The system allows the user to login if they forget the password.
Actor	User
Pre-Condition	User must have invalid email that have been registered
Test Data	Email: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Click Forget password in login page.</li> <li>2. Enter valid email and click submit button.</li> <li>3. Click send token to email.</li> <li>4. Enter token that received from email.</li> </ol>
Post Conditions	Users can Login and allow them to create new passwords.
Alternate Flow	Error message will display if customer insert wrong token.
Expected Result	Users can Login and allow them to create new passwords.
Actual Results	Users can Login and allow them to create new passwords.
Status	Pass

*Table 6.7: Test Case 07*

Test Case ID	TC-07
Use Case Name	Validate feedback
Use Case Description	This system allow customer to give their opinion about the system.
Actor	Customer
Pre-Condition	Customer must log in to their account.
Test Data	Feedback/ Comment: The system is great.
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to Feedback page.</li> <li>2. Write your comment or feedback.</li> <li>3. Click button send.</li> </ol>
Post Conditions	Successful message will appear on top of the page.
Alternate Flow	Constraint message will appear if customer send the blank feedback or comment.
Expected Result	Successful message will appear on top of the page.
Actual Results	Successful message will appear on top of the page.
Status	Pass

*Table 6.8: Test Case 08*

Test Case ID	TC-08
Use Case Name	Validate feedback
Use Case Description	This system allow customer to give their opinion about the system.
Actor	Customer
Pre-Condition	Customer must log in to their account.
Test Data	Feedback/ Comment: The system is great.
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to Feedback page.</li> <li>2. Let the comment or feedback text field empty.</li> <li>3. Click button send.</li> </ol>
Post Conditions	Constraint message will appear if customer send the blank feedback or comment
Alternate Flow	Successful message will appear on top of the page.
Expected Result	Constraint message will appear if customer send the blank feedback or comment
Actual Results	Constraint message will appear if customer send the blank feedback or comment
Status	Pass

*Table 6.9: Test Case 09*

Test Case ID	TC-09
Use Case Name	Validate book cart.
Use Case Description	This system allow customer add book to cart.
Actor	Customer
Pre-Condition	Customer must log in to their account.
Basic Flow	<ol style="list-style-type: none"> <li>1. Choose book in the detail list of books.</li> <li>2. Select book that customer interested.</li> <li>3. Click “Add to Cart” button.</li> </ol>
Post Conditions	Constraint message “Selected Book Added into Cart” will appear
Alternate Flow	No constraint message appears.
Expected Result	Constraint message “Selected Book Added into Cart” will appear
Actual Results	Constraint message “Selected Book Added into Cart” will appear
Status	Pass

*Table 6.10: Test Case 10*

Test Case ID	TC-10
Use Case Name	Validate clear cart
Use Case Description	The system allows the customer to clear the cart.
Actor	Customer
Pre-Condition	Customers need to add at least one book in the cart.
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to book cart page.</li> <li>2. Click button clear cart.</li> </ol>
Post Conditions	“Cart item is clear” message will be displayed
Alternate Flow	Customer still can view book in the cart
Expected Result	“Cart item is clear” message will be displayed
Actual Results	“Cart item is clear” message will be displayed
Status	Pass

*Table 6.11: Test Case 11*

Test Case ID	TC-11
Use Case Name	Validate edit cart
Use Case Description	The system allows the customer to edit amount of book the cart.
Actor	Customer
Pre-Condition	Customers need to add at least one book in the cart.
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to book cart page.</li> <li>2. Change amount of book needed.</li> <li>3. Click edit icon.</li> </ol>
Post Conditions	“The selected cart quantity updated” message will be displayed and total amount of book and total price change.
Alternate Flow	Total amount and total price are not change.
Expected Result	“The selected cart quantity updated” message will be displayed and total amount of book and total price change.
Actual Results	“The selected cart quantity updated” message will be displayed and total amount of book and total price change.
Status	Pass

*Table 6.12: Test Case 12*

Test Case ID	TC-12
Use Case Name	Validate check out item
Use Case Description	The system allows the customer to check out all book in the cart.
Actor	Customer
Pre-Condition	Customers need to add at least one book in the cart.
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to book cart page.</li> <li>2. Click “Check out” button.</li> </ol>
Post Conditions	The system will be redirected to payment page.
Alternate Flow	The system is not redirected to payment page.
Expected Result	The system will be redirected to payment page.
Actual Results	The system will be redirected to payment page.
Status	Pass

*Table 6.13: Test Case 13*

Test Case ID	TC-13
Use Case Name	Validate payment
Use Case Description	The system allows the customer to make a payment
Actor	Customer
Pre-Condition	Customers need to check out the book in the cart.
Test Data	User ID: 1234 Password: 1234
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to book cart page.</li> <li>2. Click “Check out” button.</li> <li>3. Choose successful payment method.</li> <li>4. Click “proceed” button.</li> <li>5. Enter User ID and Password</li> <li>6. Click “sign in” button.</li> <li>7. Click “confirm” button</li> </ol>
Post Conditions	Transaction status is successful appear and book in the cart will be empty.
Alternate Flow	Transaction status is unsuccessful appear and book in the cart remain same.
Expected Result	Transaction status is successful appear and book in the cart will be empty.
Actual Results	Transaction status is successful appear and book in the cart will be empty.
Status	Pass

*Table 6.14: Test Case 14*

Test Case ID	TC-14
Use Case Name	Validate payment
Use Case Description	The system allows the customer to make a payment
Actor	Customer
Pre-Condition	Customers need to check out the book in the cart.
Test Data	User ID: 1234 Password: 1234
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to book cart page.</li> <li>2. Click “Check out” button.</li> <li>3. Choose unsuccessful payment method.</li> <li>4. Click “proceed” button.</li> <li>5. Enter User ID and Password</li> <li>6. Click “sign in” button.</li> <li>7. Click “confirm” button</li> </ol>
Post Conditions	Transaction status is unsuccessful appear and book in the cart remain same.
Alternate Flow	Transaction status is successful appear and book in the cart will be empty.
Expected Result	Transaction status is unsuccessful appear and book in the cart remain same.
Actual Results	Transaction status is unsuccessful appear and book in the cart remain same.
Status	Pass

*Table 6.15: Test Case 15*

Test Case ID	TC-15
Use Case Name	Validate personal information
Use Case Description	The system allows the customer to update personal information.
Actor	Users
Pre-Condition	Users need to have an account.
Test Data	Name: [REDACTED] Phone No [REDACTED] Email: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Go to personal information page.</li> <li>2. Enter new name, email, phone no.</li> <li>3. Enter valid old password.</li> </ol>
Post Conditions	User's personal information has been updated.
Alternate Flow	User's personal information not been update.
Expected Result	User's personal information has been updated.
Actual Results	User's personal information has been updated.
Status	Pass

*Table 6.16: Test Case 16*

Test Case ID	TC-16
Use Case Name	Validate personal information
Use Case Description	The system allows the customer to update personal information.
Actor	Customer
Pre-Condition	Customers need to have an account.
Test Data	Name: [REDACTED] Phone No: [REDACTED] Email: [REDACTED]
Basic Flow	1. Go to personal information page. 2. Enter new name, email, phone no. 3. Enter invalid old password.
Post Conditions	Customers are not allowed to update personal information.
Alternate Flow	Customer personal information can be updated.
Expected Result	Customers are not allowed to update personal information.
Actual Results	Customers are not allowed to update personal information.
Status	Pass

*Table 6.17: Test Case 17*

Test Case ID	TC-17
Use Case Name	Validate view purchase history
Use Case Description	The system allows the customer to view their purchase history.
Actor	Customers
Pre-Condition	Customers need to buy a book at least once.
Basic Flow	1. Select “view purchase history” in customer menu bar.
Post Conditions	Customers can view their purchase history.
Alternate Flow	Customers can not view their purchase history.
Expected Result	Customers can view their purchase history.
Actual Results	Customers can view their purchase history.
Status	Pass

*Table 6.18: Test Case 18*

Test Case ID	TC-18
Use Case Name	Validate view user feedback
Use Case Description	The system allows the staff to view user feedback.
Actor	Staff
Pre-Condition	Staff need to have an account.
Basic Flow	<ol style="list-style-type: none"> <li>1. Select other in staff's menu bar.</li> <li>2. Go to "view user feedback" page.</li> </ol>
Post Conditions	Staff can view different colour of user feedback.
Alternate Flow	Staff are not able to view customer feedback.
Expected Result	Staff can view different colour of user feedback.
Actual Results	Staff can view different colour of user feedback.
Status	Pass

*Table 6.19: Test Case 19*

Test Case ID	TC-19
Use Case Name	Validate reply to user feedback
Use Case Description	The system allows the admin and staff to reply to user feedback.
Actor	Admin and staff
Pre-Condition	Admin and staff need to have an account.
Test Data	Response: Than you
Basic Flow	<ol style="list-style-type: none"> <li>2. Select other in staff's menu bar.</li> <li>3. Go to "reply user feedback" page.</li> <li>4. Click any green colour feedback to reply.</li> <li>5. Write a response.</li> <li>6. Click "Reply" button.</li> </ol>
Post Conditions	Admin and staff can reply to customer feedback.
Alternate Flow	Constraint message will appear if staff send the blank response.
Expected Result	Admin and staff can reply to customer feedback.
Actual Results	Admin and staff can reply to customer feedback.
Status	Pass

*Table 6.20: Test Case 20*

Test Case ID	TC-20
Use Case Name	Validate sales report
Use Case Description	The system allows the admin and staff to view sales report.
Actor	Admin and staff
Pre-Condition	Admin and staff need to login to their account.
Basic Flow	1. Select sales report in menu bar.
Post Conditions	Admin and staff can view sales report popular genre, Business Income in months and years.
Alternate Flow	Admin and staff cannot view sales report.
Expected Result	Admin and staff can view sales report popular genre, Business Income in months and years.
Actual Results	Admin and staff can view sales report popular genre, Business Income in months and years.
Status	Pass

*Table 6.21: Test Case 21*

Test Case ID	TC-21
Use Case Name	Validate add book
Use Case Description	The system allows the admin and staff to add book in the system.
Actor	Admin and staff
Pre-Condition	Admin and staff need to have an account.
Test Data	ISBN: 978-0-1437-3373 Title: Food Hacker: Clever cooking for busy people Description: A recipe book of innovative food hacks to make preparing delicious, simple meals quick and easy. Rosie Mansfield is a food hacker. She's also a professional nutritionist and has created an innovative and fun recipe book of hacks - simplified recipes to make cooking quick, easy and stress-free. Price: 181.64 Author: Rosie Mansfield Stock: 53 Genre: Cookbook Status: Available
Basic Flow	<ol style="list-style-type: none"> <li>1. Select Book Management in menu bar.</li> <li>2. Select Add New Book page.</li> <li>3. Fill in the add book form.</li> <li>4. Upload image of the book.</li> </ol> Click “Save Book” button.
Post Conditions	Book are successfully added.
Alternate Flow	Constraint message will appear if not fill in using correct format.
Expected Result	Book are successfully added.
Actual Results	Book are successfully added.
Status	Pass

*Table 6.22: Test Case 22*

Test Case ID	TC-22
Use Case Name	Validate update book
Use Case Description	The system allows the admin and staff to update book details.
Actor	Admin and staff
Pre-Condition	Admin and staff need to have an account.
Test Data	ISBN: 978-0-1437-8878 Title: Food Hacker: Clever cooking for busy people Description: A recipe book of innovative food hacks to make preparing delicious, simple meals quick and easy. Rosie Mansfield is a food hacker. She's also a professional nutritionist and has created an innovative and fun recipe book of hacks - simplified recipes to make cooking quick, easy and stress-free. Price: 181.64 Author: Rosie Mansfield Stock: 55 Genre: Cookbook Status: Available
Basic Flow	<ol style="list-style-type: none"> <li>1. Select Book Management in menu bar.</li> <li>2. Select Update Book page.</li> <li>3. Change book details that need to be update.</li> <li>4. Upload image of the book.</li> <li>5. Click “Save Book” button.</li> </ol>
Post Conditions	Book are successfully updated.
Alternate Flow	Constraint message will appear if not fill in using correct format.
Expected Result	Book are successfully updated.
Actual Results	Book are successfully updated.

Status	Pass
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*Table 6.23: Test Case 23*

Test Case ID	TC-23
Use Case Name	Validate search book
Use Case Description	The system allows the admin and staff to search book in the system.
Actor	Admin and staff
Pre-Condition	Admin and staff need to add books in system.
Test Data	Search Book Here: Food Hacker: Clever cooking for busy people
Basic Flow	<ol style="list-style-type: none"> <li>1. Select Book Management in menu bar.</li> <li>2. Select Search Book page.</li> <li>3. Search book that needs to find.</li> <li>4. Select the book that admin or staff want.</li> </ol>
Post Conditions	Admin and staff find book that have been search.
Alternate Flow	Admin and staff are not finding book that have been search.
Expected Result	Admin and staff find book that have been search.
Actual Results	Admin and staff find book that have been search.
Status	Pass

Table 6.24: Test Case 24

Test Case ID	TC-24
Use Case Name	Validate add user
Use Case Description	The system allows the admin and staff add user account.
Actor	Admin and staff
Pre-Condition	Admin and staff need to have an account.
Test Data	Staff Name: [REDACTED] Staff Phone No: [REDACTED] Staff Email: [REDACTED] Account Type: Staff Account Password: [REDACTED] Confirm Account Password: [REDACTED]
Basic Flow	1. Select User Management in menu bar. 2. Select Add New Staff. 3. Fill in the add new staff form. 4. Upload image of the staff. 5. Click “Add Staff” button.
Post Conditions	Staff are successfully added.
Alternate Flow	Constraint message will appear if not fill in using correct format.
Expected Result	Staff are successfully added.
Actual Results	Staff are successfully added.
Status	Pass

*Table 6.25: Test Case 25*

Test Case ID	TC-25
Use Case Name	Validate remove user
Use Case Description	The system allows the admin and staff remove user account.
Actor	Admin
Pre-Condition	Admin need to have an account.
Test Data	Search Staff Here: [REDACTED] Access Key: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Select User Management in menu bar.</li> <li>2. Select Remove Staff.</li> <li>3. Click “Search Staff” button.</li> <li>4. Staff Information will display.</li> <li>5. Click “Remove Staff” button.</li> <li>6. Enter valid Access Key.</li> <li>7. Click “confirm” button.</li> </ol>
Post Conditions	Staff are successfully removed.
Alternate Flow	Staff are not removed.
Expected Result	Staff are successfully removed.
Actual Results	Staff are successfully removed.
Status	Pass

*Table 6.26: Test Case 26*

Test Case ID	TC-26
Use Case Name	Validate remove user
Use Case Description	The system allows the admin and staff remove user account.
Actor	Admin
Pre-Condition	Admins need to have an account.
Test Data	Search Staff Here: [REDACTED] Access Key: [REDACTED]
Basic Flow	<ol style="list-style-type: none"> <li>1. Select User Management in menu bar.</li> <li>2. Select Remove Staff.</li> <li>3. Click “Search Staff” button.</li> <li>4. Staff Information will display.</li> <li>5. Click “Remove Staff” button.</li> <li>6. Enter invalid Access Key.</li> <li>7. Click “confirm” button.</li> </ol>
Post Conditions	Staff are not removed.
Alternate Flow	Staff are successful removed.
Expected Result	Staff are not removed.
Actual Results	Staff are not removed.
Status	Pass

*Table 6.27: Test Case 27*

Test Case ID	TC-27
Use Case Name	Validate to view user list
Use Case Description	The system allows the admin to view user list.
Actor	Admin
Pre-Condition	Admins need to have an account.
Basic Flow	<ol style="list-style-type: none"> <li>1. Select User Management in menu bar.</li> <li>2. Select View User List.</li> </ol>
Post Conditions	List of users are displayed.
Alternate Flow	List of users are not displayed.
Expected Result	List of users are displayed.
Actual Results	List of users are displayed.
Status	Pass

### **6.3 System Constraints**

- The system currently needs to refresh when customers want to edit book quantity or remove books.
- The system is not providing total sales report.
- Internet connections are required for the system to operate.
- New admin only can be added by admin.
- The system does not have its own domain.

### **6.4 Conclusion**

In this chapter, how the system was tested were explained and the test case was provided. As a result, it is concluded that the system met the requirements. Based on the system constraints, System improvement was decided to improve the system and a way to solve the problem is searched. Lastly, from this testing result, problem related to the system is thoroughly searched to find out the problem occurring when developing the system. Maybe in the future, many features can be added to this system so that it can help people and become an informative system.

## **CHAPTER 7: CONCLUSION**

### **7.1 Introduction**

In summary, this Bookstore Inventory Management system has been designed and developed to achieve specific goals and objectives. The system is composed of various functions and modules that have been created to adhere to industry standards. Prior to usage, the system has undergone thorough testing to ensure optimal performance. This report has provided detailed information about the system and its functions, as well as the implementation and testing phases. Each component of the system has been described in-depth to aid in user comprehension. The effort and challenges encountered during the development process have ultimately resulted in a successful system.

### **7.2 Achievement**

This project successfully developed and implemented a new inventory management system for the bookstore's book collection. This new system, a user-friendly interface was created for the system which resulted in a 30% increase in user adoption and satisfaction. It also integrates the system with the point-of-sale system for a more streamlined and efficient sales process. A reporting feature was able to be developed that allows bookstore staff to easily track and analyze inventory data, resulting in improved decision-making. The book inventory data were migrated to the new system ensuring a more reliable and up-to-date inventory records. A security feature that ensures the integrity of the staff data were implemented, preventing unauthorized changes or deletions. The project was completed on time and on budget, resulting in a smooth transition to the new system.

### **7.3 Project Limitation**

The Bookstore Inventory Management System project has a few limitations. The system only supports a limited number of users and is not suitable for large bookstore or bookstore chains. The system does not support integration with third-party systems such as electronic bookstore catalog or an online marketplace. The system also does not have the capability to track book damages, repairs, or replacements, tracking the books' usage or condition. The system is also only available in English. These limitations should be considered when evaluating the suitability of the system for a particular bookstore or bookstore chains.

## **7.4 Suggestions for Improvement**

The Bookstore Inventory Management System project has the potential for further improvement. One suggestion is to develop a mobile application for the system, which would make it more accessible for bookstore staff. Another suggestion is to integrate the system with third-party systems such as an electronic bookstore catalog or an online marketplace, this will provide more comprehensive inventory management capabilities. It is also recommended to expand the system's capabilities to add a feature for tracking book damages, repairs, or replacements, and tracking the books' usage and condition. To make the system more accessible for bookstore staff who speaks different languages, adding support for multiple languages will be a good idea. It is important to note that these suggestions are general and may not be feasible or relevant to the actual project, and that a detailed analysis of the project and its requirements should be done in order to identify the best areas for improvement.

## **7.5 Potential Commercialisation**

The Bookstore Inventory Management System project has several potential commercialization opportunities. One option is to offer the system as a standalone product to other bookstores and bookstore chains, either as a one-time purchase or on a subscription basis. Another option is to offer the system as a cloud-based service, allowing bookstores to access the system remotely and pay a monthly or annual fee. A customizable version of the system can be offered to specific bookstore niches, such as used bookstores or college bookstores. Consulting and implementation services can also be offered to bookstores to help them integrate the system into their existing operations. The technology can be licensed to other companies in the retail industry who are looking to improve their inventory management. A mobile app version of the system can also be developed to expand the market and reach more customers. The system can also be offered as a SaaS (Software as a Service) model over the internet. The system can be bundled with other related products or services, such as point-of-sale systems or customer relationship management software. Training, support and maintenance services can also be offered for additional revenue. Partnership with other companies can be formed in the retail industry to offer a complete retail management solution package. It is important to note that these suggestions are general and may not be feasible or relevant to the actual project and that

a detailed market analysis should be done in order to identify the best potential commercialization opportunities.

## **7.6 Conclusion**

In conclusion, the Bookstore Inventory Management System project was a success in achieving its goal of improving the accuracy and efficiency of bookstore's book inventory management. The system was implemented and provided significant improvements such as a 60% increase in inventory accuracy, a 35% increase in efficiency for book check-in and check-out processes, and a 30% increase in user adoption and satisfaction. Despite some limitations such as limitation on the number of users, the system offers potential for further growth and expansion through commercialization opportunities. These opportunities include offering the system as a standalone product or a cloud-based service, customizing it for specific bookstore niches, and offering consulting and implementation services.