UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

W O R K S H O P 1

R E P O R T

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Program : BITM

Project Title : BOOKSHOP MANAGEMENT SYSTEM

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Supervisor Signature :

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EXECUTIVE SUMMARY

The Smart Bookshop Management System will be developed to upgrade the manual system with a more user-friendly computer system for all kinds of operations in the bookshop. In the current system, all the activities are done manually. It is very time-consuming and costly. However, nowadays, people are more concerned with quickness when dealing with anything and want it done consistently and straightforwardly. With the development of this system, it can help users solve problems. The most typical difficulty in managing the Bookshop Management System is that the data is unsystematic and information is not recorded. The data is recorded manually using a paper-based approach. The other issue is that it has a limited system and is currently using direct selling because customers cannot buy books due to overcrowding in stores. The main objective of the Bookshop Management System is to identify the requirements, develop and test the system, maintain information in a structured manner, and avoid data loss. The proposed project is being developed to improve the quality of the system that is being used by admins, members, and cashiers. This Bookshop Management System is a system that can provide a more practical method of managing data. The information will be sent directly to the database.

TABLE OF CONTENTS

PAGE

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

1.1 Introduction

The bookshop management system is a crucial tool for efficiently managing the operations of a bookshop. With the increasing demand for books and the digitalisation of the book industry, it has become essential for bookshops to adopt a systematic approach to handle their inventory sales and customer management. This paper aims to explore the significance of a bookshop management system and its benefits in enhancing its overall efficiency and profitability.

The purpose of this software is to manage the books and manage the purchase in the bookshop. In the current system, all the activities are done manually. It is very time-consuming and costly. The database needs to be created and inside the database will include the book's details such as book name, author, publisher, price, quantity and details of purchase from members.

This system helps to manage data in an efficient and orderly manner. This is necessary to reduce mistakes, avoid errors and prevent them as much as possible. The proposed project is developed that improve the quality of the existing system that is being used by admin, cashiers and members to make it easier for management to gather collect of book and purchase information and get a more efficient and organized system.

1.2 Problem Statement

The existing problems to propose this project are:

i. The data is recorded manually in a paper-based approach
ii. Limited system and using direct selling.
iii. Unsystematic data and information recording.

1.3 Objective (s) of the project

This project embarks on the following objectives:

1. To identify the requirements Bookshop Management System
2. To develop a Bookshop Management System
3. To test the Bookshop Management System

1.4 Scope

1.4.1 Module to be developed

i) Login

This module authenticates the validity of the user before using the system. Users will have to key in the username and password and if it matches the ones in the database, it will log them into the system.

ii) Registration

Administrators and members are permitted to use this module. All required registration information must be entered by the user. For instance, the admin will register the cashier, and the members will register themselves to add their information.

iii) Search Module

Users will be able to search for the book information here such as types, title and others. The search is using text-based search technique.

iv) Add, update and delete book

A new book can be added to the system and updated. It can be deleted if the information is no longer located in the Smart Bookshop Management System

v) View purchase

Users can view the purchase taken at the Smart Bookshop Management System

1.4.2 Target User

i) Admin

Admin can add, update, delete, view, and register staff information. Admin can also view the report of sales by month.

ii) Members

Members can search the book, add, update, delete, view purchases and make payments. Member also get a receipt after purchase a book.

iii) Cashier

The cashier received an order and receipt from the member's purchase. The cashier can also view the report of sales by month.

1.5 Project Significance

A primary advantage of putting in place a bookshop management system is that it makes it possible to store and organize important data more efficiently. The classification of books according to genres, authors, publication dates, and other pertinent factors can be made easier with the help of this system. Bookshop owners and cashiers can quickly access and update data about member preferences and book inventory sales by using a database.

Additionally, the implementation of a bookshop management system enables effective member relationship management. By storing member's information purchase history and preferences in a centralized database bookshop owners and cashiers can personalize the shopping experience for their members. This includes suggesting relevant books based on their previous purchases sending targeted marketing campaigns and offering loyalty programs.

Furthermore, a bookshop management system aids in efficient sales and billing processes. By automating these processes bookshop owners can generate accurate bills track sales trends and analyze sales data to make informed business decisions. This leads to improved financial management and the ability to identify profitable book genres or authors further enhancing the bookshop's overall performance.

1.6 Gantt Chart of Project Activities

Table 1.1 illustrates the milestones and activities for the Bookshop Management project.

ACTIVITIES	WEEK														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Assigning students to supervisors															
Briefing of Workshop 1															
Discussion / verification of title and synopsis. Proposal preparation															
Student submits proposal to supervisor & committee **(proposal)**															
Discussion with supervisor on analysis of the problem **(Analysis and design)**															
Project implementation **(Progress 1)**															
Mid-semester break															
Project implementation **(Progress 2)**															
Project implementation **(Progress 3)**															
Final Presentation and Final Project Submission															

Figure 1. 1 Gantt Chart of Bookshop Management Project

CHAPTER 2: ANALYSIS OF PROBLEM

2.1 Problem Decomposition Description

Table 2.1 is about the main problem and solution for the Bookshop management system

Table 2. 2 Problem decomposition

	Problem	Solution
1	The data is recorded manually in a paper-based approach	This system will enhance efficiency by automating tasks and saving time
2	Limited system and using direct selling	This system will be regulated and there will be no disturbance when buying books.
3	Unsystematic data and information recording.	This system will store information in a centralized database

2.2 Structured Chart

Figure 2.2 is about the structure chart of the Bookshop management system with admin, member and cashier. These 3 users have their roles in this system.

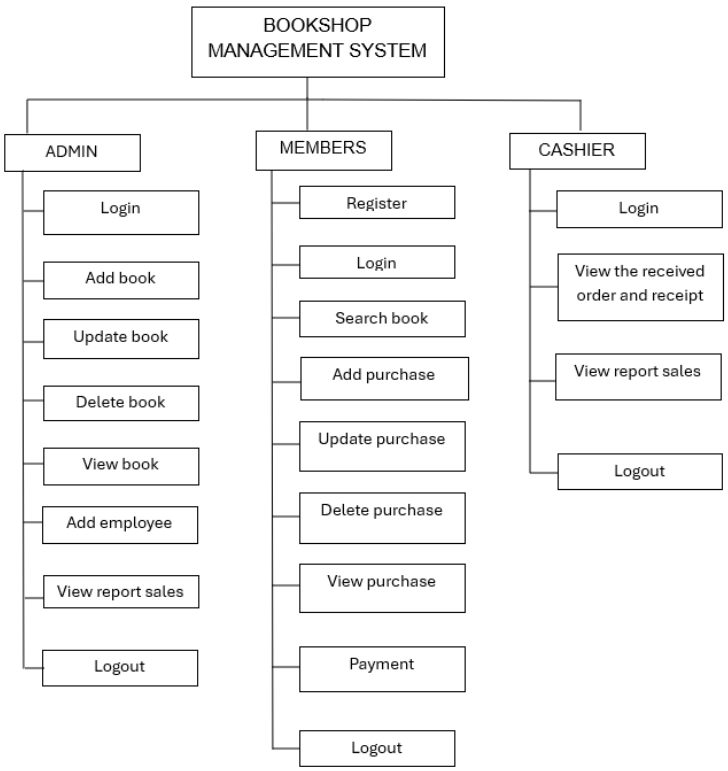


Figure 2. 1 : Structured chart Bookshop management system

CHAPTER 3: DESIGN

3.1 Flowchart

Figure 3.1 is a user's main menu. This diagram shows the user using the bookshop management system with 2 options: log in and register. All users can log in, although there are no records in the system members need to register it.

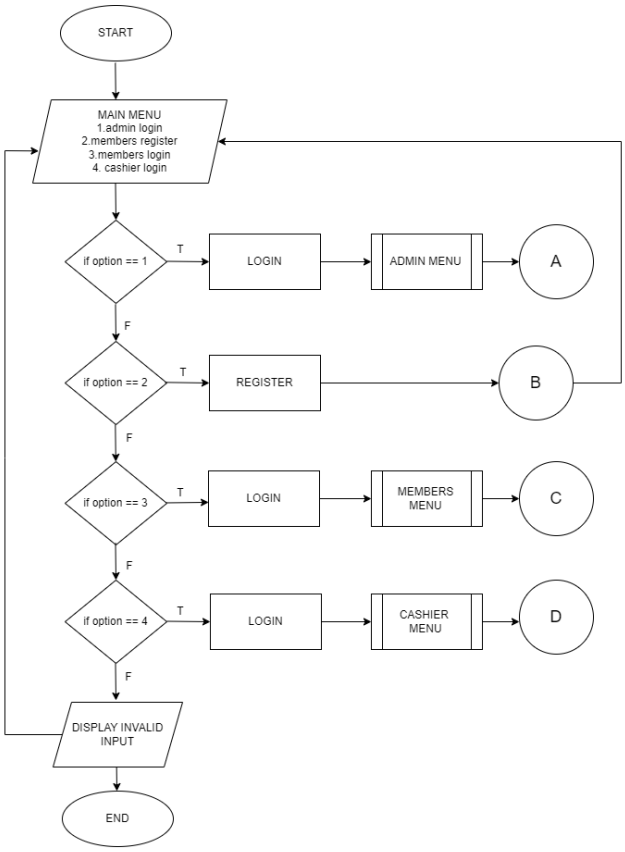


Figure 3. 1 Flowchart main menu user

Figure 3.2 is the login flow. Users need to key in the username and password in the system. Users must log in again if their username or password is incorrect.

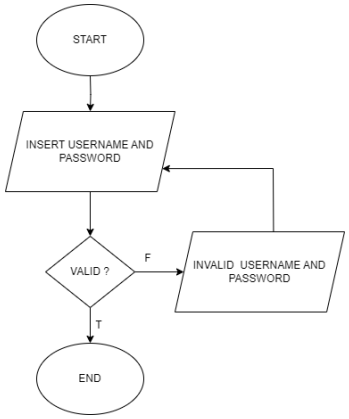


Figure 3. 2 Flowchart login

Figure 3.3 is for registration flow. Members need to key in all the details in the system.

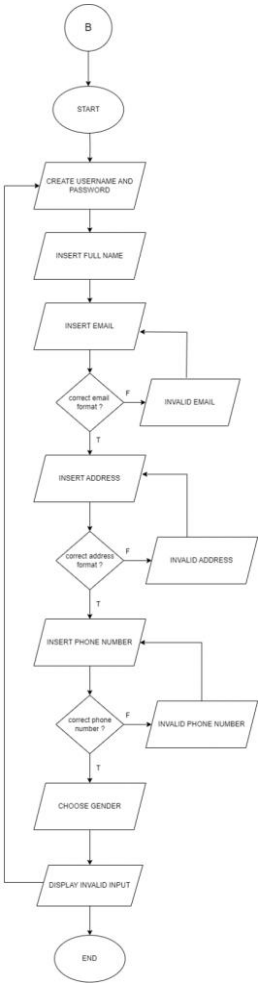


Figure 3. 3 Flowchart register

Figure 3.4 is the admin menu. This diagram shows the flow after the admin logged to the system, the admin can choose whether to register cashier or manage the book on the system.

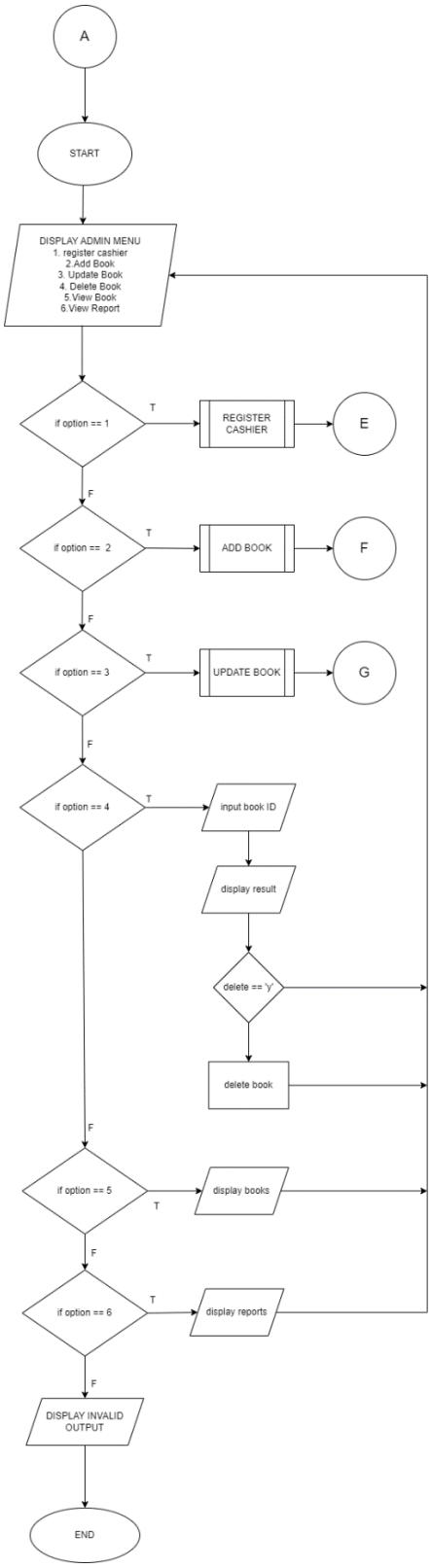


Figure 3. 4 Flowchart admin menu

Figure 3.5 is the registration cashier menu. This diagram shows the flow admin registers the cashier and gets the information when the admin accepts a new employee.

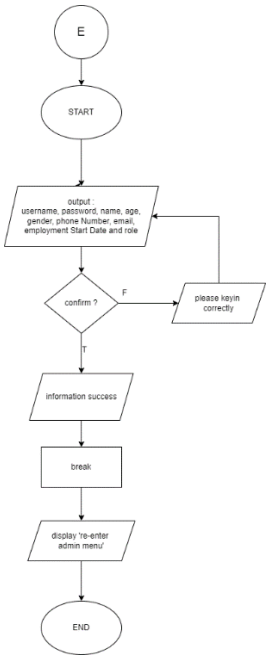


Figure 3. 5 Flowchart registration cashier

Figure 3.6 is the add book menu. This diagram shows the flow after the admin chooses to add the book to the system, the admin needs to key in all the details in the system.

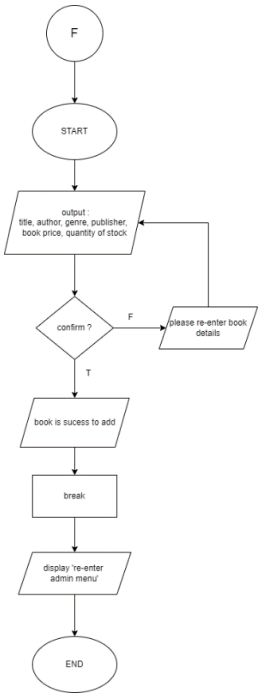


Figure 3. 6 Flowchart add book

Figure 3.7 is the updated book. This diagram shows the flow in which the admin chooses what to update the book to in the system either title, author, genre, publisher, book price or quantity of book.

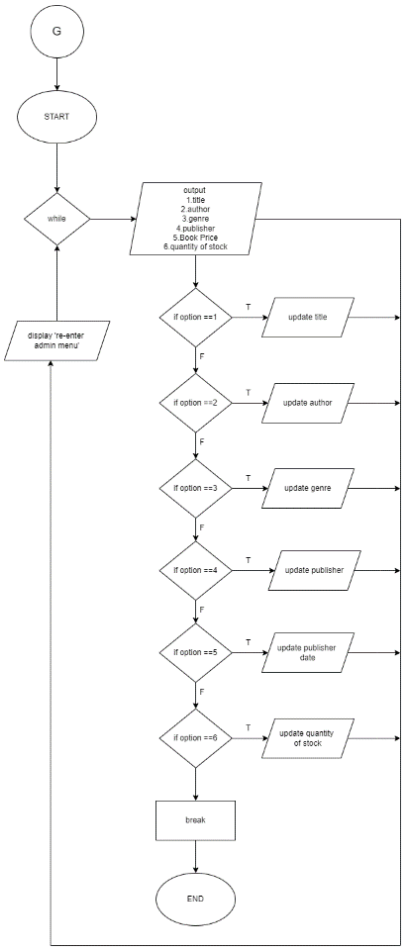


Figure 3. 7 Flowchart update book

Figure 3.8 is the member menu. This diagram shows the flow after a member logged in to the system. Members can search for books on the system whether the books are in the system or not, or whether to manage purchases in the system.

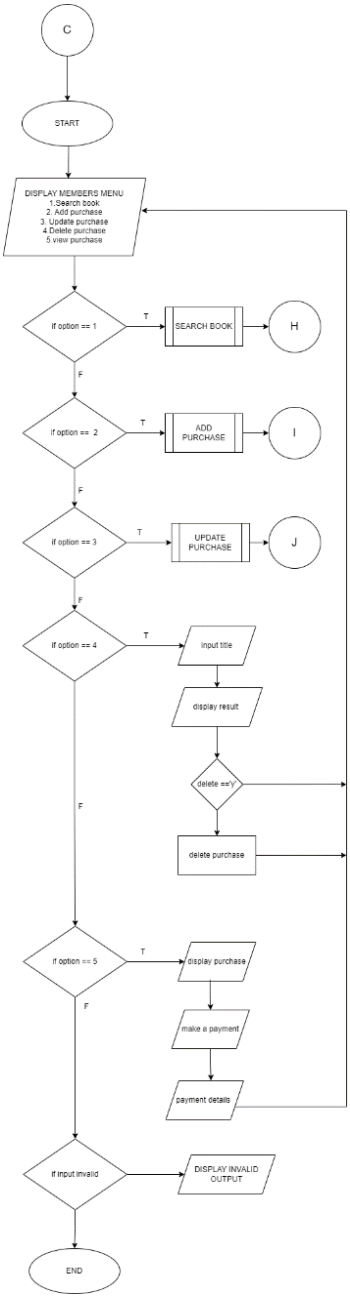


Figure 3. 8 Flowchart member's menu

Figure 3.9 is the flow of the members searching for the book by inserting the title of the book before they want to purchase it.

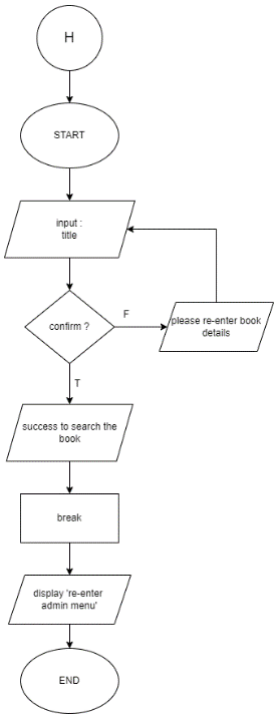


Figure 3. 9 Flowchart search book

Figure 3.10 is the flow of the members adding the purchase of the book by inserting the book ID and quantity to order the book.

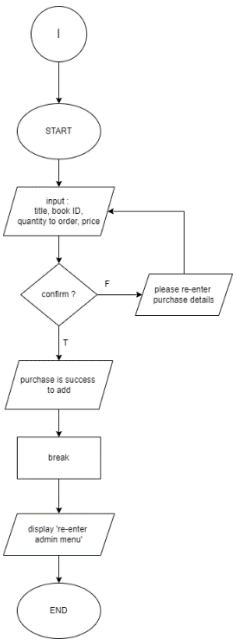


Figure 3. 10 Flowchart add purchase

Figure 3.11 is about the flow of the members update the purchase of the book by inserting the quantity and price of the book.

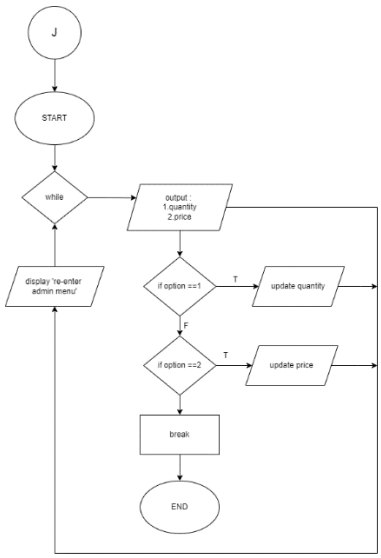


Figure 3. 11 Flowchart update purchase

Figure 3.12 is the cashier menu. This diagram shows the flow after a cashier logged in to the system. The cashier can display the received order and receipt or view the reported sales in the system.

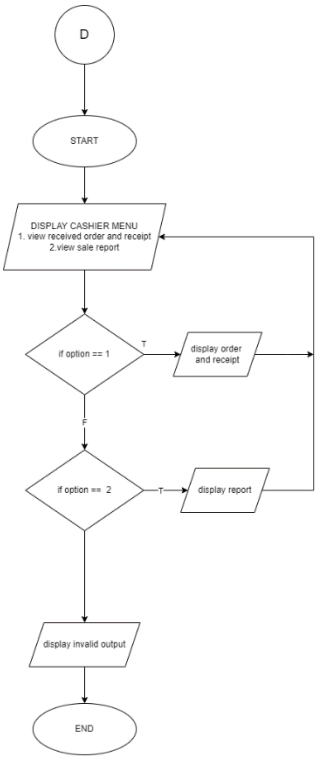


Figure 3. 12 Flowchart cashier menu

3.2 Data Flow Diagram (DFD)

Figure 3.13 is the data flow diagram for the context diagram of the bookshop management system, which had an admin, member and cashier.

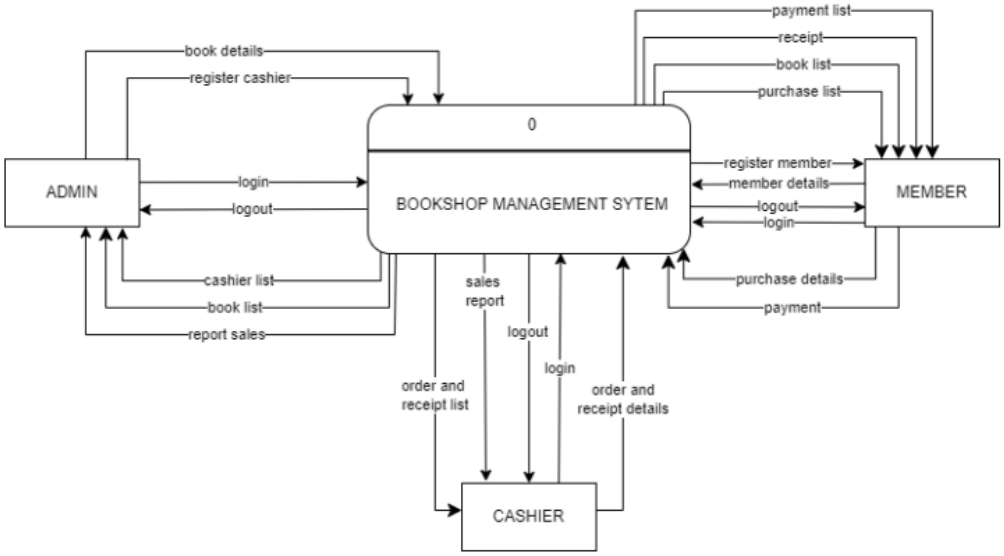


Figure 3. 13 context diagram

Figure 3.14 is about level 0 of the bookshop management system

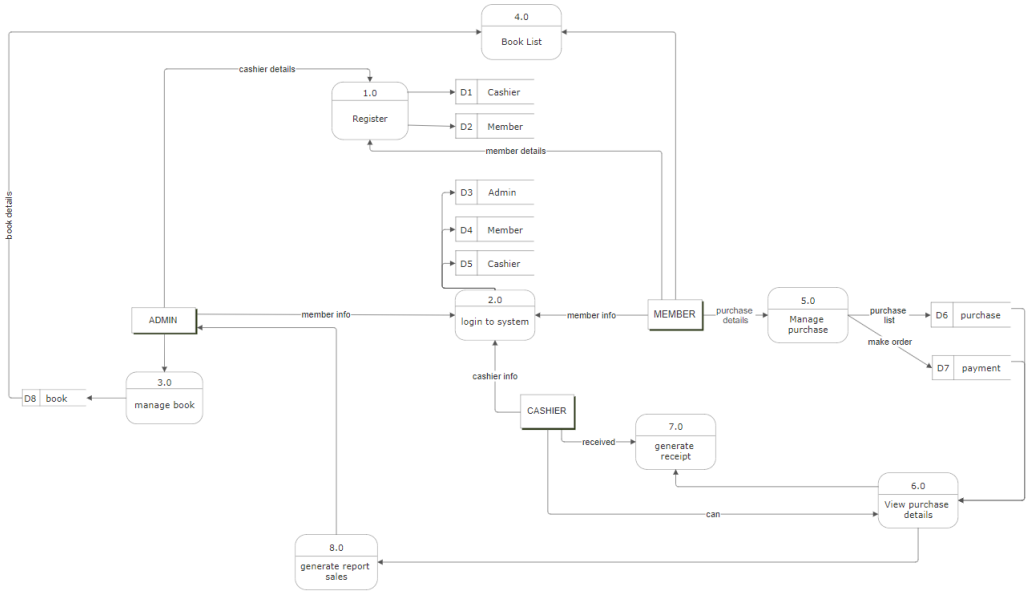


Figure 3. 14 level 0

Figure 3.15 is about level 1 of 3.0 (manage book), where the details of admin are what can be done.

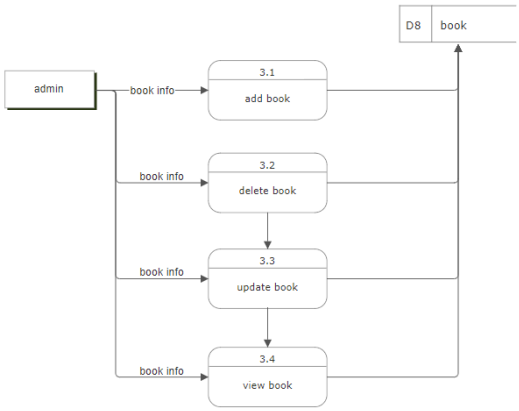


Figure 3. 15 Level 1 DFD for 3.0

Figure 3.16 is about level 1 of 5.0 (manage the purchase and do a payment), where the details of members are what can be done.

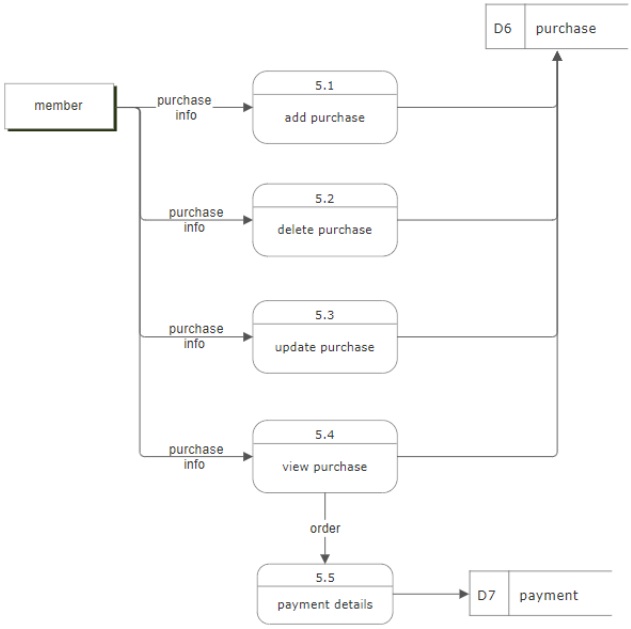


Figure 3. 16 Level 1 DFD for 5.0

3.3 ERD

Figure 3.17 is about the ERD of the bookshop management system.

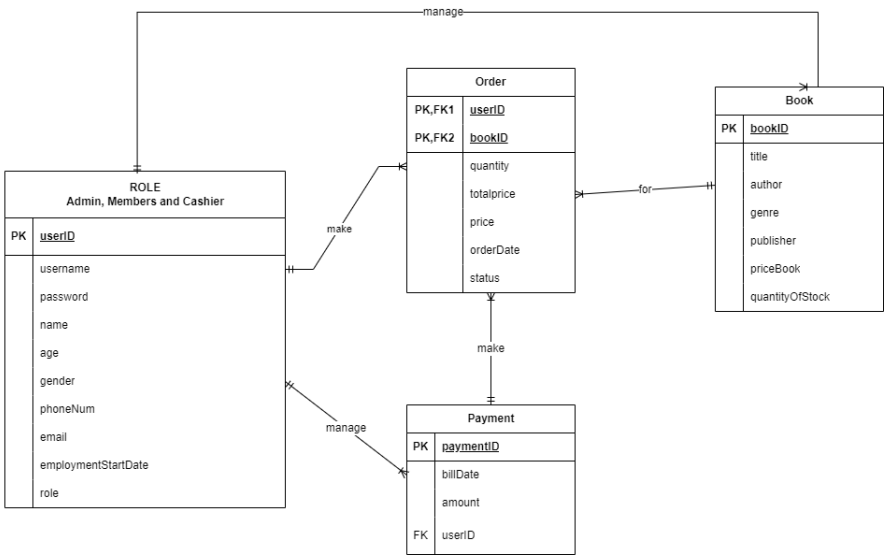


Figure 3. 17 ERD

3.4 Data Dictionary

1) User

Table 3. 1 data of admin, member and cashier for inserting it into database requirement

Field Name	Datatype	Field Length	Constraint	Description
userID	int	15	primary key	Members ID
username	varchar	20		username
password	varchar	15		password
name	varchar	50		name of the members
age	int	100		the number of age
gender	varchar	50		male or female
phoneNum	int	12		phone number of the members

email	varchar	255		email of the members
employmentStartDate	datetime	-		start date of work
role	int	11		role 1: admin role 2: members role 3: cashier

2) Book

Table 3. 2 data of the book for inserting it into the database requirement

Field Name	Datatype	Field Length	Constraint	Description
bookID	int	100	primary key	Book ID
title	varchar	1000		Title of book
author	varchar	1000		Author of book
genre	varchar	1000		Genre of book
publisher	varchar	100		publisher
priceBook	float	4,2		Price of book
quantityOfStock	int	100		Quantity of stock

3) Order

Table 3. 3 data of the order for inserting it into the database requirement

Field Name	Datatype	Field Length	Constraint	Description
orderID	int	25	PK, FK1	order ID
quantity	int	25		Quantity book to purchase
totalprice	float	6,2		total price of purchase
price	float	6,2		price of book
bookID	int	100	PK, FK2	book ID

orderDate	date	-		date of purchase
userID	int	100		user ID
status	varchar	255		paid or unpaid

4) Payment

Table 3. 4 data of the payment for inserting it into the database requirement

Field Name	Datatype	Field Length	Constraint	Description
paymentID	int	100	primary key	Payment ID
userID	int	11	Foreign key	user ID
billDate	timestamp	-		Date of bill purchase
amount	decimal	10,2		amount of purchase

3.5 Interface Design

Figure 3.18 is about the main menu interface for the bookshop management system

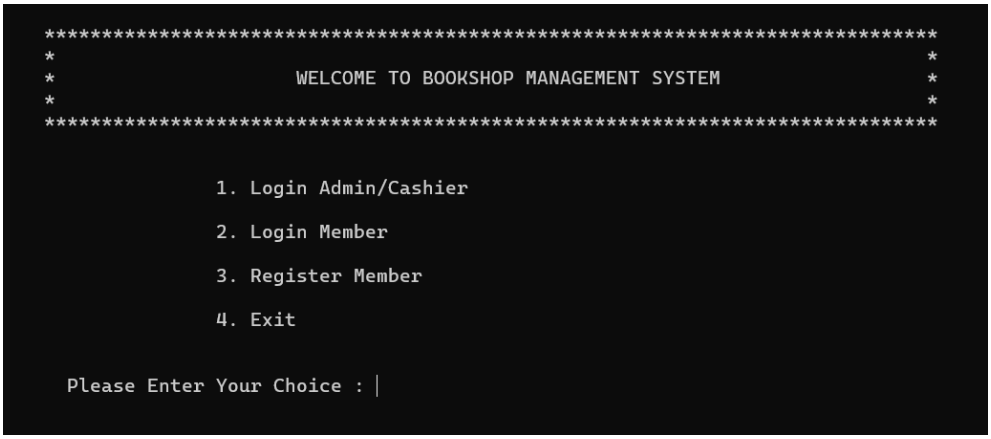


Figure 3. 18 main menu of bookshop management system

Figure 3.19 is about the admin and cashier interface for login to the bookshop management system.

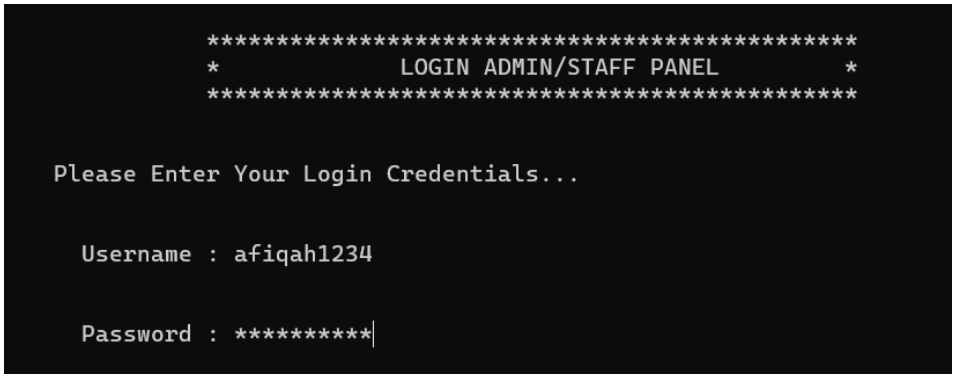


Figure 3. 19 Login menu interface of bookshop management system

Figure 3.20 is about the main menu admin interface. Admin has an option to manage it

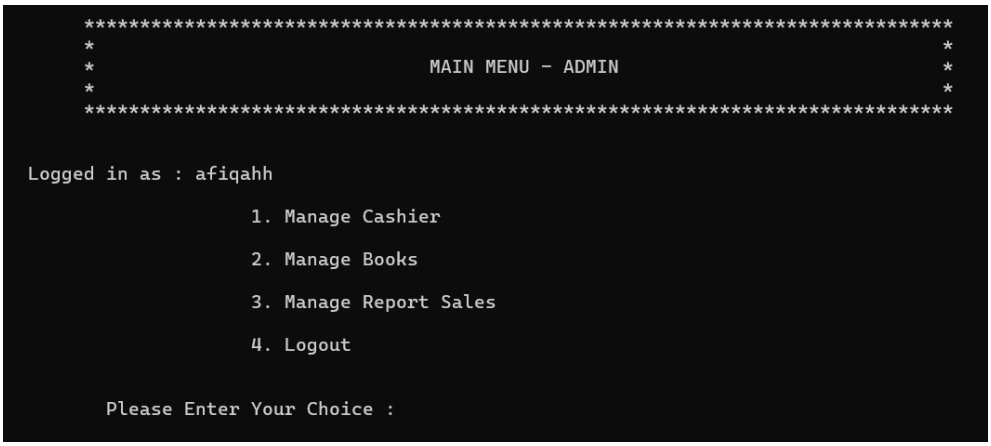


Figure 3. 20 Main menu admin of bookshop management system

Figure 3.21 is about the admin registered the cashier in the menu.

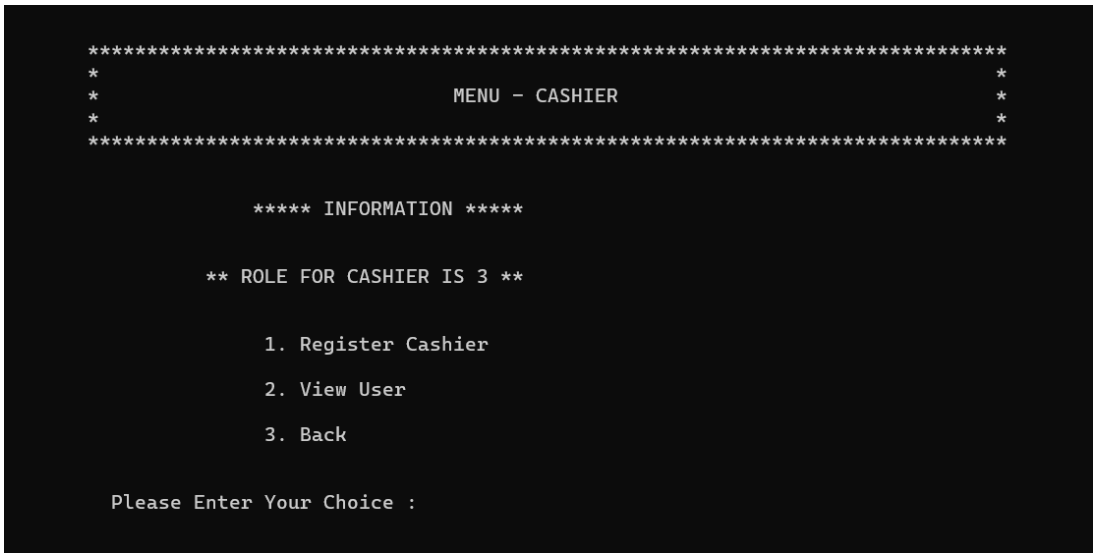


Figure 3. 21 Menu cashier of bookshop management system

Figure 3.22 is about the admin inserted the details of the cashier at the menu new staff registration.

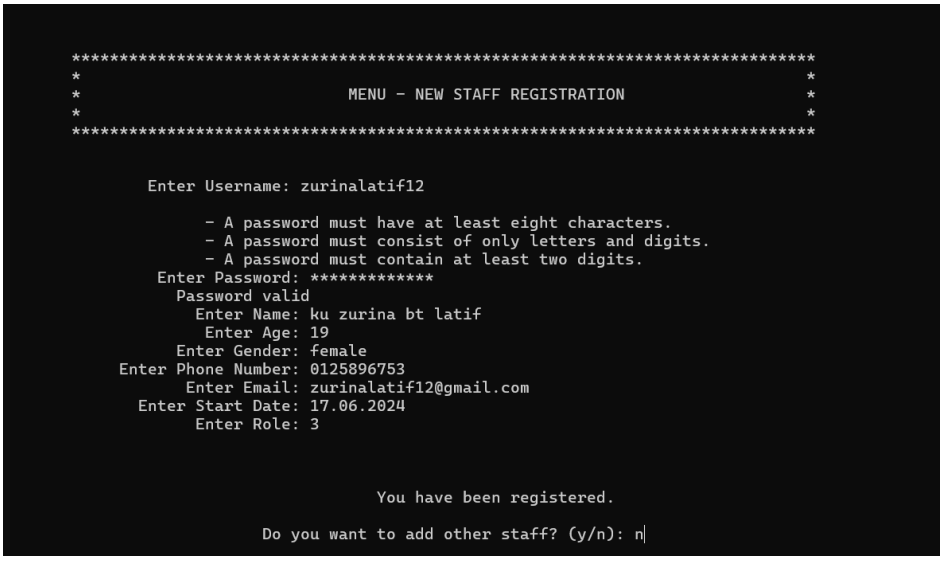


Figure 3. 22 Menu new staff registration of bookshop management system

Figure 3.23 is about the admin view of the user list registered in the system, including the cashier.

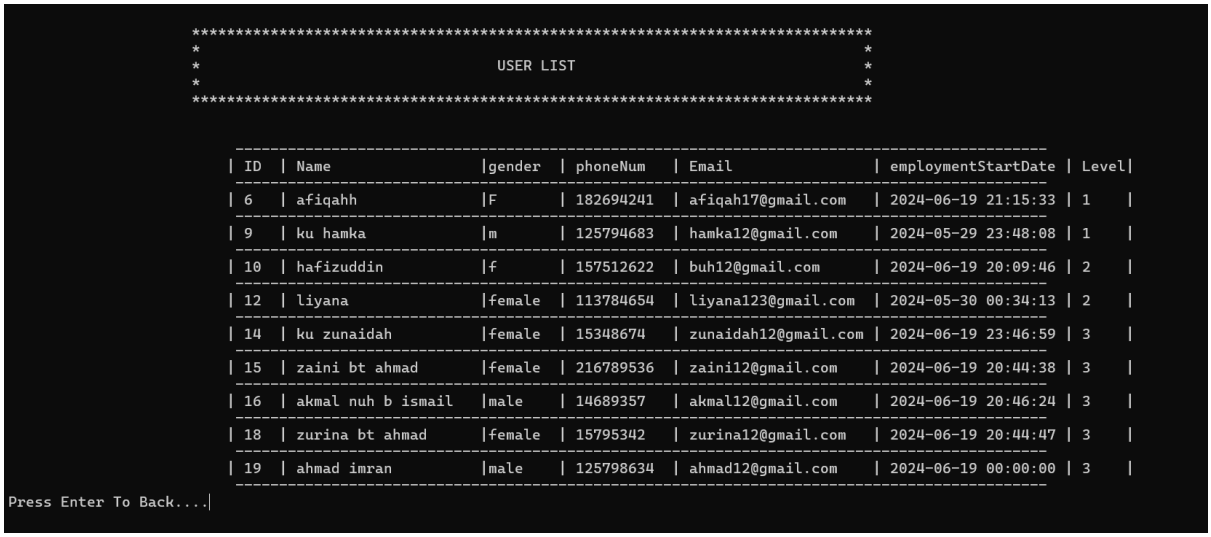


Figure 3. 23 Menu user list of bookshop management system

Figure 3.24 is about the details of manage books in a bookshop management system

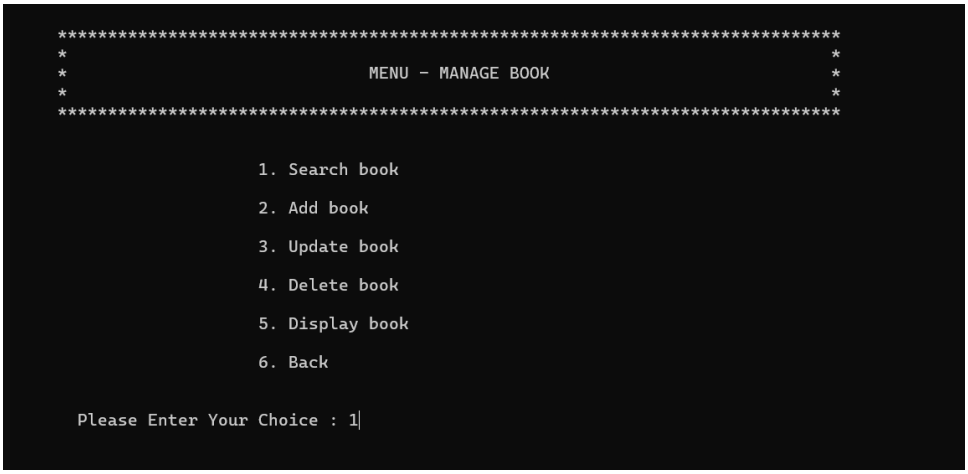


Figure 3. 24 Menu manage book at bookshop management system

Figure 3.2 is about where the admin is looking for the book, whether the book exists or not, or the book already exists

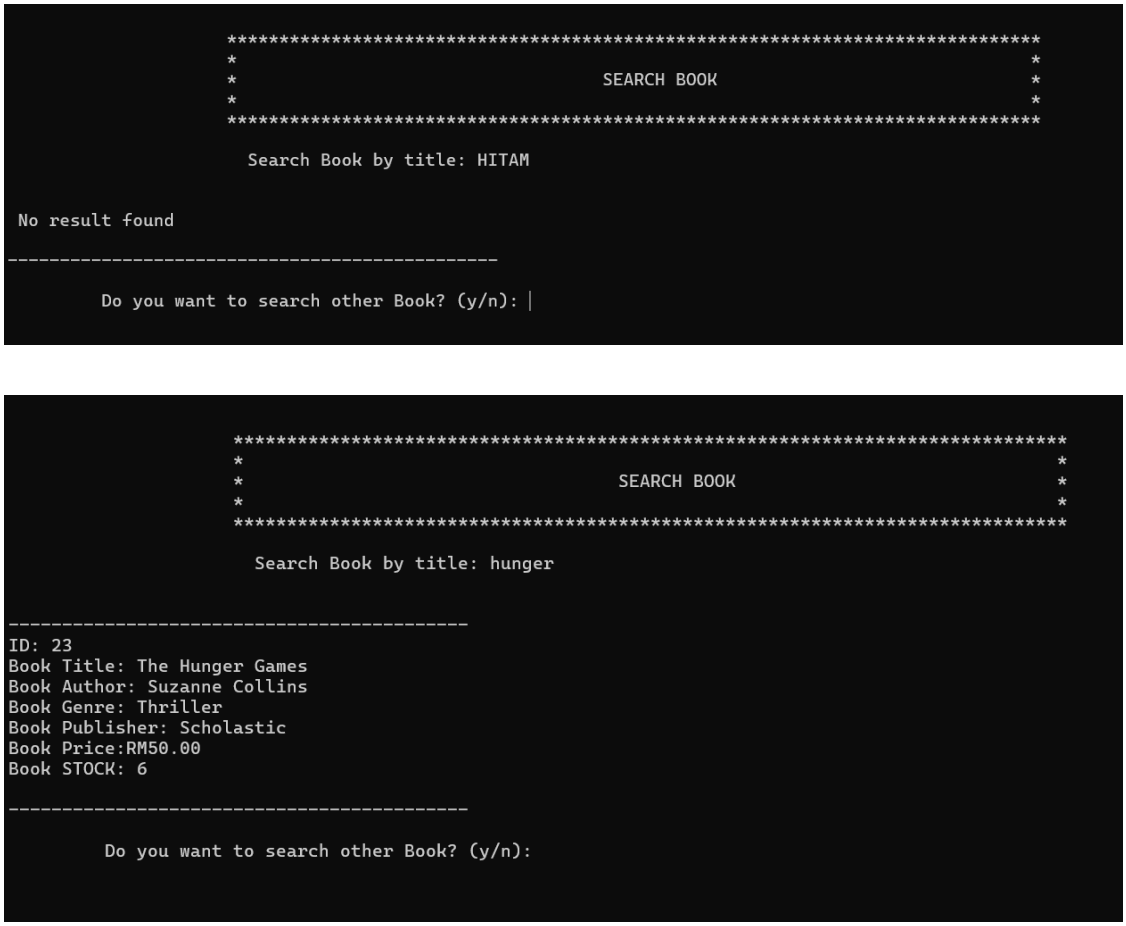


Figure 3. 25 Interface search book at bookshop management system

Figure 3.26 is about the admin insert all the details of book at the add book interface

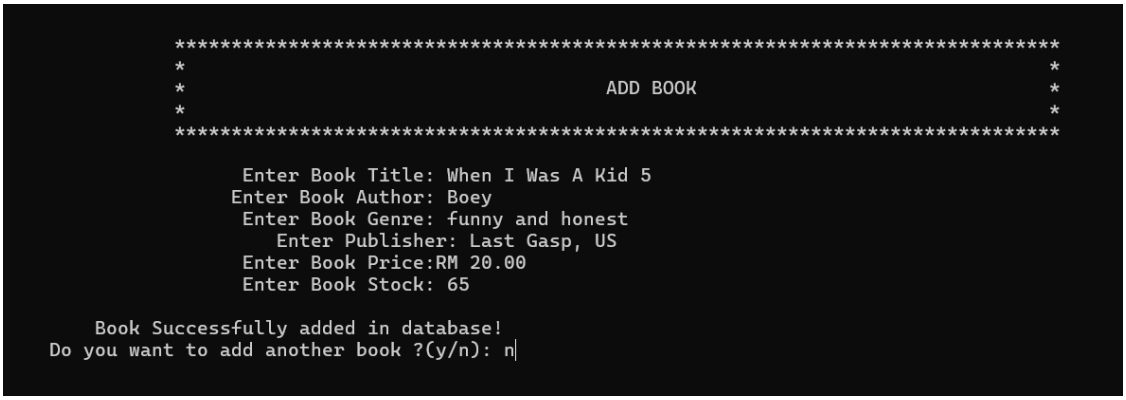


Figure 3. 26 Menu add book at bookshop management system

Figure 3.27 is about the admin insert the book ID and choose the category where they want to update the book details.

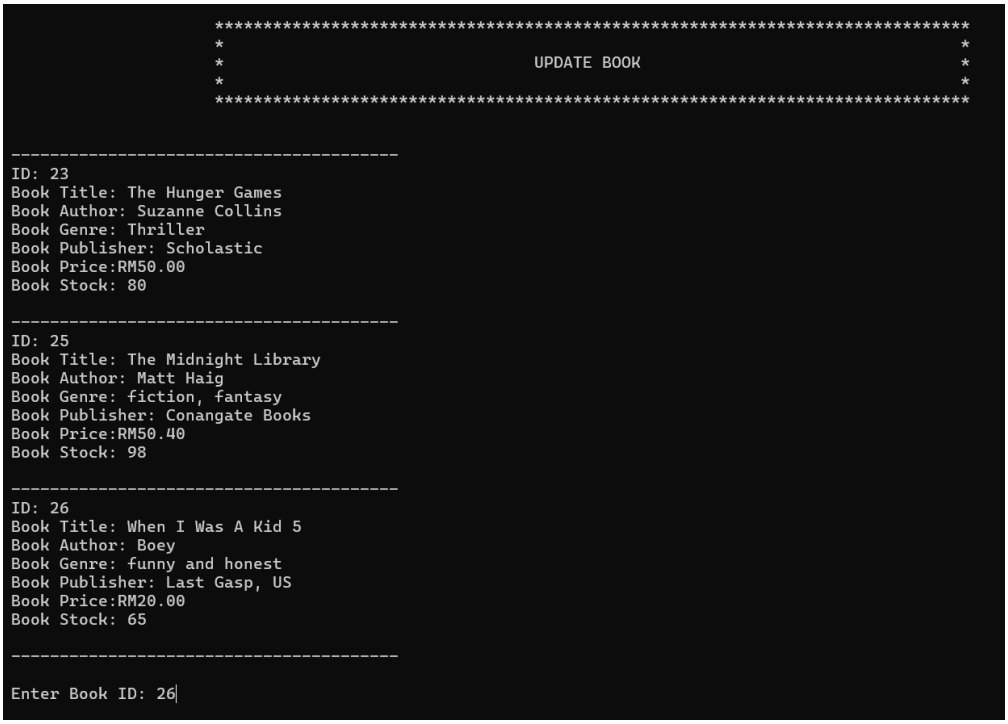


Figure 3. 27 Menu update list at bookshop management system

Figure 3.28 is about the admin insert the book ID and choose the category where they want to delete the book.

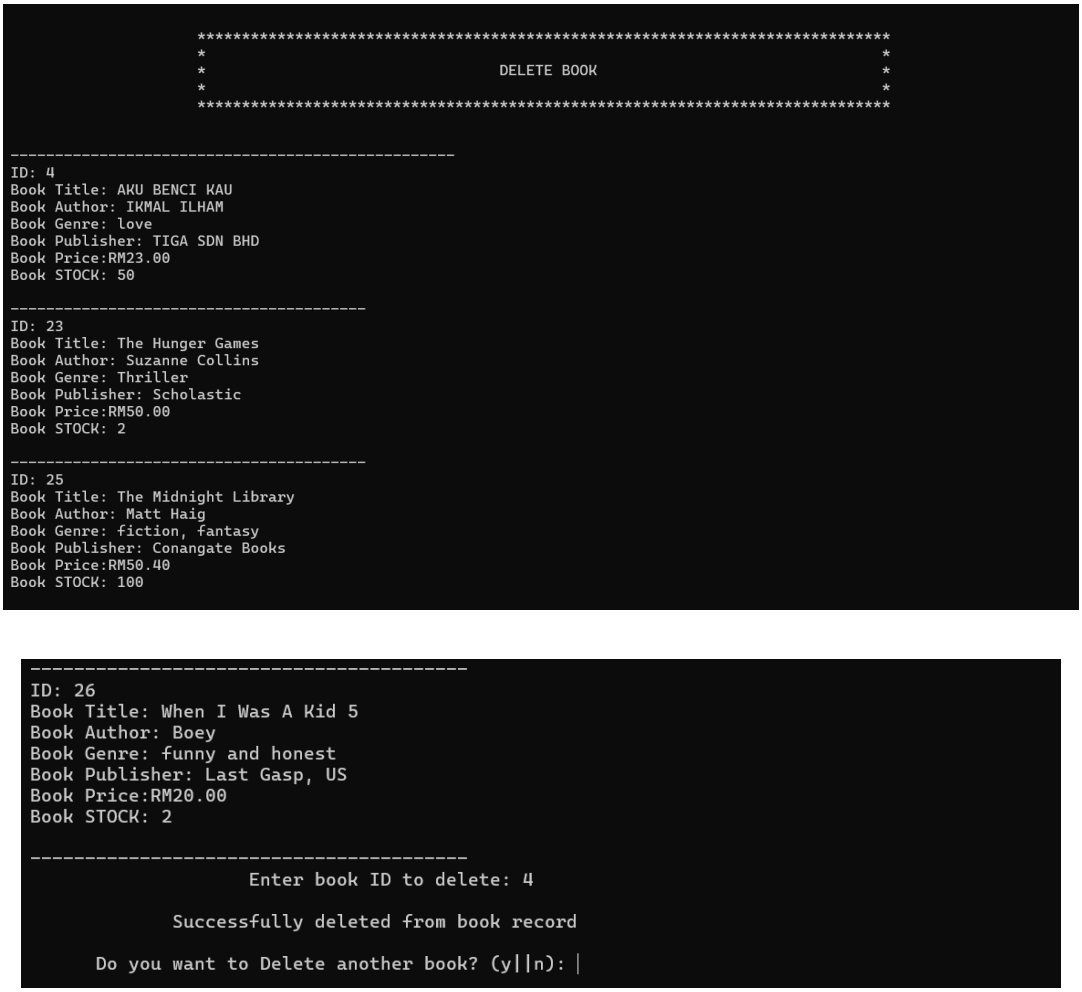


Figure 3. 28 Menu delete book at bookshop management system

Figure 3.29 is about the admin view of the book list available in the system

Figure 3. 29 Menu view book at bookshop management system

Figure 3.3 is the about members interface for login to the bookshop management system.

Figure 3. 30 Login menu interface of bookshop management system

Figure 3.31 is about the main menu member interface. Member has an option to manage it

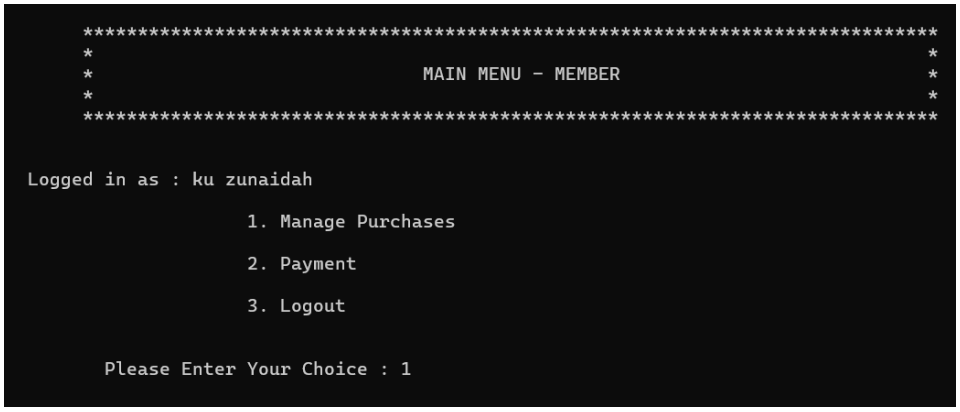


Figure 3. 31 Main menu member of bookshop management system

Figure 3.3 is about the details of manage purchase in a bookshop management system

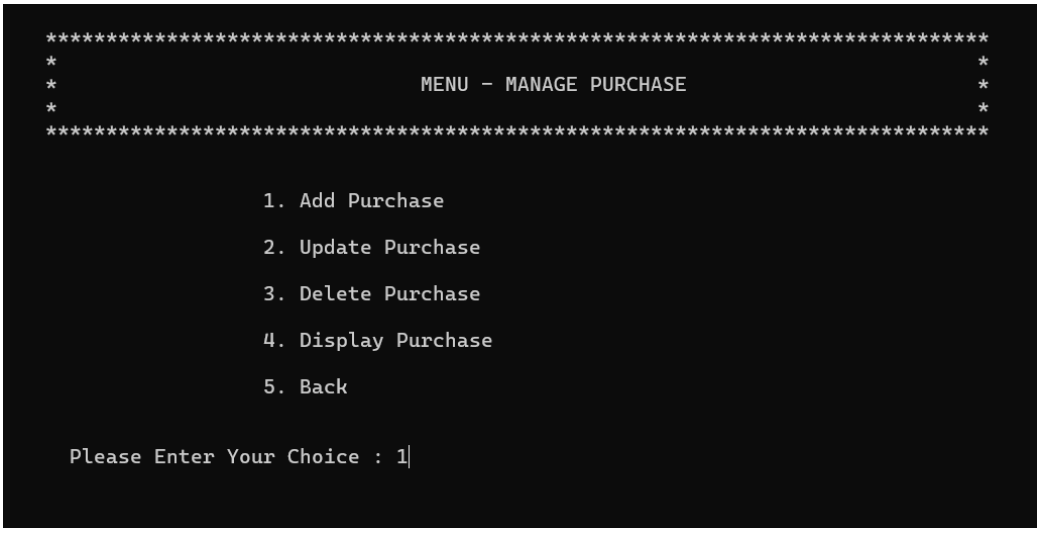
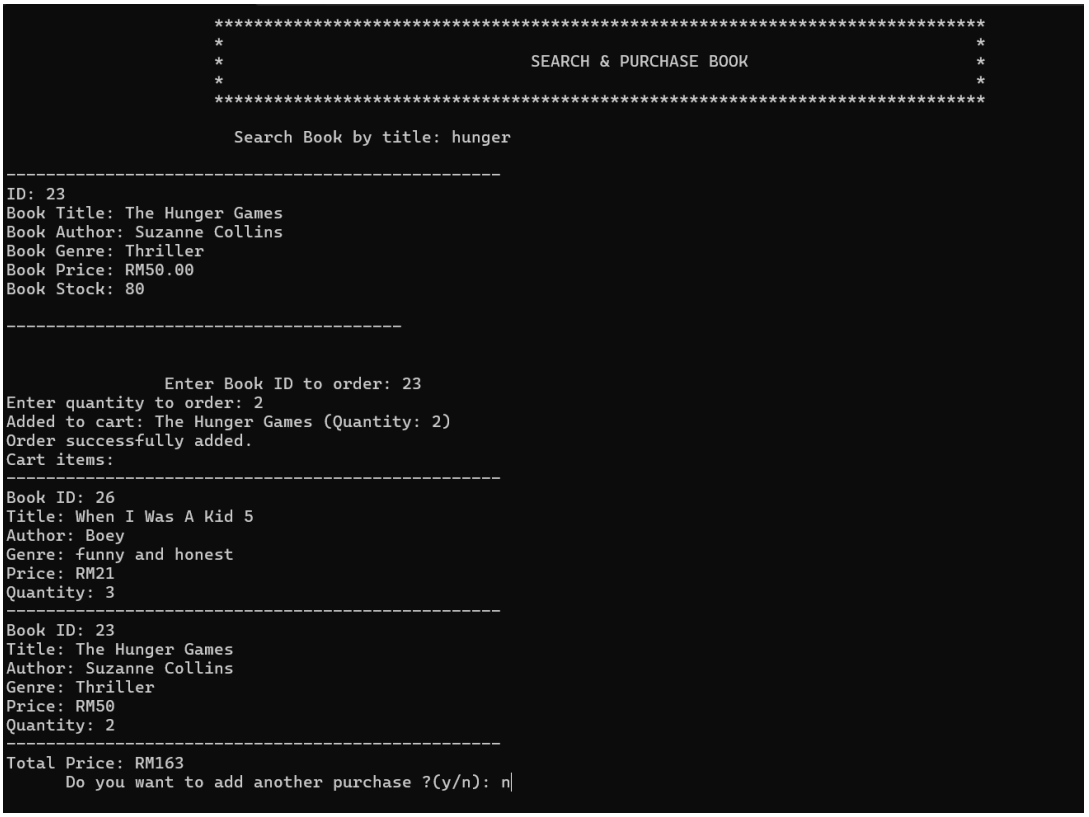


Figure 3. 32 Menu manage purchase of bookshop management system

Figure 3.3 is about where the member is searching for the book title. Then, insert the book ID displayed above and the quantity of books to order will also display the total price. Members can also review the purchase list.



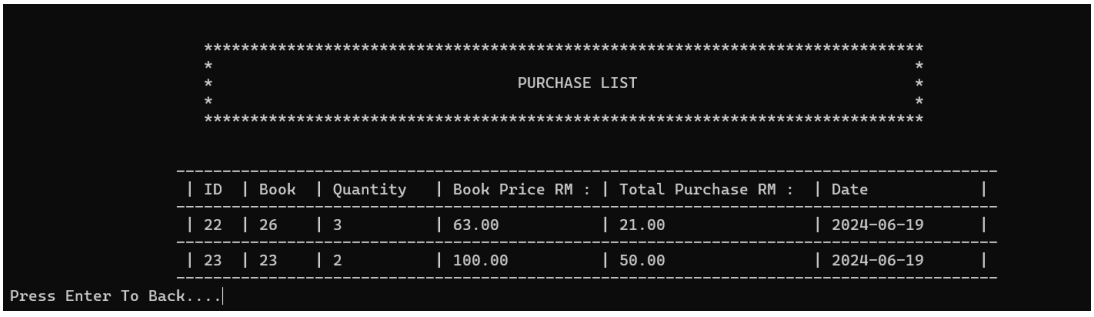


Figure 3. 33 Menu search and add purchase at bookshop management system

Figure 3.34 is about a member update the purchase where insert order ID and quantity of book

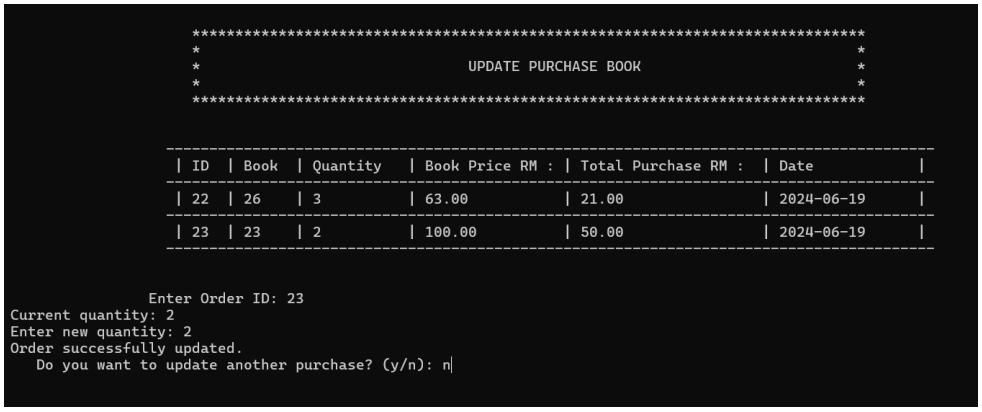


Figure 3. 34 Menu update purchase at bookshop management system

Figure 3.35= is about a member delete the purchase.

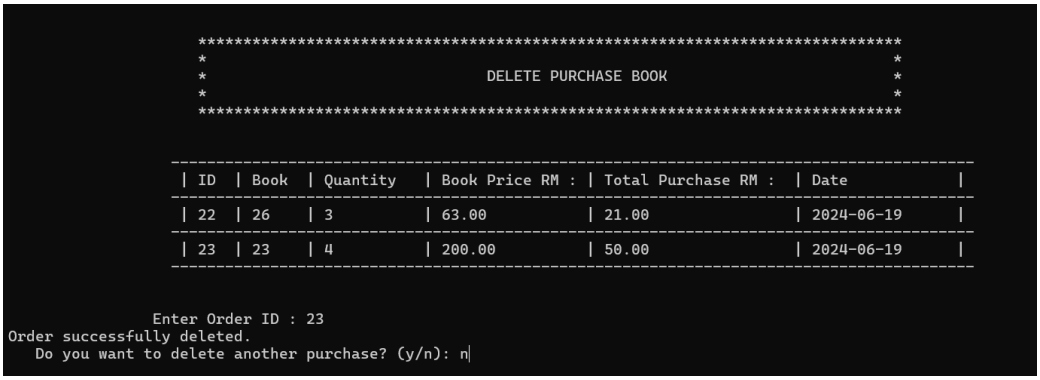


Figure 3. 35 Menu delete purchase at bookshop management system

Figure 3.36 is about where members can view the purchase when done with purchasing it.

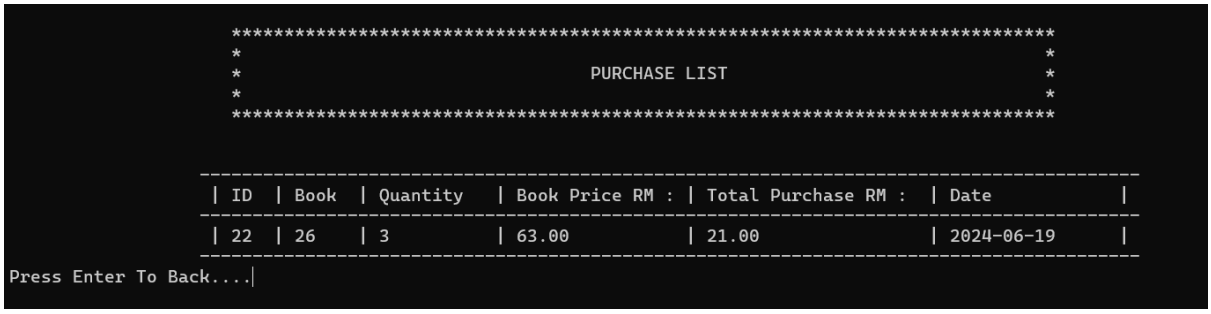


Figure 3. 36 Menu display purchase at bookshop management system

Figure 3.37 is about payment. After member have purchased the book, they can make a payment. It will display the book purchase with the total needs to be paid. Member needs to insert the amount. After making a payment, will display the receipt.

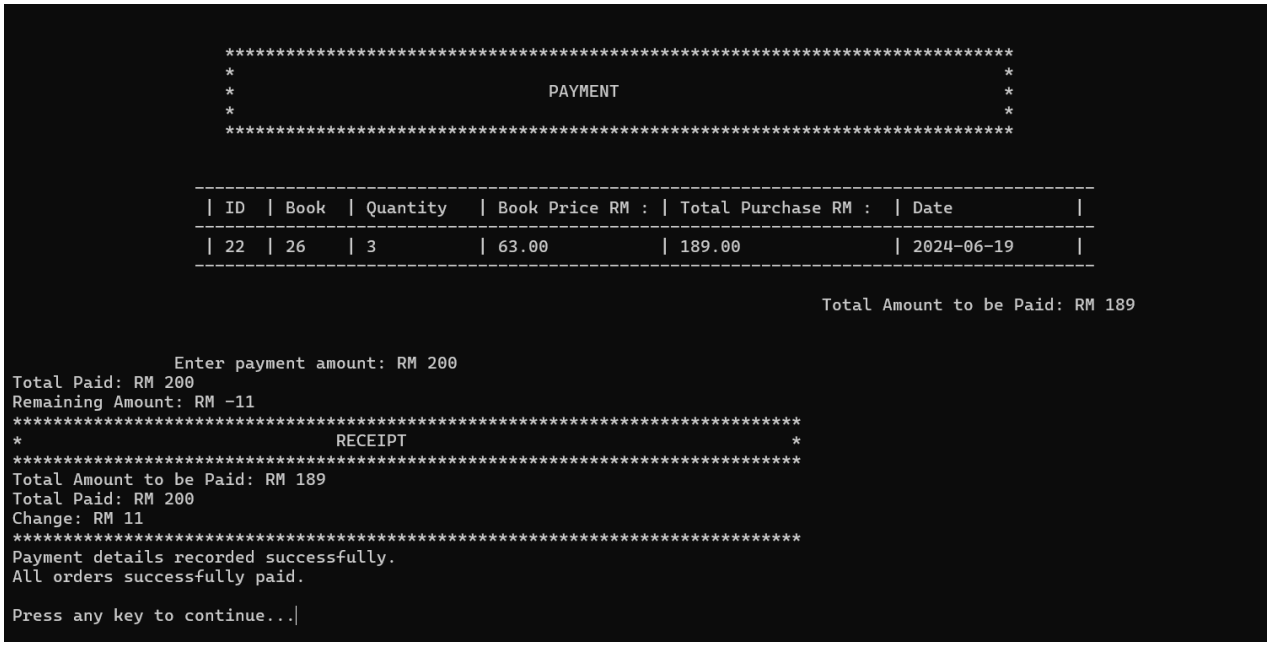


Figure 3. 37 Menu payment at bookshop management system

Figure 3.38 is about the menu report sale interface. Admin has an option to display the report

Figure 3. 38 Menu sales report at bookshop management system

Figure 3.39 is about the admin view of the sales report list in the system. Admin can view the total sales, member who has the most payments and the popular book.

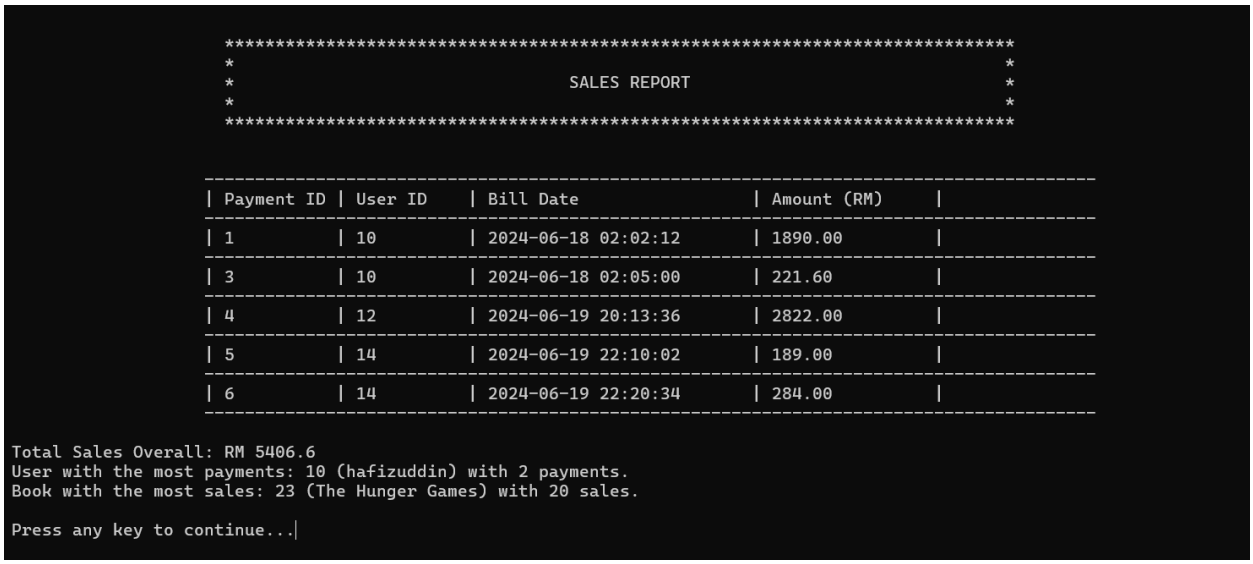


Figure 3. 39 Menu display sales report at bookshop management system

CHAPTER 4: IMPLEMENTATION

4.1 Naming Convention

Figure 4.1 is about set of guidelines for choosing meaningful and consistent names for various code elements. Consistent naming makes code easier to understand and improves code comprehension and maintainability.

```
void Login();
void Loginmember();
void AdminMenu();
void Regcashier();
void memberMenu(string userID);
void ListcashierAdmin();
void Addbook();
void DelBook();
void UpdateBook();
void ViewBook();
bool SearchBook();

void Regmember();
void Addpurchase(string userID);
void Viewpurchase(string userID);
void Updatepurchase(string userID);
void Delpurchase(string userID);
```

Figure 4. 1 Class name for the function

4.2 Function

Figure 4.2 is about the function as a self-contained block of code that performs a specific task or set of tasks. It takes input values called arguments or parameters and often returns an output value. It can be called multiple times from different parts of the program.

```
void ViewBook()//done
{
    system("cls");

    cout << setw(200) << " " << endl;
    cout << setw(99) << "*********************************************************************************" << endl;
    cout << setw(99) << "*                                                                               *" << endl;
    cout << setw(99) << "*                                  BOOK LIST                                    *" << endl;
    cout << setw(99) << "*                                                                               *" << endl;
    cout << setw(99) << "*********************************************************************************" << "\n" << endl;

    qstate = mysql_query(conn, "SELECT * FROM book");
    if (!qstate)
    {
        res = mysql_store_result(conn);
        cout << endl << "-------------------------------------------------\n";
```

Figure 4. 2 function of view book

4.3 Array

Figure 4.3 is about an array a collection of elements of the same data type, stored in contiguous memory locations. It provides a structured way to organize and access multiple values using a single variable name.

```
if (!qstate)
{
    res = mysql_store_result(conn);
    cout << endl << "-----------------------------------------------\n";
    while ((row = mysql_fetch_row(res)))
    {

        cout << "ID: " << row[0] << endl;
        cout << "Book Title: " << row[1] << endl;
        cout << "Book Author: " << row[2] << endl;
        cout << "Book Genre: " << row[3] << endl;
        cout << "Book Publisher: " << row[4] << endl;
        cout << "Book Price:RM" << row[5] << endl;
        cout << "Book STOCK: " << row[6] << endl;
        cout << "Book ISBN: " << row[7] << endl;
        cout << endl << "---------------------------------------\n";

    }

}
else
{
    cout << "Query Execution Problem!" << mysql_errno(conn) << endl;
}
cout << "Press Enter to continue" << endl;
_getch();
AdminMenu();
}
```

Figure 4. 3 Example of array

4.4 Selection

Figure 4.4 is about selection, a fundamental control flow structure in programming that allows the execution of different blocks of code based on whether a certain condition is true or false. It enables programs to make decisions and choose between alternative actions.

```
switch (menu)
{
case 1:
    Login();
    break;
case 2:
    Loginmember();
    break;
case 3:
    Regmember();
    break;
case 4:
    exit(0);
default:
    system("cls");
    cout << "Please Enter a Valid Input!\n\n";
    system("pause");
    break;
}
```

Figure 4. 4 Example of selection

4.5 Control

Figure 4.5 is about control, which allows a programmer to have an organized execution flow. It is a mechanism that manages the sequence of instructions, determining which ones are executed and in what order.

```
if (count < 2 || (password.length() < 8) || (specials != 0)) {
    valid_password = false;
}
```

Figure 4. 5 Example of control

4.6 Pointer

Figure 4.6 is about 3 types of variable pointers, which MYSQL* conn; for used to store the address of the connection object. For MYSQL_ROW row; is a type representing a row of data retrieved from a MySQL result set.It is essentially an array of strings (char**), where each element corresponds to a column in the result set and MYSQL_RES* res; is a structure representing the result set from a MySQL query. The pointer is used to store the address of the result set object.

```
MYSQL* conn;
MYSQL_ROW row;
MYSQL_RES* res;
```

Figure 4. 6 Example SQL pointer

4.7 Error Handling

Figure 4.7 is about the error handling approach that provides feedback to the user, notifying them about the outcome of their login attempt. If successful, they are directed to the admin main menu; otherwise, they are informed of the invalid credentials and brought back to the main menu for further actions.

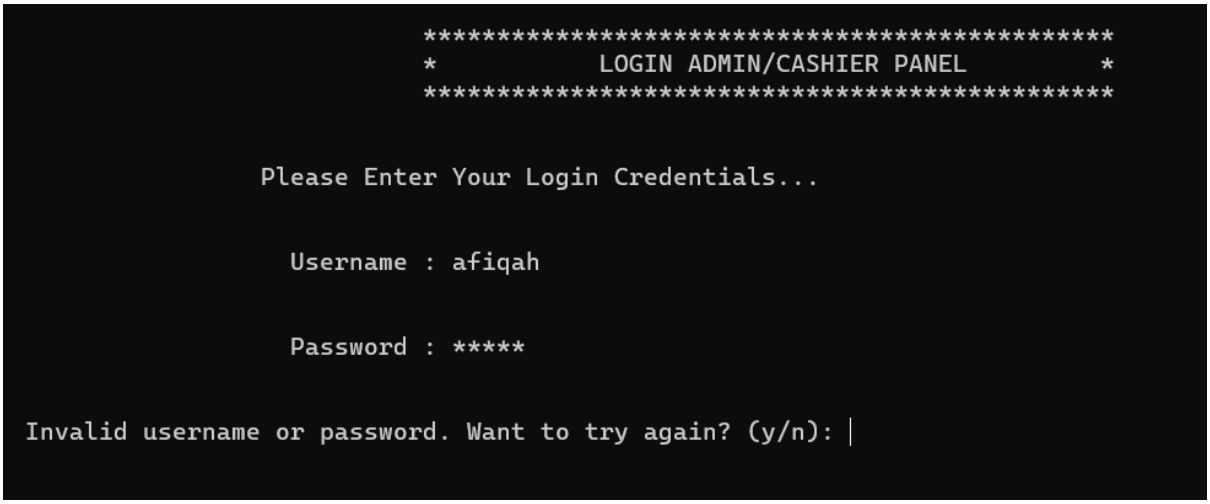


Figure 4. 7 Example error handling at invalid login

CHAPTER 5: CONCLUSION

5.1 Constraints

A crucial aspect of any management system is protecting customer data. Bookshops need to ensure that their BMS complies with data protection regulations to safeguard customer information. Without proper security measures, such as encryption and regular backups, the system may become vulnerable to data breaches or unauthorized access.

Bookshops may already have existing systems in place, such as point-of-sale systems, customer databases, or loyalty programs. The successful implementation of a BMS often requires integrating these existing systems seamlessly for optimal functionality.

BMSs excel in tracking sales, generating reports, and managing customer data. However, when it comes to advanced inventory management tasks, such as recommending reordering quantities based on historical sales patterns or tracking book popularity across genres, a BMS may have limitations.

5.2 Future Improvements

Future improvements should prioritize strengthening the security measures in the system to safeguard sensitive customer and business data from potential cyber threats. Measures such as encryption regularly updated security protocols, and adherence to data protection regulations can significantly alleviate these constraints.

This constraint can be overcome by incorporating advanced reporting and analytics capabilities into the system. By doing so, bookshop owners and managers can access real-time insights and make data-driven decisions regarding pricing, purchasing, marketing and customer segmentation.

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