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Faculty of Engineering

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Mini Project Documentation
Bookstore Management System

By

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1.0 Introduction

1.1 Synopsis Project

This project implements stack and queue using linked-list to create a bookstore system. This system allows customers to buy books, search books, view books and make payment for the book. The customer for this system can act as a guest or member. Members will receive a RM10 discount and guests will receive RM2 discount during payment. This system also allows staff to add new books, sort the book in ascending order according to book ID, print report sales, update price and add stocks. At the end of the system, the customer will receive the invoice in .txt format and staff will receive a sales report in .txt format.

1.2 Objective of The Project

The objective of this project is to encourage people to buy books online without going to a bookstore. Nowadays there are many shopping online platforms, however the online bookstore system is directly for books. It contains a lot of books such as programming techniques, digital logic, basic Japanese, and basic French. Customers can choose and purchase books there. The system provides many functions to help users complete their tasks by implementing sort, linked list and queue. Not only the customer, the staff also get to manipulate the book list by using the given functions. Using the knowledge that we have learned in class, we implement the concept of data structure to make sure it runs well. The implementation of data structure in our project helps us to really see how the data can be accessed in the memory in different ways. At the same time, due to this pandemic, bookstores can increase their income by providing an online system for customers.

2.0 System Analysis and Design

2.1 System Requirements

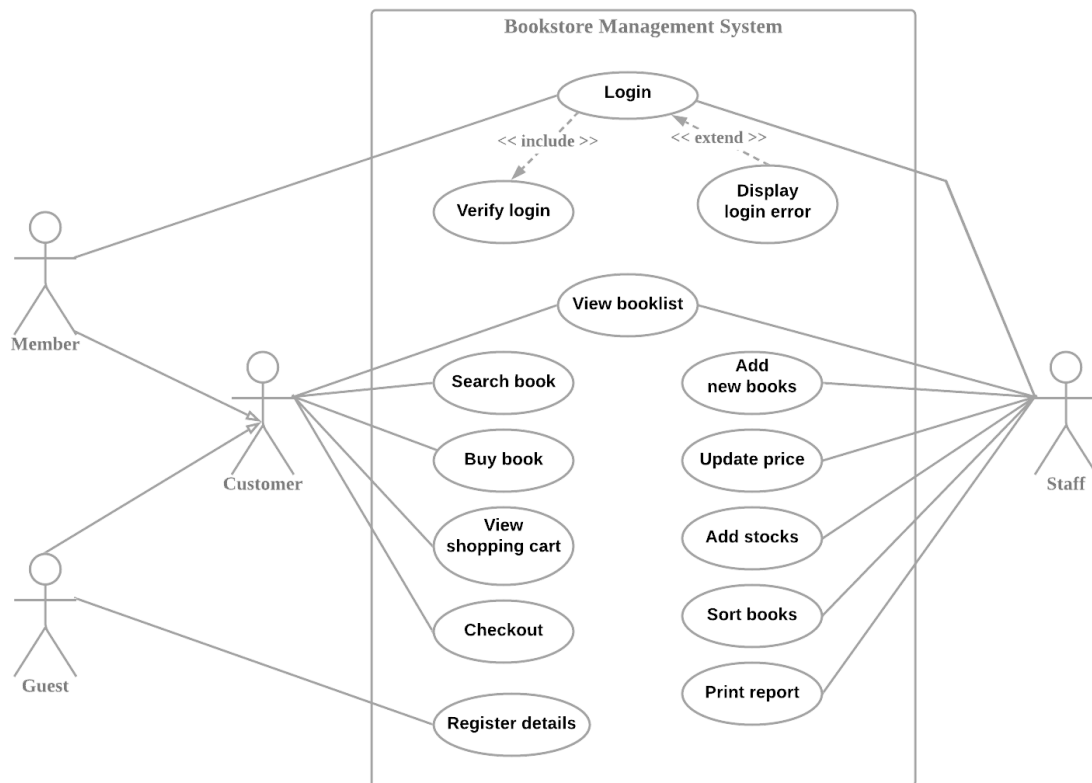


Figure 1: Use Case Diagram for Bookstore Management System

Use Case Description for Bookstore Management System

The system users are staff and customers which are members and guests.

Actor	Task
Customer	The system will ask the users to choose either they are a customer or staff . If the user chooses to login as a customer, the system will prompt the user to choose either to login as Member or Guest . If successfully verified, the system will show the main page where it gives the options for the user to view book, search book, buy book, view shopping cart, proceed to checkout or exit the system . The system will print the receipt/invoice and show it in txt.file after the customer successfully checked out their book(s).
Member	If the customer chooses to login as a Member, the system will ask the customers to verify their login by entering their username & password . System will give only 3 trials if the customer entered the wrong username or password and it will terminate by itself after it exceeds 3 trials. If successfully verified, Members will receive RM10 capped off during check out and the system brings members to the main page where members have the same function with the customer as a member is considered as a customer.
Guest	If the customer chooses to login as a Guest, the system will ask the customers to enter the following details which are the user's name, address, email and phone number . After completing answering the details, the guest will receive RM2 capped off during check out. After that, the system brings the guest to the main page where guests have the same function with the customer as a guest is considered as a customer.

Staff	<p>If the user chooses to login as staff, the system will prompt the user to verify their login by entering their staff ID and password. System will give only 3 trials if the staff entered the wrong staff ID or password and it will terminate by itself after it exceeds 3 trials. If successfully verified, the system will show the main page where it provides options for staff to add a new book, update price, add stock, sort book, view book list, print report and exit the system.</p>
-------	--

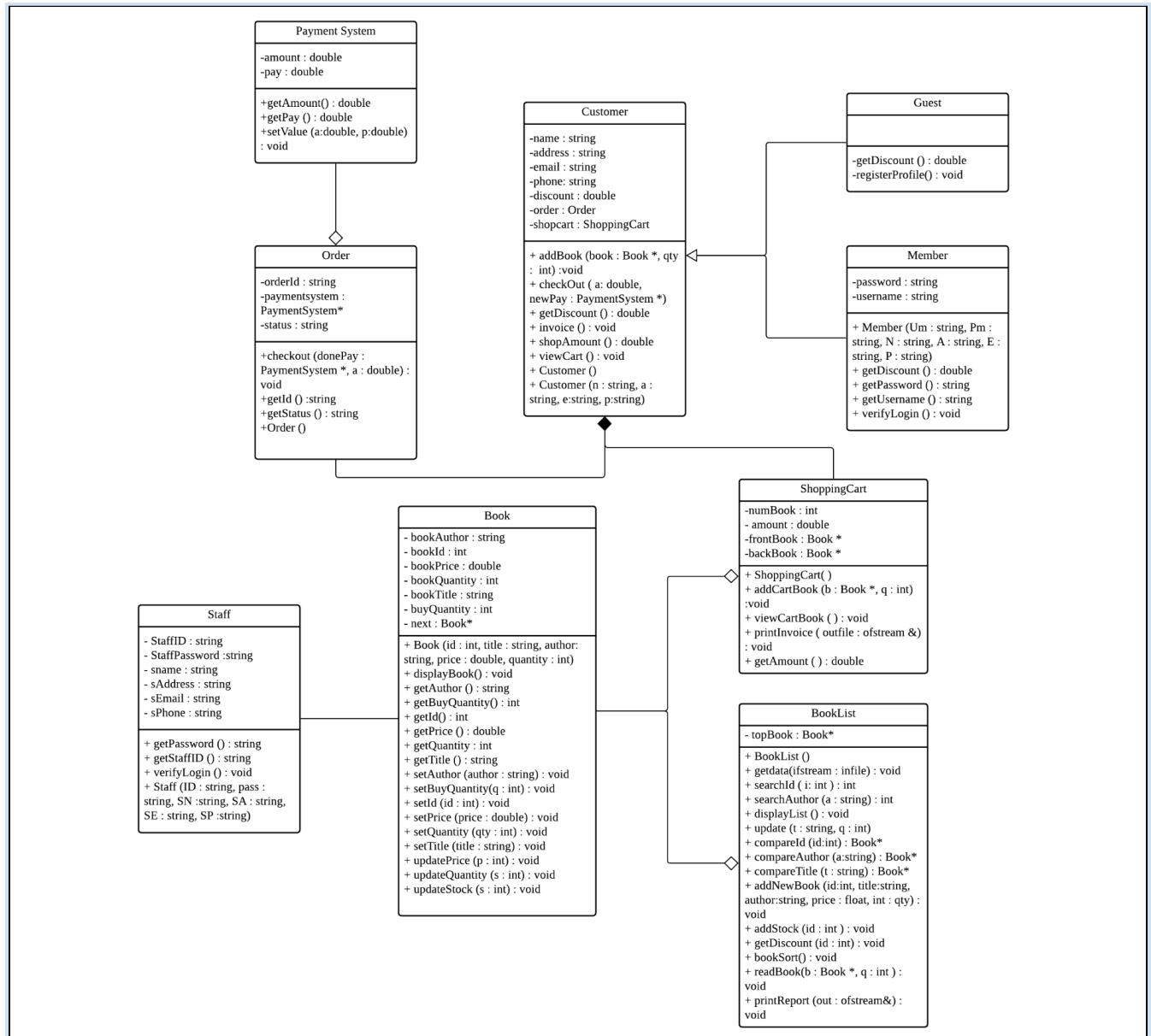
Detail Description for Each Use Cases

The system has 12 main use cases and 2 use cases derived from one of the main cases

Use Case	Purpose
Login	This use case will be used by both customers, specifically members of the bookstore and staff. Login will be needed for both members and staff as members will get special discounts and staff will have different interfaces.
<i>Verify login</i>	This use case is an included use case to the login use case. Everytime the user tries to login as a member of the bookstore or staff, they will need to enter their username and password. Then their username and password entered will be verified by comparing the entered value with the values declared in the main function.
<i>Display login error</i>	This use case is an extended use case from the login use case. This will display a login error whenever the users used the wrong username or password for the login as a member of the bookstore or staff.
Register details	This use case will be used by the guest that does not have membership in the bookstore. They will need to enter their details as the system did not store their details.
View booklist	This use case will be used by both customers and staff. They can choose this to view the book that exists in the store.
Search book	This use case will be used by the customers. They can check whether the book exists in the store or not. They can opt whether to search using title or author.
Buy book	This use case will be used by the customers. They will be provided with the list of books available and they need to use the same exact spelling format like the provided table whenever they want to add a certain book into cart.

View shopping cart	This use case will be used by the customers. They can view their shopping cart to check the books in the cart.
Checkout	This use case will be used by the customers. They can proceed to checkout after they finish buying books.
Add new book	This use case will be used by the staff. They can add any new books into the list by entering the book's details which include book ID, title, author, price and quantity in stock.
Update price	This use case will be used by the staff. They can update the price of a book by first searching whether the book exists or not by using the book ID. Then, they can update the price by giving the discount if the book exists.
Add stocks	This use case will be used by the staff. They can add more stocks of a book by first searching whether the book exists or not by using the book ID. Then, they can add the stocks by entering the number. Then, the quantity in stocks will be updated.
Sort books	This use case will be used by the staff. They may sort the book list by using this function. This function will arrange the books according to their book ID in ascending order.
Print report	This use case will be used by the staff. This function will print a report of the sales earned by the bookstore. The report will be printed in a .txt file with the name 'SalesReport'.

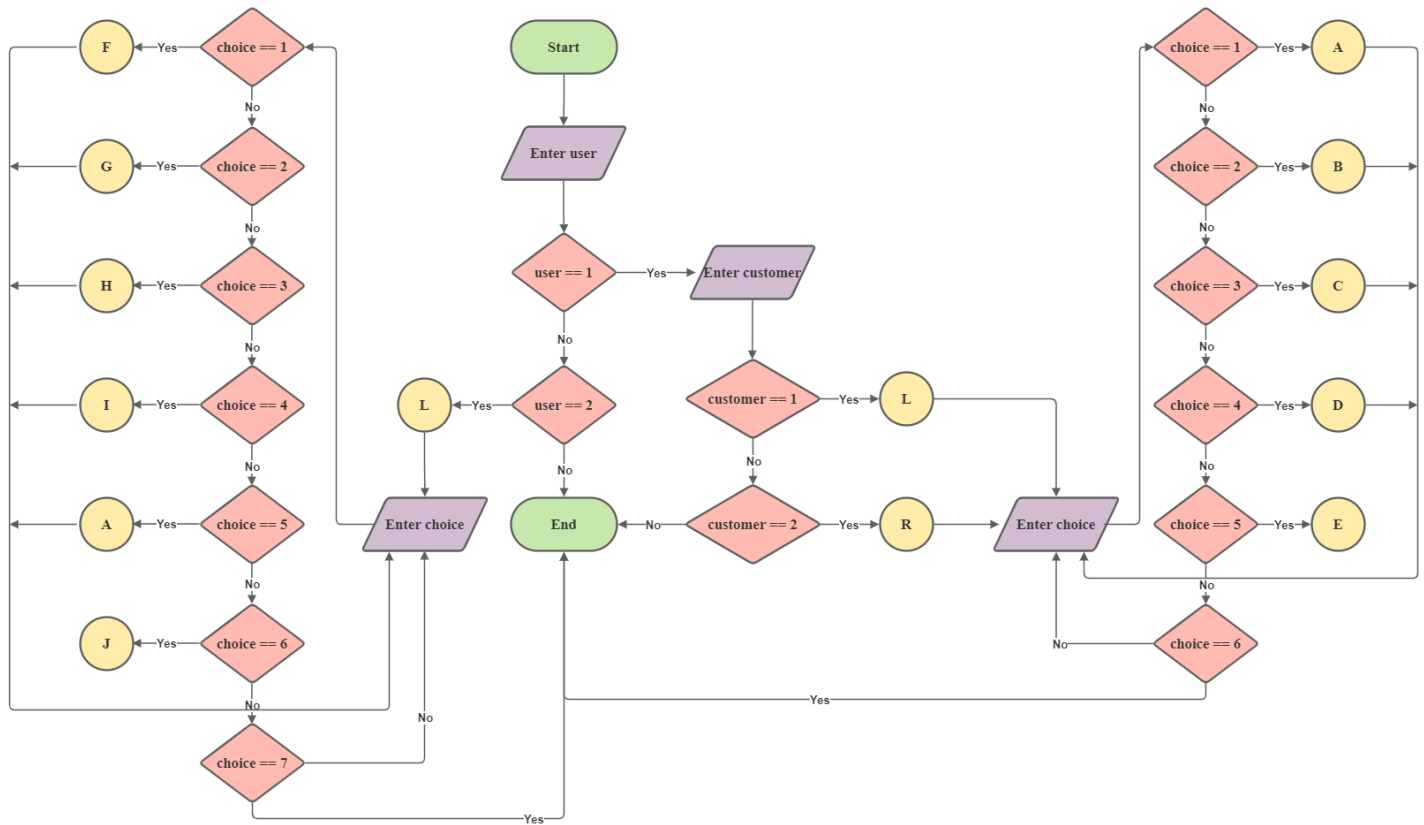
2.2 Class Diagram



2.3 System Design

Main function

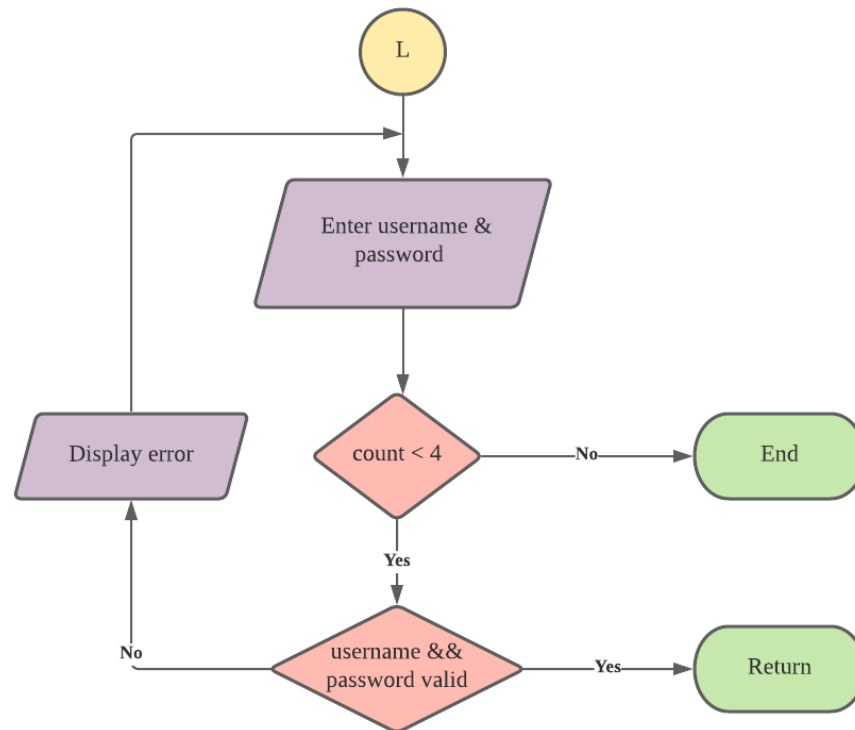
Flowchart:



Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 1: Login

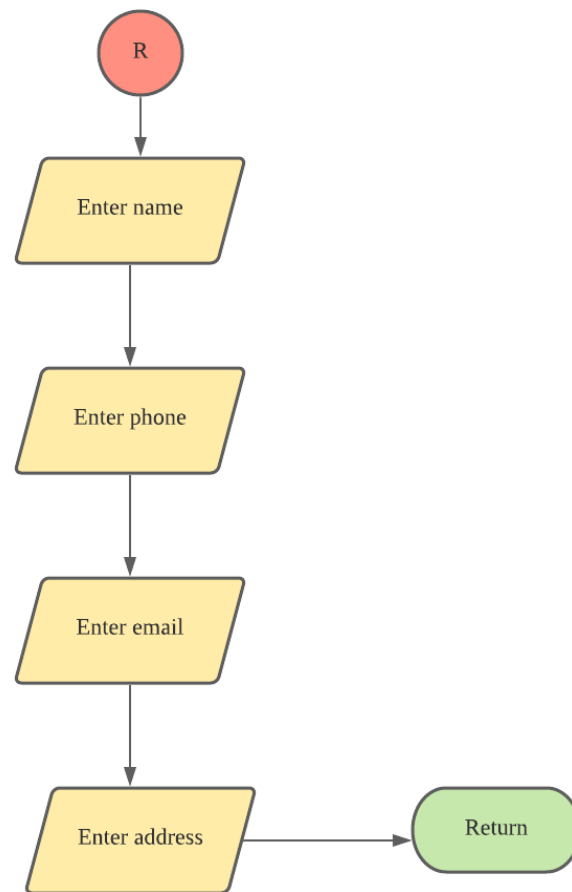
Flowchart:



Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 2: Register details

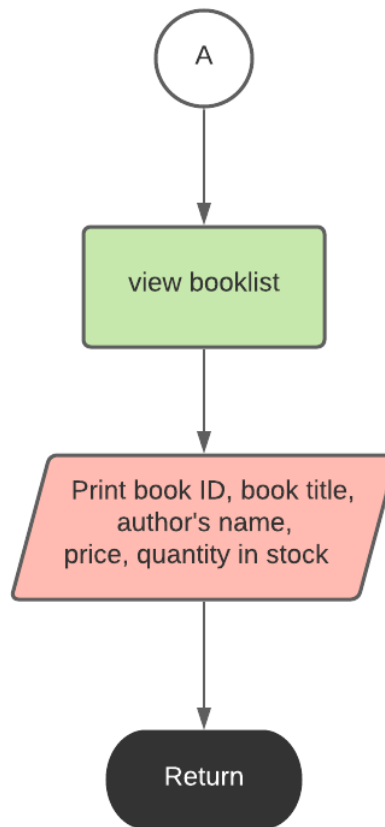
Flowchart:



Prepared by: Amirah binti Zulkifli

Use Case 3: View booklist

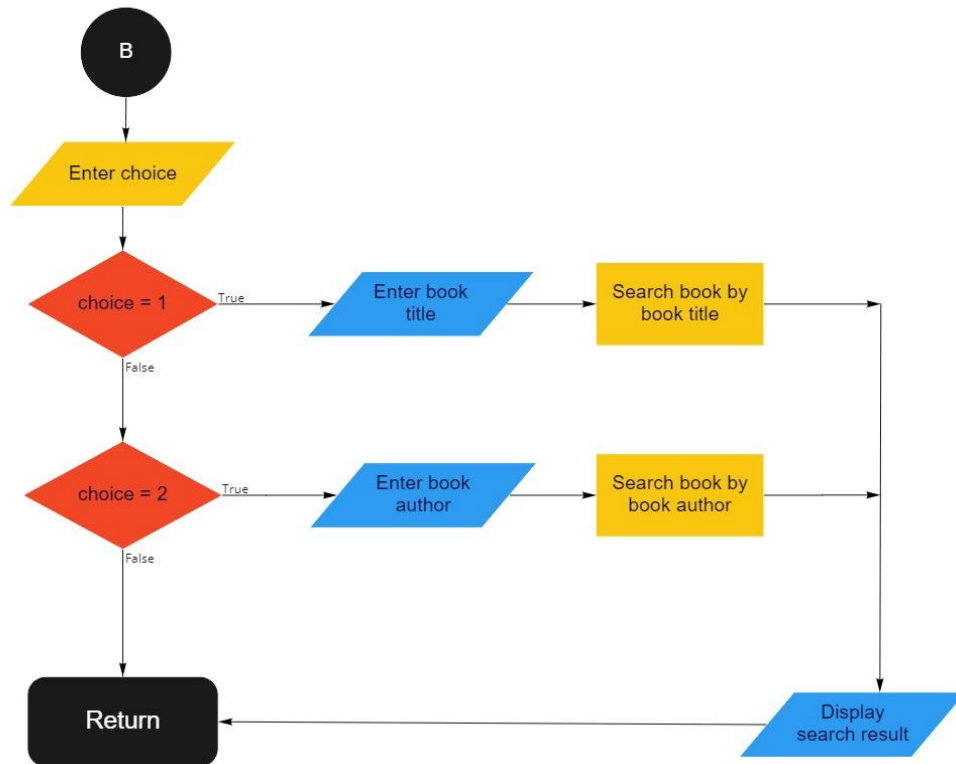
Flowchart:



Prepared by: Bilkis Musa

Use Case 4: Search book

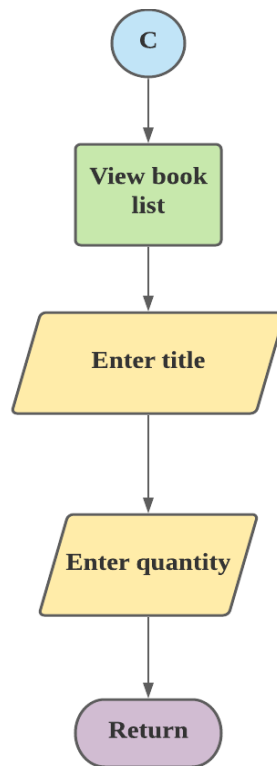
Flowchart:



Prepared by: Nur Dinie Sajeeda binti Azman

Use Case 5: Buy book

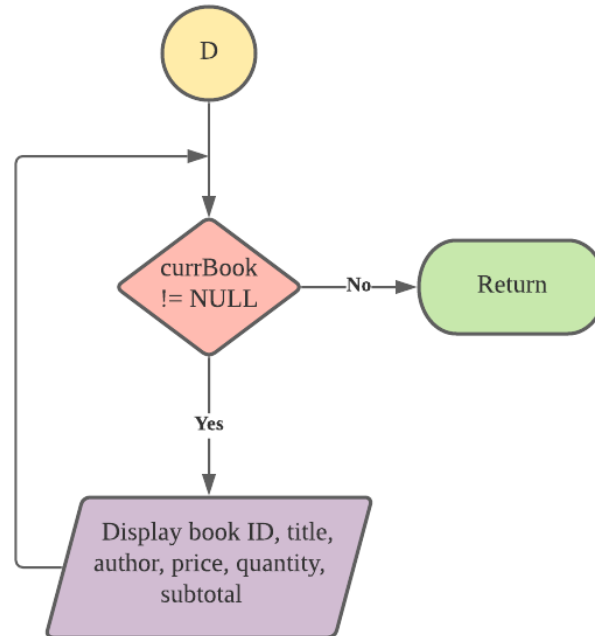
Flowchart:



Prepared by: Nurin Sofiya Binti Rosle

Use Case 6: View shopping cart

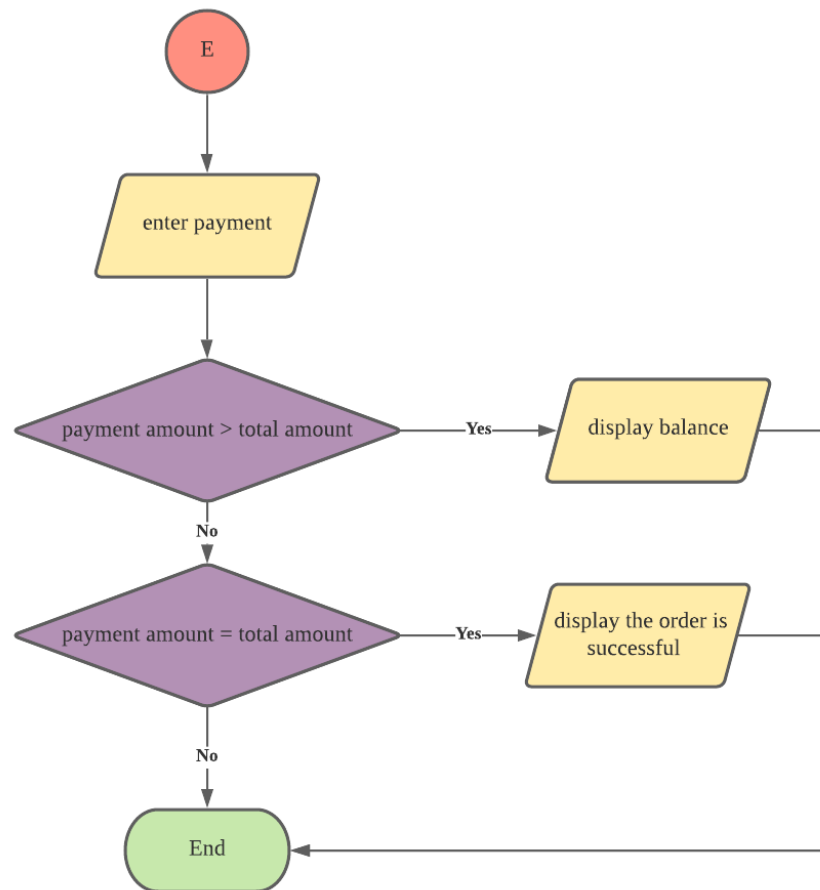
Flowchart:



Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 7: Checkout

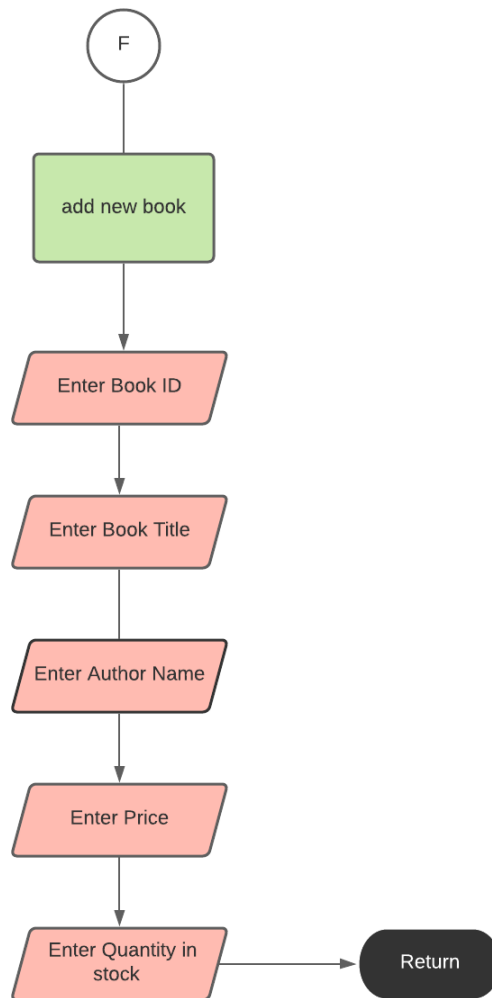
Flowchart:



Prepared by: Amirah Binti Zulkifli

Use Case 8: Add new book

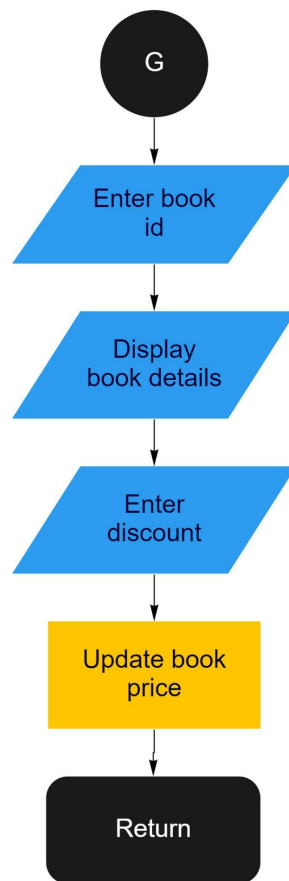
Flowchart:



Prepared by: Bilkis Musa

Use Case 9: Update price

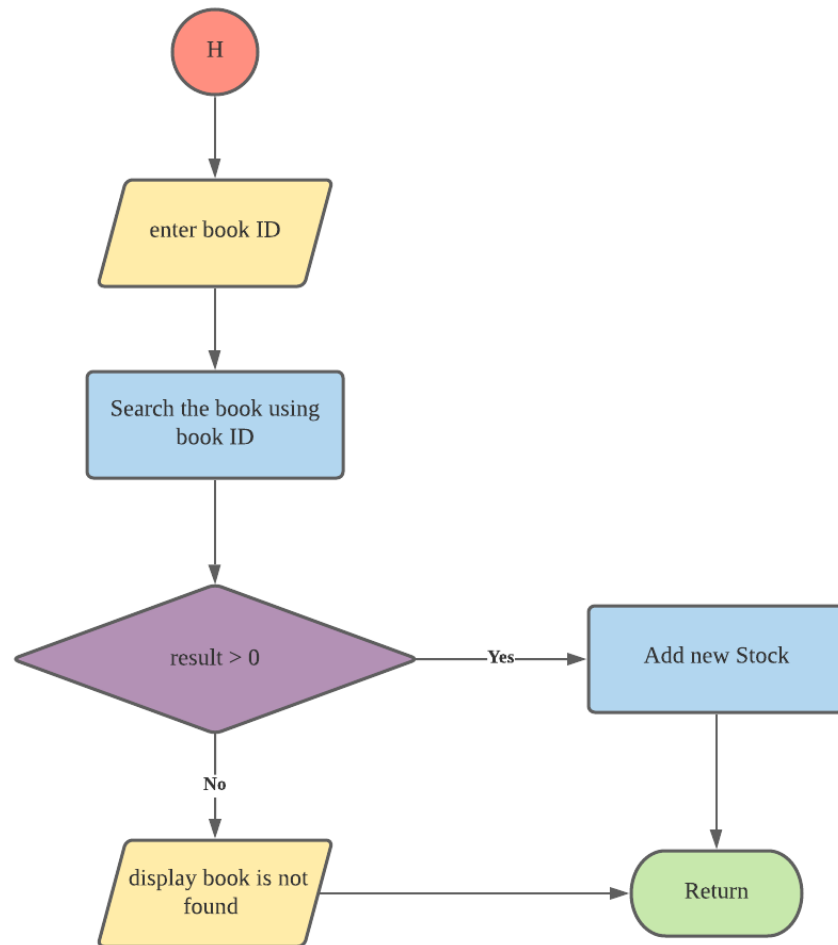
Flowchart:



Prepared by: Nur Dinie Sajeeda binti Azman

Use Case 10: Add stocks

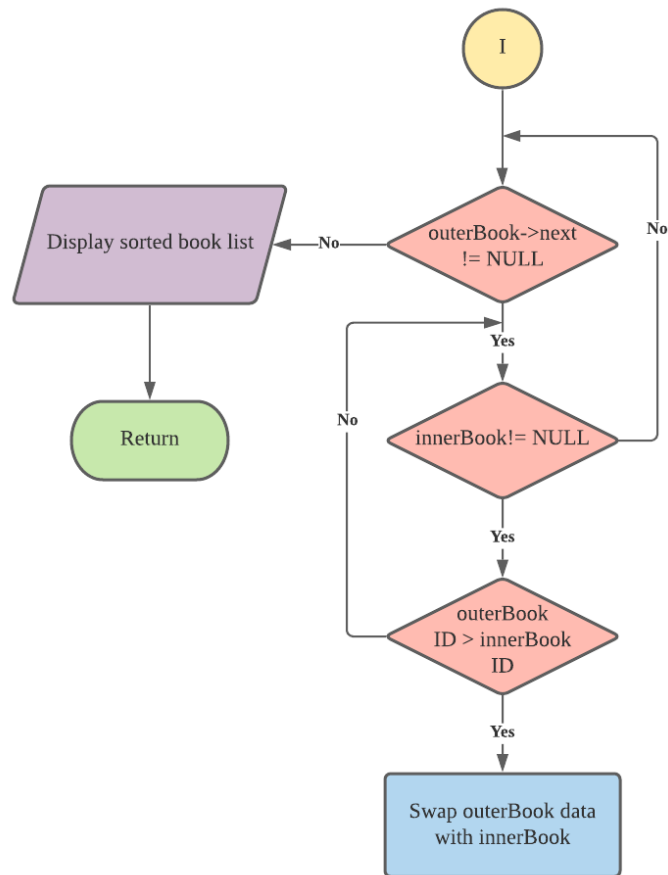
Flowchart:



Prepared by: Amirah Binti Zulkifli

Use Case 11: Sort books

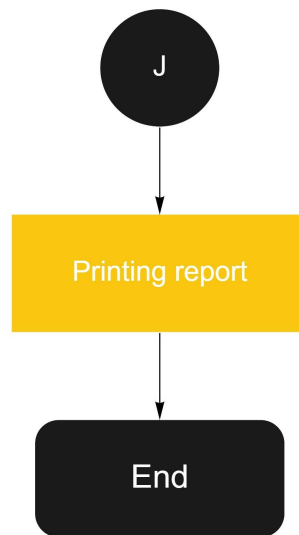
Flowchart:



Prepared by: **Fatin Aimi Ayuni Binti Affindy**

Use Case 12: Print report

Flowchart:



Prepared by: Nur Dinie Sajeeda binti Azman

3.0 System Prototype

Main Function

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option:  
[1] Enter as Customer  
[2] Enter as Staff  
  
Enter your choice: 1  
  
Please choose the following option:  
[1] Login as Member  
[2] Register as Guest
```

This is the first interface for the system. If the user chooses 1 which means they want to enter as a customer, the system will show another option whether they want to login as a member or a guest.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option:  
[1] Enter as Customer  
[2] Enter as Staff  
  
Enter your choice: 2
```

If the user chooses 2, it means they want to enter as a staff. Another login function will appear at the bottom of the screen after they enter their choice to enter as a staff.

Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 1: Login

```
Please choose the following option:
[1] Login as Member
[2] Register as Guest

Enter your choice: 1

Please enter the following detail:
Username: laskarpelangi
Password: laskar123pp

Login verified!
Welcome laskarpelangi!
CONGRATULATION! You received RM10 capped off during check out!

Press any key to continue . . .
```

In the first interface, if the user chose 1, it means they want to enter as a customer. Then another option will be asked to the user whether they want to enter as a member or a guest. If the user enters 1, it means they want to enter as a member. They will need to enter the username and password because members will get a special discount compared to the guest. If the login process is successful, they will get RM10 discount and they may proceed to the next step.

```
-----
                        WELCOME TO BRIGHT BOOKSTORE
-----
Please choose the following option:
[1] Enter as Customer
[2] Enter as Staff

Enter your choice: 2

Please enter the following detail:
Staff ID: amrhzulkfl
Password: mirah18A

Your login is successful
Welcome amrhzulkfl!

Press any key to continue . . .
```

In the first interface, if the user chooses 2, it means they want to enter as a staff. Then, they will need to go through the login process because only staff can manipulate the book list. The same steps will apply to the staff also where they need to enter the username and the password to enter the system. If the login process is successful, they may proceed to the next step.


```

-----
WELCOME TO BRIGHT BOOKSTORE
-----
Please choose the following option:
[1] Enter as Customer
[2] Enter as Staff

Enter your choice: 2

Please enter the following detail:
Staff ID: try1
Password: error1

You have entered the wrong username or password!
You have 3 trials!

Please enter the following detail:
Staff ID: try2
Password: error2

You have entered the wrong username or password!
You have 2 trials!

Please enter the following detail:
Staff ID: try3
Password: error3

You have entered the wrong username or password!
You have 1 trials!

Please enter the following detail:
Staff ID: try4
Password: error4

You have no trial left. Please try again next time. Thank you for choosing our system!

```

```

-----
WELCOME TO BRIGHT BOOKSTORE
-----
Please choose the following option:
[1] Enter as Customer
[2] Enter as Staff

Enter your choice: 1

Please choose the following option:
[1] Login as Member
[2] Register as Guest

Enter your choice: 1

Please enter the following detail:
Username: try1
Password: error1

You have entered the wrong username or password!
You have 3 trials!

Please enter the following detail:
Username: try2
Password: error2

You have entered the wrong username or password!
You have 2 trials!

Please enter the following detail:
Username: try3
Password: error3

You have entered the wrong username or password!
You have 1 trials!

Please enter the following detail:
Username: try4
Password: error4

You have no trial left. Please try again next time. Thank you for choosing our system!

```

However, if the staff or the member entered the wrong username or password, they will have another 3 trials to try to login. If there is no trial left, the system will be ended and they need to reenter the system again.

Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 2: Register details

```
Enter your choice: 2

Please enter the following detail:
Name: Amirah Zulkifli
Address: Jitra, Kedah
Email: amirahzulkifli27@gmail.com
Phone: 0136878707

CONGRATULATION! You received RM2 capped off during check out!

Press any key to continue . . .
```

After the customer chooses 2, which is to login as a guest, the system will ask the guest to enter the user's name, address, email and phone number. After the guest completes entering all the details, the system will show the guest that they received RM2 capped off during check out. To continue to the main page, the guest should press any key.

Prepared by: Amirah Binti Zulkifli

Use Case 3: View booklist:

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
Please choose the following option:
[1] View Book List
[2] Search Book
[3] Buy Book
[4] View Shopping Cart
[5] Proceed to Checkout
[6] Exit

Enter your choice: 1_
```

In the main menu, if the customer chooses 1, the screen will display the list of the books available in the system.

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
Here are the available books:

-----
Book ID      Title                      Author                Price(RM)      Quantity In Stock
-----
478          Basic Phyton                        Vincent Walker       45.00           23
398          Basic Korean                       Kim Jungkok          45.00           23
298          Thermodynamic                      Brody Shack          40.00           20
141          Probability And Statistic          Tom Finn             35.00           17
183          Advanced Mathematics              Ameena Aisy          55.00           19
450          Basic JAVA                         Solomon Fin           40.00           20
362          Basic French                       Arsene Lupin         50.00           13
360          Basic Japanese                     Kudo Shinichi       60.00           10
244          Biology                           Jack Frost           50.00           15
190          Calculus                           Ahmad Houd            55.00           20
255          Science                           Fransisca John       35.00           13
311          Art                               Peter Jay             25.00           12
432          Computer Graphics                 Samantha Jensen      65.00           20
105          Discrete Structure                 Ashley Smith         30.00           12
412          Digital Logic                      Zahra Fateema        45.00           13
441          Programming Technique              Brad Jade            60.00           12
341          English                           Adam Seth            30.00            7
230          Chemistry                          Will Pitt            40.00           11
201          Physics                           Mark Johnson         50.00            9
112          Mathematics                        Ali Habib            45.00           10
-----

Press any key to continue . . . _
```

After the user enters 1, the book list will appear. It contains book ID, book title, author's name, price and quantity of books in stock which are available to be purchased.

Prepared by: Bilkis Musa

Use Case 4: Search book

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option:  
[1] View Book List  
[2] Search Book  
[3] Buy Book  
[4] View Shopping Cart  
[5] Proceed to Checkout  
[6] Exit  
  
Enter your choice: 2_
```

To search book, user need to enter value 2 at the main menu

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Search with:  
[1] Title  
[2] Author  
Enter your choice: 1_
```

User will brought to search book menu where user can choose to search book by title of the book or the book's author

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Search with:  
[1] Title  
[2] Author  
Enter your choice: 1  
  
Enter the book title: Mathematics  
  
-----The following are your details of the book-----  
ID: 112  
Title: Mathematics  
Author: Ali Habib  
Price: 45  
Stock: 10  
  
Press any key to continue . . .
```

If the user chooses to search the book by title, the user needs to enter value 1. Then, users need to enter the title of the book that they are looking for. And the system will display the result.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Search with:  
[1] Title  
[2] Author  
Enter your choice: 2  
  
Enter the author's name: Ali Habib  
  
-----The following are your details of the book-----  
Book ID: 112  
Title: Mathematics  
Author: Ali Habib  
Price: 45  
Stock: 10  
  
Press any key to continue . . .
```

If the user chooses to search the book by the book's author, the user needs to enter value 2. Then, users need to enter the name of the book's author that they want to search. And the system will display the result.

Prepared by: Nur Dinie Sajeeda binti Azman

Use Case 5: Buy book

```
-----
                        WELCOME TO BRIGHT BOOKSTORE
-----
Please choose the following option:
[1] View Book List
[2] Search Book
[3] Buy Book
[4] View Shopping Cart
[5] Proceed to Checkout
[6] Exit
Enter your choice: 3
```

At the main menu, the system will prompt users to enter a choice based on the menu listed above. Then, the user will choose option 3 to buy the book.

```
-----
                        WELCOME TO BRIGHT BOOKSTORE
-----
Here are the available books:
-----
Book ID      Title                      Author          Price(RM)      Quantity In Stock
-----
478          Basic Phyton                    Vincent Walker   45.00           23
398          Basic Korean                   Kim Jungkok     45.00           23
298          Thermodynamic                  Brody Shack     40.00           20
141          Probability And Statistic      Tom Finn        35.00           17
183          Advanced Mathematics          Ameena Aisy     55.00           19
450          Basic JAVA                     Solomon Fin     40.00           20
362          Basic French                   Arsene Lupin    50.00           13
360          Basic Japanese                 Kudo Shinichi  60.00           10
244          Biology                       Jack Frost      50.00           15
190          Calculus                      Ahmad Houd      55.00           20
255          Science                       Fransisca John  35.00           13
311          Art                           Peter Jay       25.00           12
432          Computer Graphics             Samantha Jensen  65.00           20
105          Discrete Structure            Ashley Smith    30.00           12
412          Digital Logic                 Zahra Fateema   45.00           13
441          Programming Technique         Brad Jade       60.00           12
341          English                       Adam Seth       30.00           7
230          Chemistry                     Will Pitt       40.00           11
201          Physics                       Mark Johnson    50.00           9
112          Mathematics                   Ali Habib       45.00           10
-----

Enter the book you want to buy
Book title: Basic Phyton
Quantity to purchase: 2
```

The system will prompt the user to enter the title of the book according to the list and quantity of book that the user wants to purchase.

```
-----
                        WELCOME TO BRIGHT BOOKSTORE
-----
Here are the available books:
-----
Book ID      Title                      Author          Price(RM)      Quantity In Stock
-----
478          Basic Phyton                    Vincent Walker   45.00           21
398          Basic Korean                   Kim Jungkok     45.00           23
```

After the book is added into the cart, the quantity in stock is updated by subtracting the quantity in stock with the quantity purchased by the customer.

Prepared by: Nurin Sofiya Binti Rosle

Use Case 6: View shopping cart

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option:  
[1] View Book List  
[2] Search Book  
[3] Buy Book  
[4] View Shopping Cart  
[5] Proceed to Checkout  
[6] Exit  
  
Enter your choice: 4 _
```

If the user wants to view the shopping cart, they need to enter 4 in the main menu so they will be redirected to the shopping cart.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
These are your books in the cart:  
  
-----  
Book ID      Title              Author          Price(RM)      Quantity      Amount(RM)  
-----  
478          Basic Phyton                 Vincent Walker   45.00          2             90.00  
311          Art                          Peter Jay        25.00          2             50.00  
-----  
  
Press any key to continue . . . _
```

The figure above shows the customer's shopping cart after they chose 4 in the choice section.

Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 7: Checkout

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option:  
[1] View Book List  
[2] Search Book  
[3] Buy Book  
[4] View Shopping Cart  
[5] Proceed to Checkout  
[6] Exit  
  
Enter your choice: 5
```

To check out all the books that the user has chosen to buy, the user needs to enter option 5.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
These are your books in the cart:  
  
-----  
Book ID      Title      Author      Price(RM)    Quantity    Amount(RM)  
-----  
341          English    Adam Seth   30.00         1           30.00  
311          Art        Peter Jay   25.00         1           25.00  
255          Science    Fransisca John  35.00         1           35.00  
412          Digital Logic  Zahra Fateema  45.00         1           45.00  
-----  
  
Book Subtotal: RM135.00  
Discount: RM2.00  
Total: RM133.00  
  
Press any key to continue . . .
```

After the user enters 5, the system first displays the user's cart, along with the Book Subtotal, discount that the user receives and the total of the book after deducting the discount.


```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
These are your books in the cart:
-----
Book ID      Title      Author      Price(RM)    Quantity    Amount(RM)
-----
341          English    Adam Seth   30.00        1           30.00
311          Art        Peter Jay   25.00        1           25.00
255          Science    Fransisca John 35.00        1           35.00
412          Digital Logic Zahra Fateema 45.00        1           45.00
-----

Book Subtotal: RM135.00
Discount: RM2.00
Total: RM133.00

Press any key to continue . . .

Please enter payment amount: RM_
```

Then, the system will ask the user to enter the payment amount.

1st Possibility: User entered the exact payment amount as the total

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
These are your books in the cart:
-----
Book ID      Title      Author      Price(RM)    Quantity    Amount(RM)
-----
341          English    Adam Seth   30.00        1           30.00
311          Art        Peter Jay   25.00        1           25.00
255          Science    Fransisca John 35.00        1           35.00
412          Digital Logic Zahra Fateema 45.00        1           45.00
-----

Book Subtotal: RM135.00
Discount: RM2.00
Total: RM133.00

Press any key to continue . . .

Please enter payment amount: RM133

Calculating..... Please wait

Your order is successful!

Press any key to continue . . .
```

After the user enters the payment amount, and it is the same amount as the total, the system will start to calculate and after that, display that the order is successful and no balance is shown.

```
Press any key to continue . . .  
Printing your invoice.....Please wait  
Printing done!  
Press any key to continue . . .
```

```
-----  
WELCOME TO BRIGHT BOOKSTORE  
-----  
<<< CUSTOMER INVOICE >>>  
  
Order Id: A200012  
Name: 11  
Address: 11  
Email: 11  
Phone: 11  
Status: Paid  
  
These are the books you bought:  
  
-----  
Book ID      Title      Author      Price(RM)    Quantity    Amount(RM)  
-----  
341          English    Adam Seth   30.00        1           30.00  
311          Art        Peter Jay   25.00        1           25.00  
255          Science    Fransisca John 35.00        1           35.00  
412          Digital Logic Zahra Fateema 45.00        1           45.00  
-----  
  
Book Subtotal: RM135.00  
Discount: RM2.00  
Total: RM133.00
```

Next, the system will print the invoice in a text file. The invoice that contains the Order ID, payment status, user's details, books bought and the payment details are printed in the CustomerInvoice.txt.

```
-----  
WELCOME TO BRIGHT BOOKSTORE  
-----  
  
Thank you for choosing our system!  
  
-----  
7.9 seconds with return value 0  
ue . . .
```

After the system prints the invoice and the user presses any key to continue, the system will display the Thank You message and exit the system.

2nd Possibility: User entered the payment amount exceeds the total

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
These are your books in the cart:

-----
Book ID      Title      Author      Price(RM)    Quantity    Amount(RM)
-----
341          English      Adam Seth   30.00        1           30.00
311          Art          Peter Jay   25.00        1           25.00
255          Science       Fransisca John 35.00        1           35.00
412          Digital Logic Zahra Fateema 45.00        1           45.00
-----

Book Subtotal: RM135.00
Discount: RM2.00
Total: RM133.00

Press any key to continue . . .

Please enter payment amount: RM150

Calculating..... Please wait

Your balance: RM17.00
Your balance will be credited to your account!

Press any key to continue . . .
```

After the user enters the payment amount, and it exceeds the total, the system will start to calculate as usual and after that, it displays the balance of the payment. Printing the invoice and exit the system is done as usual after the user presses any key to continue.

3rd Possibility: User entered the payment amount less than the total

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
These are your books in the cart:

-----
Book ID      Title      Author      Price(RM)    Quantity    Amount(RM)
-----
341          English      Adam Seth   30.00        1           30.00
311          Art          Peter Jay   25.00        1           25.00
255          Science       Fransisca John 35.00        1           35.00
412          Digital Logic Zahra Fateema 45.00        1           45.00
-----

Book Subtotal: RM135.00
Discount: RM2.00
Total: RM133.00

Press any key to continue . . .

Please enter payment amount: RM100

Calculating..... Please wait

You enter the wrong amount! You will be terminated from this program
Thank you!
```

After the user enters the payment amount, and it is less than the total, the system will start to calculate as usual and after that, it displays a message that the user has entered the wrong amount and continues to terminate the system.

Prepared by: Amirah Binti Zulkifli

Use Case 8: Add new book

```
-----  
WELCOME TO BRIGHT BOOKSTORE  
-----  
  
Please choose the following option  
[1] Add new book  
[2] Update price  
[3] Add stock  
[4] Sort book  
[5] View book list  
[6] Print report  
[7] Exit  
  
Enter your choice: 3
```

After the staff enter 3, the system will ask the staff to enter book ID, book title, author's name, price of book and quantity in stock. Then, the book will be added into the system.

```
-----  
WELCOME TO BRIGHT BOOKSTORE  
-----  
  
Please enter the books detail  
Book ID: 897  
Book title: Pasapathi  
Author name: Wong Kham Lau  
Price: 45.00  
In stock quantity: 30  
  
Adding the books to the system  
.....Please wait.....  
  
BOOK ADDED!  
Press any key to continue . . . █
```

Book ID	Title	Author	Price(RM)	Quantity In Stock
105	Discrete Structure	Ashley Smith	30.00	12
112	Mathematics	Ali Habib	45.00	10
141	Probability And Statistic	Tom Finn	35.00	17
183	Advanced Mathematics	Ameena Aisy	55.00	19
190	Calculus	Ahmad Houd	55.00	20
201	Physics	Mark Johnson	50.00	9
230	Chemistry	Will Pitt	40.00	11
244	Biology	Jack Frost	50.00	15
255	Science	Fransisca John	35.00	13
298	Thermodynamic	Brody Shack	40.00	20
311	Art	Peter Jay	25.00	12
341	English	Adam Seth	30.00	7
360	Basic Japanese	Kudo Shinichi	60.00	10
362	Basic French	Arsene Lupin	50.00	13
398	Basic Korean	Kim Jungkok	45.00	23
412	Digital Logic	Zahra Fateema	45.00	13
432	Computer Graphics	Samantha Jensen	65.00	20
441	Programming Technique	Brad Jade	60.00	12
450	Basic JAVA	Solomon Fin	40.00	20
478	Basic Phyton	Vincent Walker	45.00	23
897	Pasapathi	Wong Kham Lau	45.00	30

The figure above shows that the new book is successfully added into the system.

Prepared by: Bilkis Musa

Use Case 9: Update price

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option  
[1] Add new book  
[2] Update price  
[3] Add stock  
[4] Sort book  
[5] View book list  
[6] Print report  
[7] Exit  
  
Enter your choice: 2
```

At the main menu, staff users need to enter value 2 in order to update the book price.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please enter the Book ID you want to update price  
Book ID : 112  
  
-----The following are the details of the book-----  
Book ID: 112  
Book Title: Mathematics  
Book Author: Ali Habib  
Book Price: 45.00  
Quantity: 10  
  
Enter the discount you want to give (in %): 10  
  
Updating the price in the system  
.....Please wait.....  
  
PRICE UPDATED!  
  
Press any key to continue . . .
```

Users need to enter the book id of the book they want to update the price. Next, users are required to put the amount of the discount that they want to give and the price will be updated.

WELCOME TO BRIGHT BOOKSTORE

Here are the available books:

Book ID	Title	Author	Price(RM)	Quantity In Stock
478	Basic Python	Vincent Walker	45.00	23
398	Basic Korean	Kim Jungkok	45.00	23
298	Thermodynamic	Brody Shack	40.00	20
141	Probability And Statistic	Tom Finn	35.00	17
183	Advanced Mathematics	Ameena Aisy	55.00	19
450	Basic JAVA	Solomon Fin	40.00	20
362	Basic French	Arsene Lupin	50.00	13
360	Basic Japanese	Kudo Shinichi	60.00	10
244	Biology	Jack Frost	50.00	15
190	Calculus	Ahmad Houd	55.00	20
255	Science	Fransisca John	35.00	13
311	Art	Peter Jay	25.00	12
432	Computer Graphics	Samantha Jensen	65.00	20
105	Discrete Structure	Ashley Smith	30.00	12
412	Digital Logic	Zahra Fateema	45.00	13
441	Programming Technique	Brad Jade	60.00	12
341	English	Adam Seth	30.00	7
230	Chemistry	Will Pitt	40.00	11
201	Physics	Mark Johnson	50.00	9
112	Mathematics	Ali Habib	45.00	10

Press any key to continue . . . █

This is the price of the book before the price is updated.

WELCOME TO BRIGHT BOOKSTORE

Here are the available books:

Book ID	Title	Author	Price(RM)	Quantity In Stock
478	Basic Python	Vincent Walker	45.00	23
398	Basic Korean	Kim Jungkok	45.00	23
298	Thermodynamic	Brody Shack	40.00	20
141	Probability And Statistic	Tom Finn	35.00	17
183	Advanced Mathematics	Ameena Aisy	55.00	19
450	Basic JAVA	Solomon Fin	40.00	20
362	Basic French	Arsene Lupin	50.00	13
360	Basic Japanese	Kudo Shinichi	60.00	10
244	Biology	Jack Frost	50.00	15
190	Calculus	Ahmad Houd	55.00	20
255	Science	Fransisca John	35.00	13
311	Art	Peter Jay	25.00	12
432	Computer Graphics	Samantha Jensen	65.00	20
105	Discrete Structure	Ashley Smith	30.00	12
412	Digital Logic	Zahra Fateema	45.00	13
441	Programming Technique	Brad Jade	60.00	12
341	English	Adam Seth	30.00	7
230	Chemistry	Will Pitt	40.00	11
201	Physics	Mark Johnson	50.00	9
112	Mathematics	Ali Habib	40.50	10

Press any key to continue . . . █

This is the price of the book after the update process where the Mathematics book is given a 10% discount.

Prepared by: Nur Dinie Sajeeda binti Azman

Use Case 10: Add stocks

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please choose the following option  
[1] Add new book  
[2] Update price  
[3] Add stock  
[4] Sort book  
[5] View book list  
[6] Print report  
[7] Exit  
  
Enter your choice: 3
```

To add stock for a book, the staff need to enter choice 3 at the main menu.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please enter the Book ID you want to add stock  
Book ID :
```

The system will prompt the staff to key in the book ID that they want to add stock.

```
-----  
                                WELCOME TO BRIGHT BOOKSTORE  
-----  
Please enter the Book ID you want to add stock  
Book ID : 441  
  
-----The following are the details of the book-----  
Book ID: 441  
Book Title: Programming Technique  
Book Author: Brad Jade  
Book Price: 60  
Quantity: 12  
  
Enter the stock you want to add: _
```

After that, the system will display the details for the book, which includes the book ID, book Title, book Author, book Price and the current stock. Then, will prompt the staff to enter how many stocks that they want to add.


```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----

Please enter the Book ID you want to add stock
Book ID : 441

-----The following are the details of the book-----
Book ID: 441
Book Title: Programming Technique
Book Author: Brad Jade
Book Price: 60
Quantity: 12

Enter the stock you want to add: 10

Adding more stock in the system
.....Please wait.....

STOCK ADDED!

Press any key to continue . . .
```

After the staff has entered the stock, the system will start to add more stock for the book and then, the system will display a message that the stock has been added. The system will return to the main page once the staff press any key to continue.

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----

Here are the available books:

-----
Book ID      Title                      Author          Price(RM)      Quantity In Stock
-----
478          Basic Phyton                        Vincent Walker   45.00          23
398          Basic Korean                       Kim Jungkok     45.00          23
298          Thermodynamic                      Brody Shack     40.00          20
141          Probability And Statistic          Tom Finn        35.00          17
183          Advanced Mathematics              Ameena Aisy     55.00          19
450          Basic JAVA                         Solomon Fin      40.00          20
362          Basic French                       Arsene Lupin    50.00          13
360          Basic Japanese                     Kudo Shinichi  60.00          10
244          Biology                           Jack Frost      50.00          15
190          Calculus                          Ahmad Houd      55.00          20
255          Science                           Fransisca John  35.00          13
311          Art                               Peter Jay       25.00          12
432          Computer Graphics                 Samantha Jensen  65.00          20
105          Discrete Structure                 Ashley Smith    30.00          12
412          Digital Logic                     Zahra Fateema   45.00          13
441          Programming Technique              Brad Jade       60.00          12
341          English                           Adam Seth       30.00          7
230          Chemistry                         Will Pitt       40.00          11
201          Physics                           Mark Johnson    50.00          9
112          Mathematics                       Ali Habib       45.00          10
-----

Press any key to continue . . .
```

This is the quantity in stock of the book before the staff add stocks to the book.

WELCOME TO BRIGHT BOOKSTORE				
Here are the available books:				
Book ID	Title	Author	Price(RM)	Quantity In Stock
478	Basic Phyton	Vincent Walker	45.00	23
398	Basic Korean	Kim Jungkok	45.00	23
298	Thermodynamic	Brody Shack	40.00	20
141	Probability And Statistic	Tom Finn	35.00	17
183	Advanced Mathematics	Ameena Aisy	55.00	19
450	Basic JAVA	Solomon Fin	40.00	20
362	Basic French	Arsene Lupin	50.00	13
360	Basic Japanese	Kudo Shinichi	60.00	10
244	Biology	Jack Frost	50.00	15
190	Calculus	Ahmad Houd	55.00	20
255	Science	Fransisca John	35.00	13
311	Art	Peter Jay	25.00	12
432	Computer Graphics	Samantha Jensen	65.00	20
105	Discrete Structure	Ashley Smith	30.00	12
412	Digital Logic	Zahra Fateema	45.00	13
441	Programming Technique	Brad Jade	60.00	22
341	English	Adam Seth	30.00	7
230	Chemistry	Will Pitt	40.00	11
201	Physics	Mark Johnson	50.00	9
112	Mathematics	Ali Habib	45.00	10
Press any key to continue . . .				

This is the quantity in stock of the book after 10 stocks were added into the ‘Programming Technique’ book by the staff.

Prepared by: Amirah Binti Zulkifli

Use Case 11: Sort books

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
Here are the available books:
-----
```

Book ID	Title	Author	Price(RM)	Quantity In Stock
478	Basic Python	Vincent Walker	45.00	23
398	Basic Korean	Kim Jungkok	45.00	23
298	Thermodynamic	Brody Shack	40.00	20
141	Probability And Statistic	Tom Finn	35.00	17
183	Advanced Mathematics	Ameena Aisy	55.00	19
450	Basic JAVA	Solomon Fin	40.00	20
362	Basic French	Arsene Lupin	50.00	13
360	Basic Japanese	Kudo Shinichi	60.00	10
244	Biology	Jack Frost	50.00	15
190	Calculus	Ahmad Houd	55.00	20
255	Science	Fransisca John	35.00	13
311	Art	Peter Jay	25.00	12
432	Computer Graphics	Samantha Jensen	65.00	20
105	Discrete Structure	Ashley Smith	30.00	12
412	Digital Logic	Zahra Fateema	45.00	13
441	Programming Technique	Brad Jade	60.00	12
341	English	Adam Seth	30.00	7
230	Chemistry	Will Pitt	40.00	11
201	Physics	Mark Johnson	50.00	9
112	Mathematics	Ali Habib	45.00	10

```
-----
Press any key to continue . . .
```

This is the book list before the staff chooses to sort the book. If the sorting books are chosen, the books will be sorted in ascending order according to the book ID.

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
Please choose the following option
[1] Add new book
[2] Update price
[3] Add stock
[4] Sort book
[5] View book list
[6] Print report
[7] Exit
Enter your choice: 4_
```

To sort the books in ascending order according to the book ID, the staff need to enter 4 to select the Sort Book option.

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
Sorting the stock according to the book ID
.....Please wait.....
```

After they choose the sort option, the system will sort the books according to the book ID in ascending order. The system will ask staff to wait for a moment for the books to be sorted.

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----
Sorting the stock according to the book ID
.....Please wait.....

Here are the available books:

-----
Book ID      Title                      Author          Price(RM)      Quantity In Stock
-----
105          Discrete Structure                   Ashley Smith    30.00          12
112          Mathematics                          Ali Habib       45.00          10
141          Probability And Statistic            Tom Finn       35.00          17
183          Advanced Mathematics                 Ameena Aisy    55.00          19
190          Calculus                             Ahmad Houd      55.00          20
201          Physics                              Mark Johnson    50.00          9
230          Chemistry                             Will Pitt       40.00          11
244          Biology                              Jack Frost      50.00          15
255          Science                              Fransisca John  35.00          13
298          Thermodynamic                        Brody Shack     40.00          20
311          Art                                   Peter Jay       25.00          12
341          English                              Adam Seth       30.00          7
360          Basic Japanese                       Kudo Shinichi  60.00          10
362          Basic French                         Arsene Lupin    50.00          13
398          Basic Korean                         Kim Jungkok     45.00          23
412          Digital Logic                        Zahra Fateema   45.00          13
432          Computer Graphics                    Samantha Jensen  65.00          20
441          Programming Technique                Brad Jade       60.00          12
450          Basic JAVA                           Solomon Fin     40.00          20
478          Basic Phytton                        Vincent Walker   45.00          23
-----

BOOK SORTED!
Press any key to continue . . .
```

After the sorting is done, the system will display the sorted book list in ascending order according to the book ID. The books in the list have already been sorted.

Prepared by: Fatin Aimi Ayuni Binti Affindy

Use Case 12: Print report

```
-----
                                WELCOME TO BRIGHT BOOKSTORE
-----

Please choose the following option
[1] Add new book
[2] Update price
[3] Add stock
[4] Sort book
[5] View book list
[6] Print report
[7] Exit

Enter your choice: 6_

-----
                                WELCOME TO BRIGHT BOOKSTORE
-----

Printing sales report and inventory
.....Please wait.....

PRINTING DONE!

| Thank you for choosing our system! |
|-----|
```

To print the sales report, staff need to enter value 6 at the main menu and the system will print the sales report.

Bright Bookstore Sales Report

Book ID	Title	Author	Price(RM)	Quantity Sold	Sales(RM)	Total Earned(RM)
478	Basic Phyton	Vincent Walker	45.00	3	135.00	40.50
298	Thermodynamic	Brody Shack	40.00	5	200.00	60.00
360	Basic Japanese	Kudo Shinichi	60.00	2	120.00	36.00
311	Art	Peter Jay	25.00	5	125.00	37.50
341	English	Adam Seth	30.00	10	300.00	90.00
201	Physics	Mark Johnson	50.00	5	250.00	75.00
230	Chemistry	Will Pitt	40.00	3	120.00	36.00
112	Mathematics	Ali Habib	45.00	2	90.00	27.00

Total earned: RM402.00

Notes:

- Total earned is 30% of sales generated by the books
- Sales are total amount of sold books times the price

Figure above is the example of the sales report that the system printed.

Prepared by: Nur Dinie Sajeeda binti Azman

4.0 Development Activities

Meeting date	Members participation	Activity	Task for each member	Task achieved
24/1/2022	All member	<ul style="list-style-type: none"> - Divide task for each member for report writing and presentation slide - Writing report 	<p>Fatin</p> <ul style="list-style-type: none"> - Use case diagram - Details description for each use case - Main flowchart - Flowchart use case 1, 6 and 11 - Prototype use case 1, 6 and 11 - Design mini project (queue) <p>Amirah</p> <ul style="list-style-type: none"> - Use case description - Flowchart use case 2, 7 and 10 - Prototype use case 2, 7 and 10 - Design assignment 2 (linked list) <p>Nurin</p> <ul style="list-style-type: none"> - Introduction for report writing and slide - UML class diagram - Flowchart use case 5 - Prototype use case 5 - Design mini project (stack) 	<p>Yes</p> <p>Yes</p> <p>Yes</p>

			Bilkis <ul style="list-style-type: none"> - Introduction - Flowchart use case 3 and 8 - Prototype use case 3 and 8 - Design Assignment 1(sort) 	Yes
			Dinie <ul style="list-style-type: none"> - Flowchart use case 4, 9 and 12 - Prototype use case 4,9 and 12 - Design Assignment 1(search) - Development activities 	Yes

5.0 Appendix

Assignment 1 Source Code , Assignment 2 Source Code, Mini Project Source Code, Input Files & Output Files:

<https://drive.google.com/drive/folders/1MC8gzpa4zivclHeG5l0TJx2zBuRopsul?usp=sharing>

Video Presentation:

<https://drive.google.com/file/d/1HcuQkwvkXaSgsIVlHoGa0jAJ-nBaJk3O/view?usp=drivesdk>