



Faculty of Computing and Information Technology
AACS1074 Programming Concepts & Design I
Assignment 2022/2023

Assignment Title : UMT POS SYSTEM

Program : DCS

Tutorial Group : Group 1

Tutor : Teoh Kah Chin

Submission Date : 23 September 2022

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(To be completed by a Practical tutor)

<u>Assignment Evaluation Form</u>		
<u>Assessment Criteria</u>		<u>Marks Awarded</u>
CLO	Criteria	
2	Flowchart (10 marks)	
2	Program Logic Structure (10 marks)	
2	Selection Control Structure (10 marks)	
2	Looping Control Structure (10 marks)	
2	Screen Design (10 marks)	
3	Variables and Constants (10 marks)	
3	Input Capturing (10 marks)	
3	Processing Data (10 marks)	
3	Program Testing and Output (10 marks)	
3	Assignment Documentation (10 marks)	
	Total	

DECLARATION OF ORIGINALITY

We declare that this assignment is free from all forms of plagiarism and is our work. We understand that we will be penalized if we have not complied with TAR UC's Plagiarism policy.

No	Student Photo	Student Name	Student ID	Signature
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2		Pang Jun Meng	22WMD01339	
3		Soh Ching Liang	22WMD00555	

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1.0 Introduction

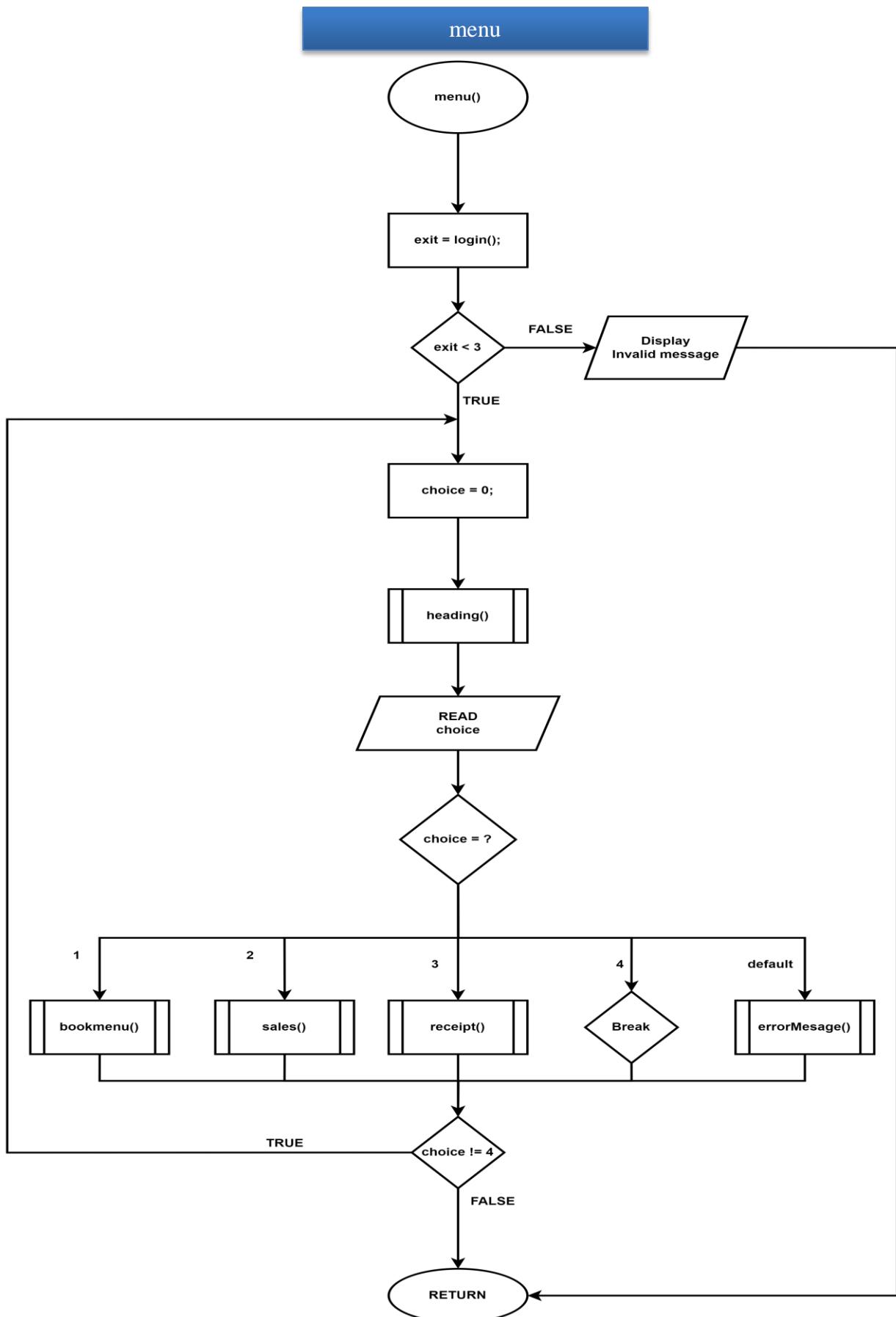
UMT BOOKSTORE POS SYSTEM is a bookstore that sells programming books in various fields. The bookstore is open on weekdays and mainly sells programming books for first graders learning to program. UMT BOOKSTORE POS SYSTEM provides orders for customers (first graders) to place orders. UMT BOOKSTORE decided to develop this POS system. The purpose is to allow bookstores to calculate and display sales slips for each sales order and create a daily sales order summary report at the end of the day. Therefore, the purpose of developing this POS system is to make it easier and cheaper for customers to purchase books without having to purchase them from outside the school, bringing convenience to students.

The POS system offers many benefits to customers and owners through the features included in the system. This POS system allows owners to take orders from customers and track sales samples to know which areas are popular and what customers want to buy. Book field 1 is software development programming [Consists of Book A: Getting Started with Programming Logic and Design (RM69.00), Book B: The Definitive Guide (RM70.00), Book C: Full Stack Vue: The Complete Guide to Vue. .js (RM55.50)]. Book field 2 is Web Programming [Book D: Web Design with HTML, CSS, JavaScript, and jQuery sets (RM 58.00), Book E: Clean Code (RM 65.00), Book F: The DevOps Handbook (RM 89, 00)] consists of Book field 3 consists of Game Development Programming [Book G: Beginning C++ Through Game Programming (RM73.50), Book H: Game Programming Patterns (RM80.00), Book I: Game Engine Architecture (RM50.00)]. increase.

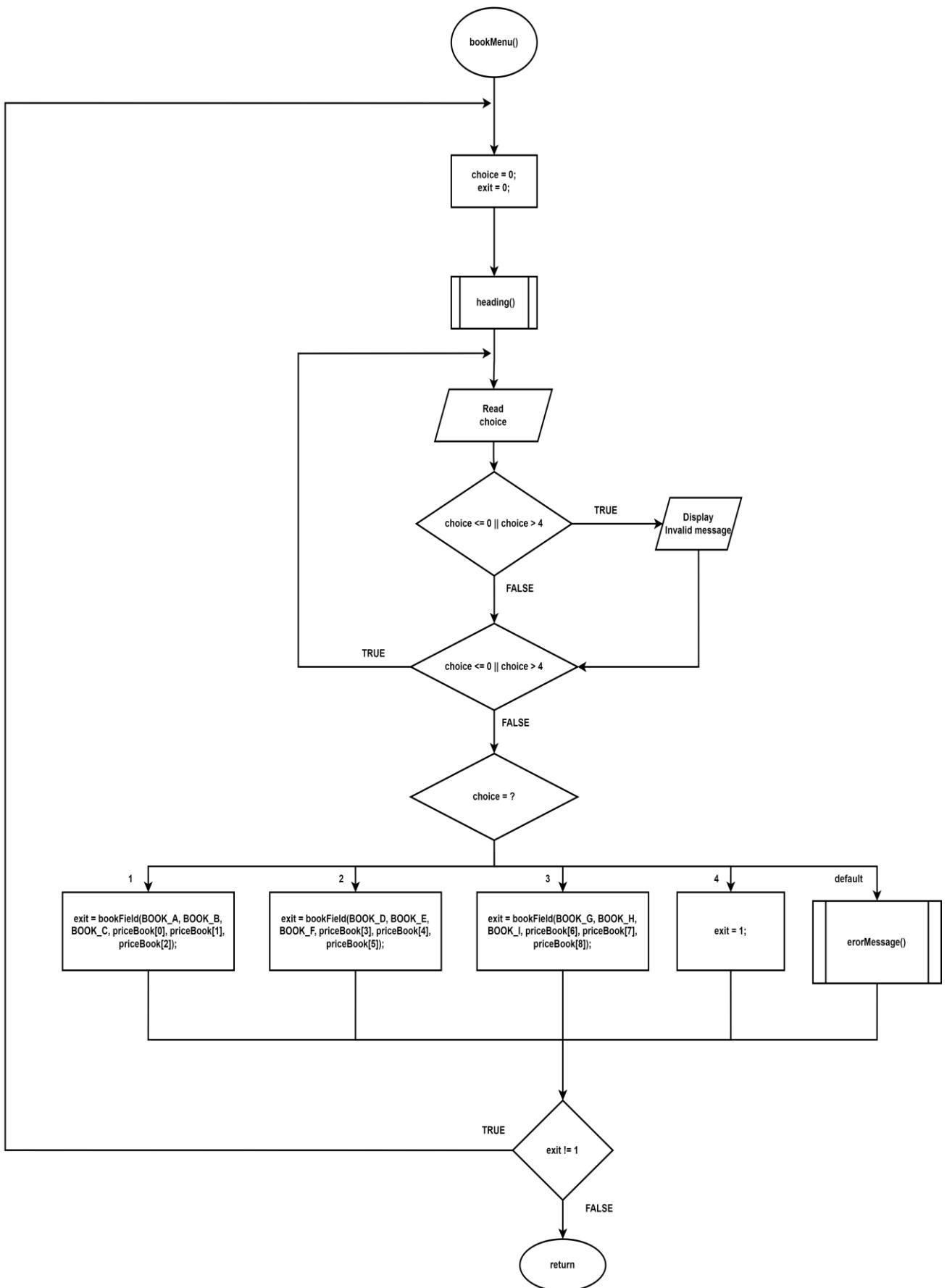
In addition, UMT BOOKSTORE POS SYSTEM offers incentives for customers who spend more than RM200, 5% discount will be given for customers, who spend more than RM300, 10% discount will be given for customers, who spend more than RM500, 15% discount will be given for customers. So, this POS system can do the calculation automatically. This system guides the owner to place an order. If you enter invalid data, the system will display an invalid input message and allow the owner to re-enter. Each customer order comes with a printable order receipt.

A sales overview report is also generated at the end of the day. This sales summary report is useful for your business as it provides an overview of the orders received for the day. For example, the total number of books ordered from Book field 1 to Book field 3, the price per book for each box ordered, the total sales, the total discount, the total net sales. Through this sales overview, the owner can know how many books he/she sells per day and how much he/she earns per day to make sure the business is working. In summary, this POS system brings many benefits to customers and owners. Customers can place orders and owners can get and store order details into system.

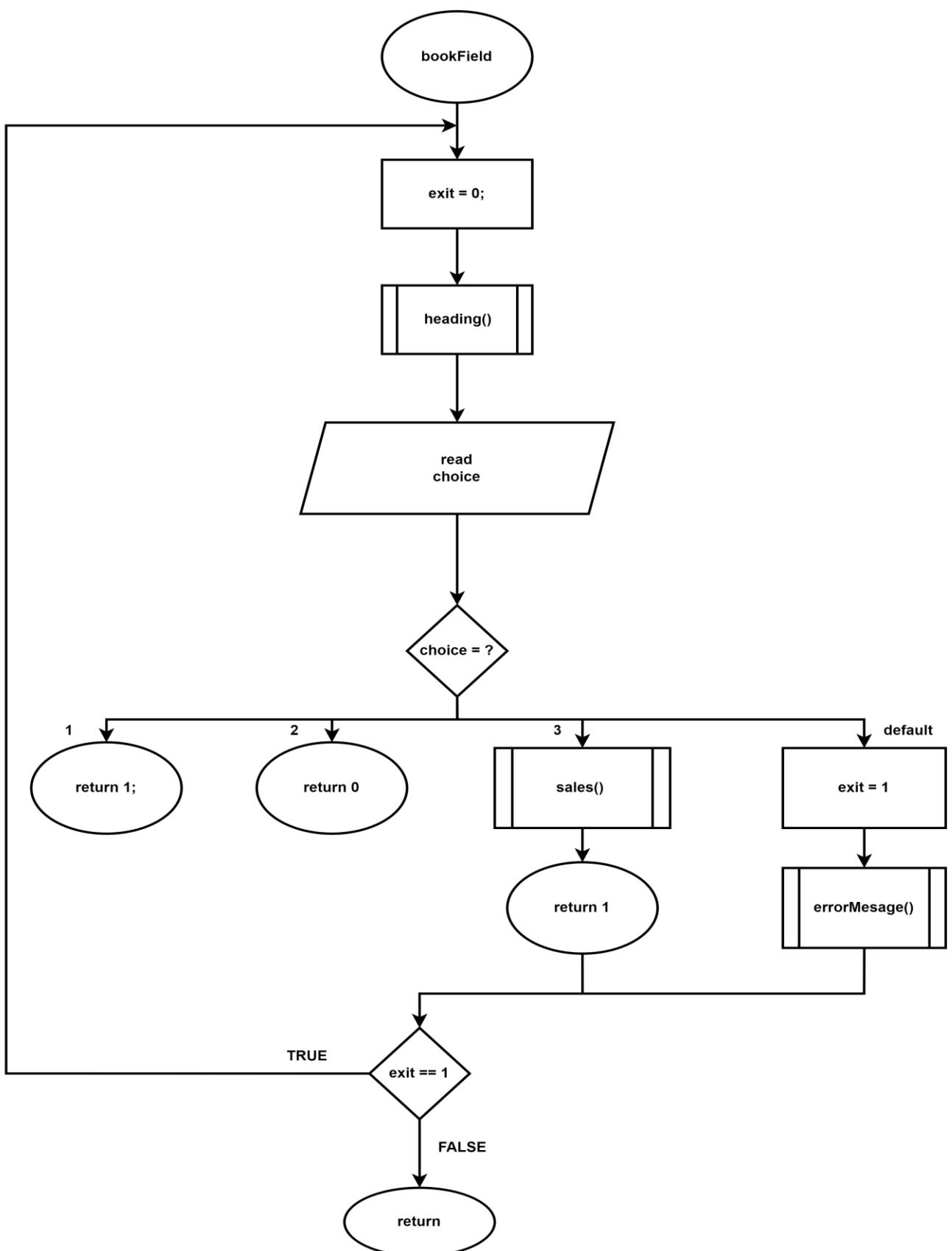
2.0 Flowchart Design

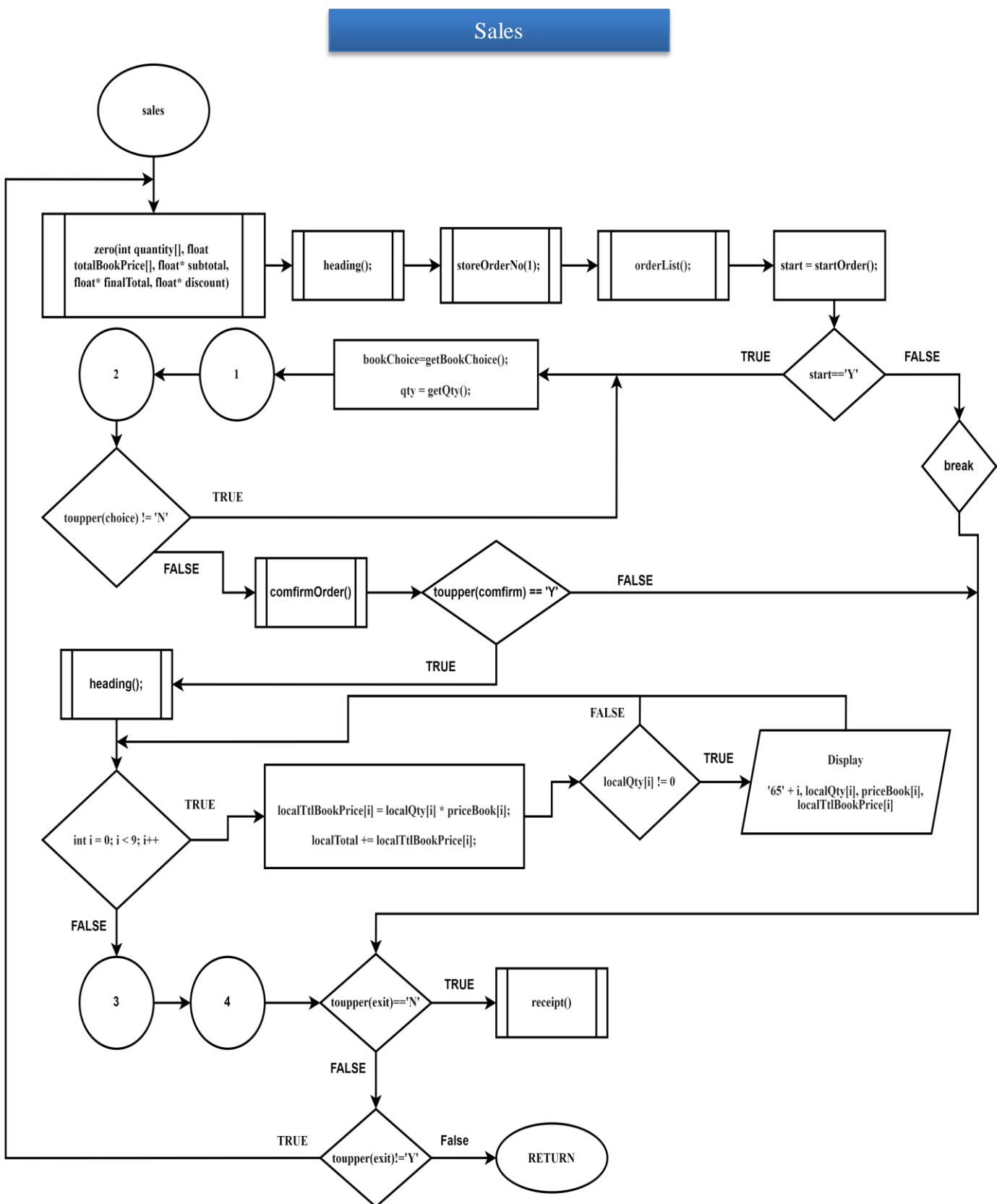


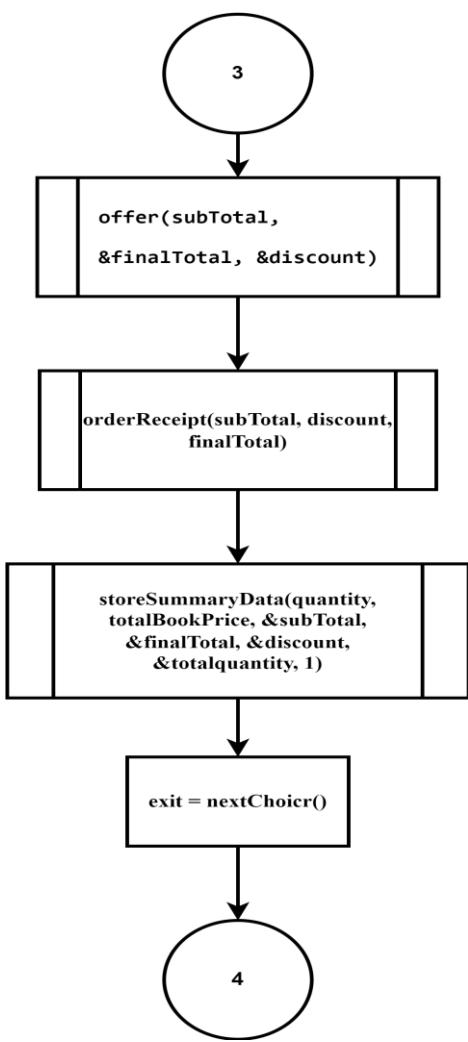
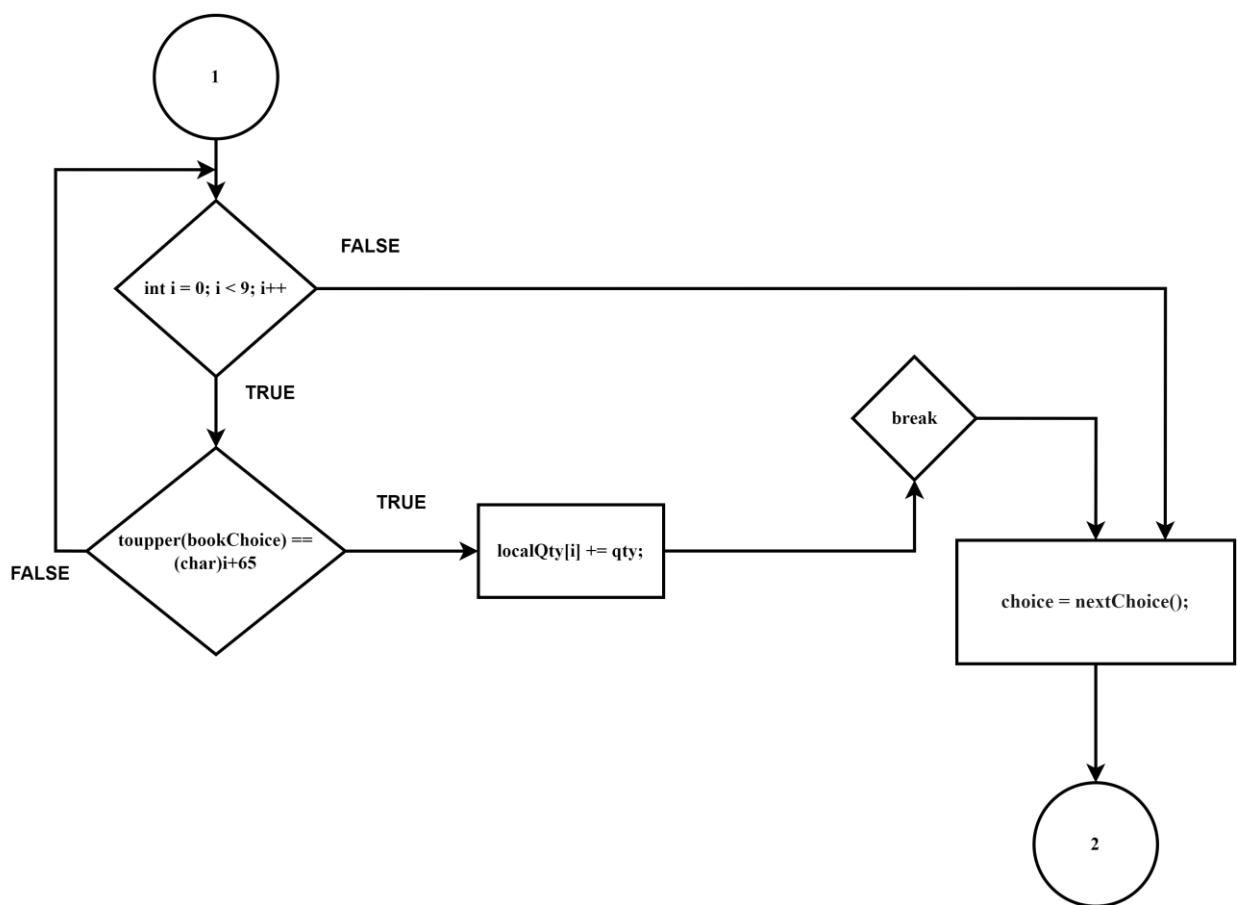
Book menu

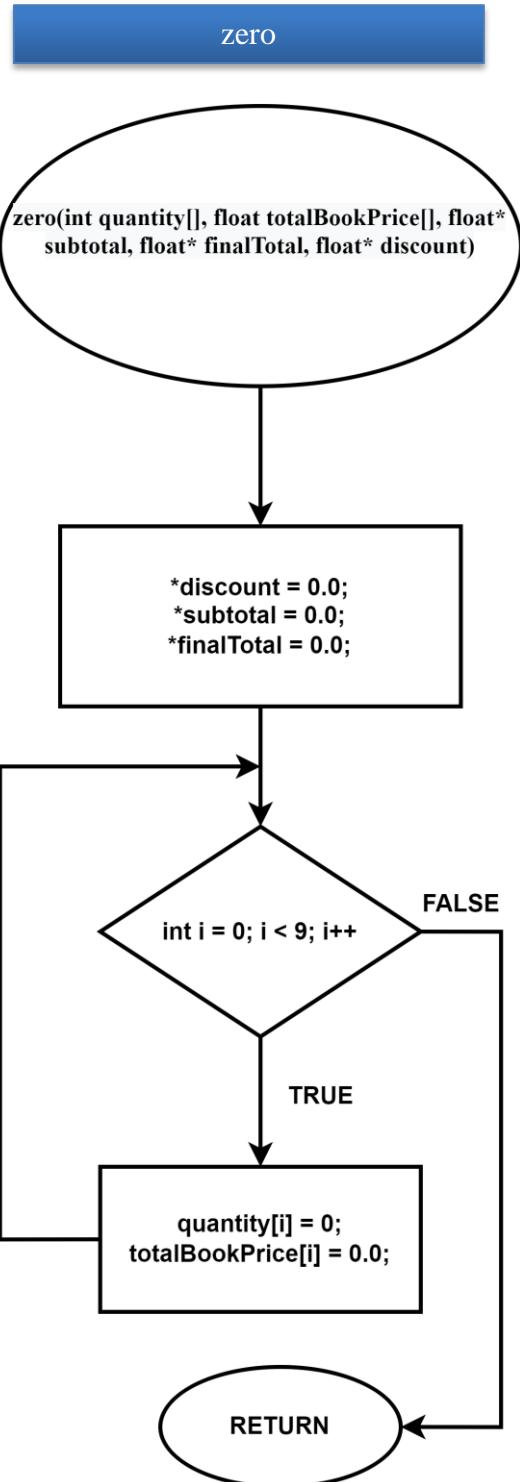


Bookfield

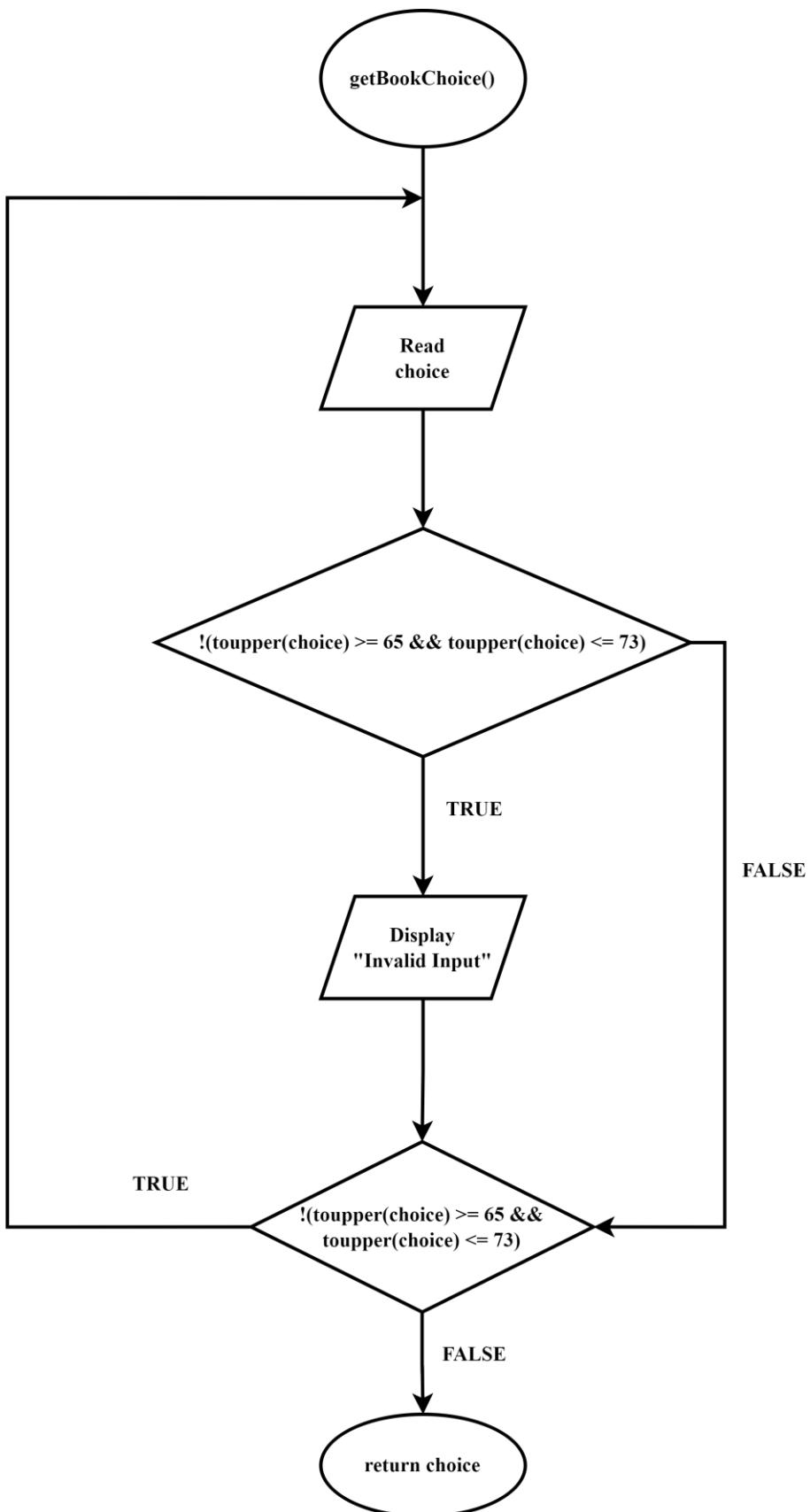


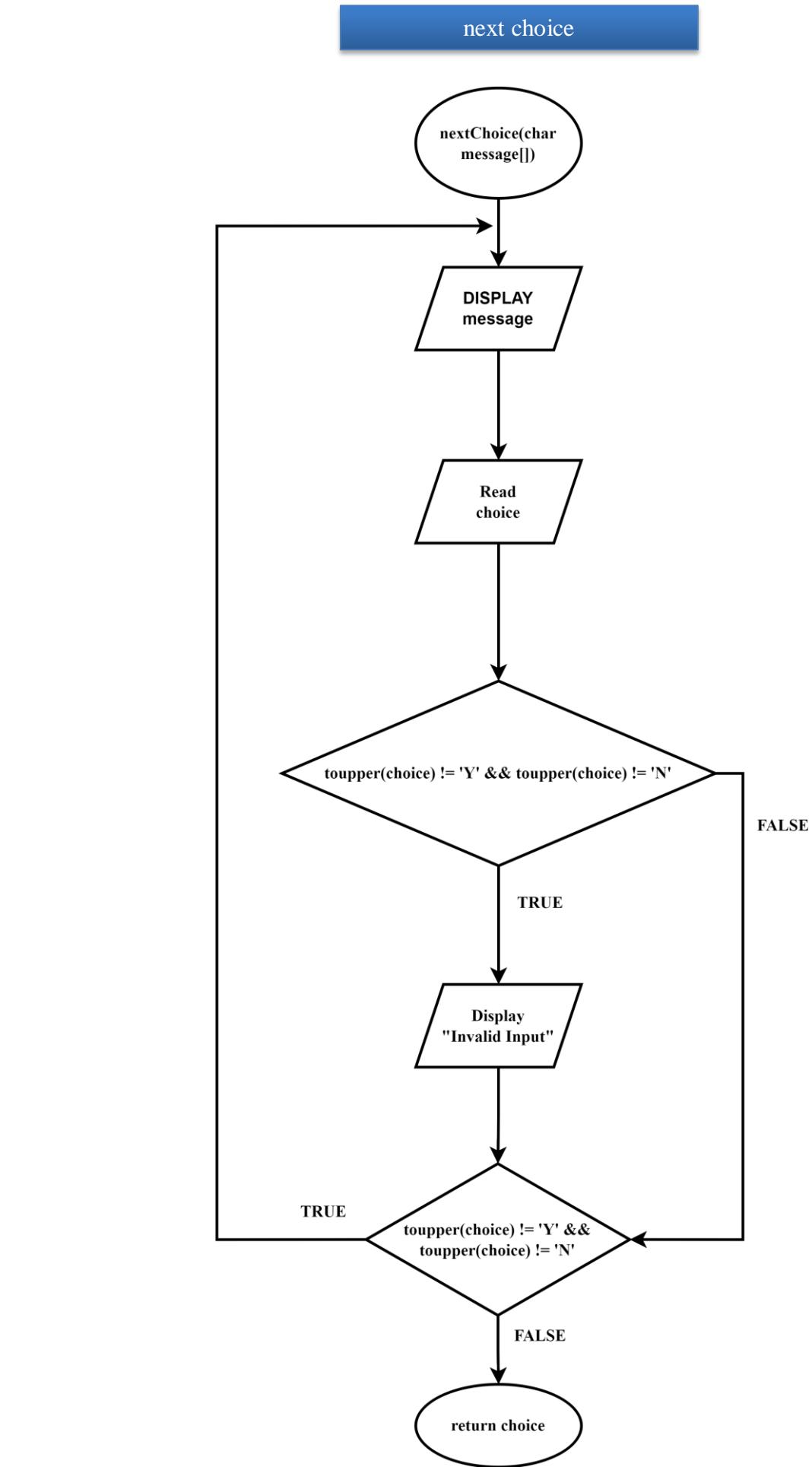


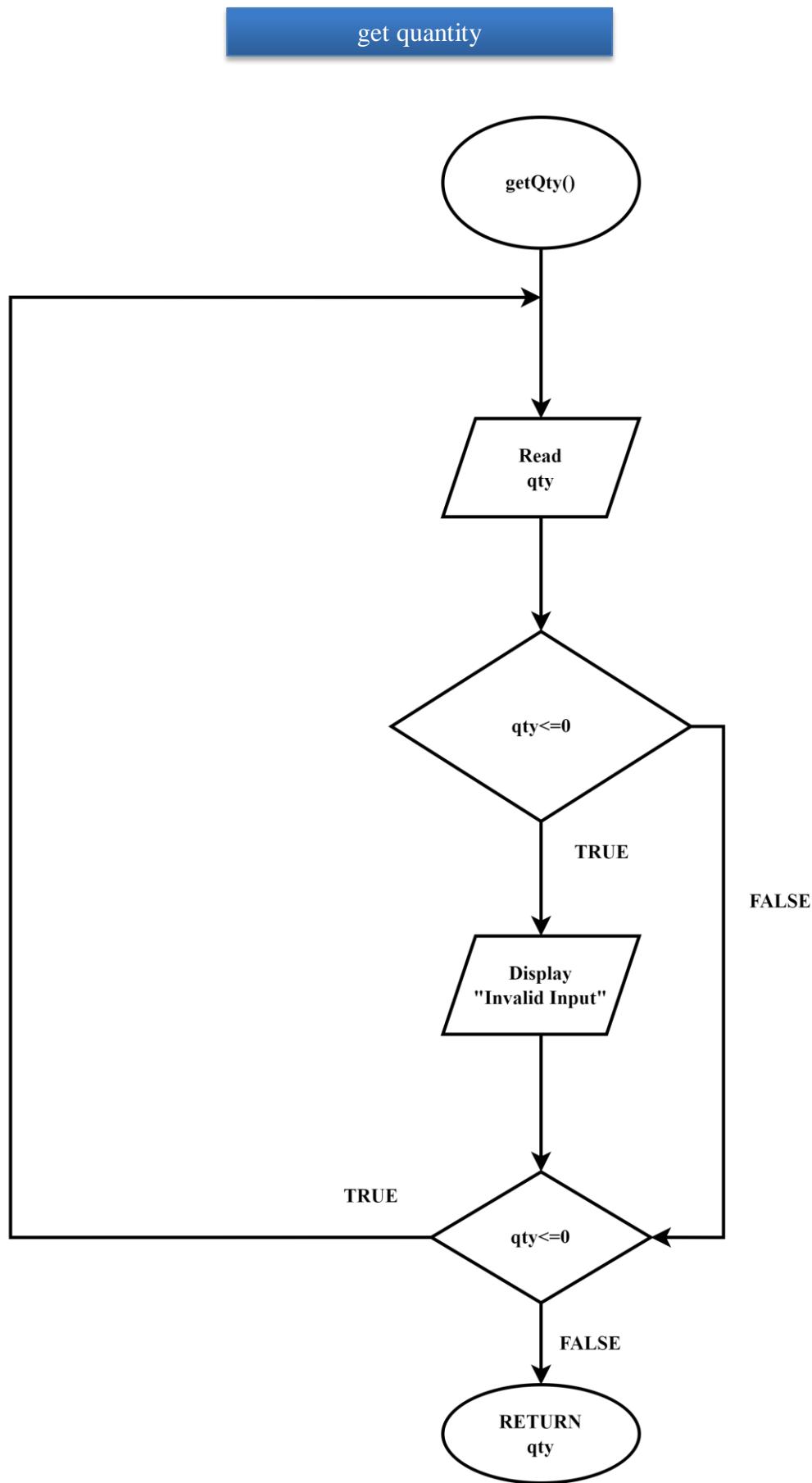


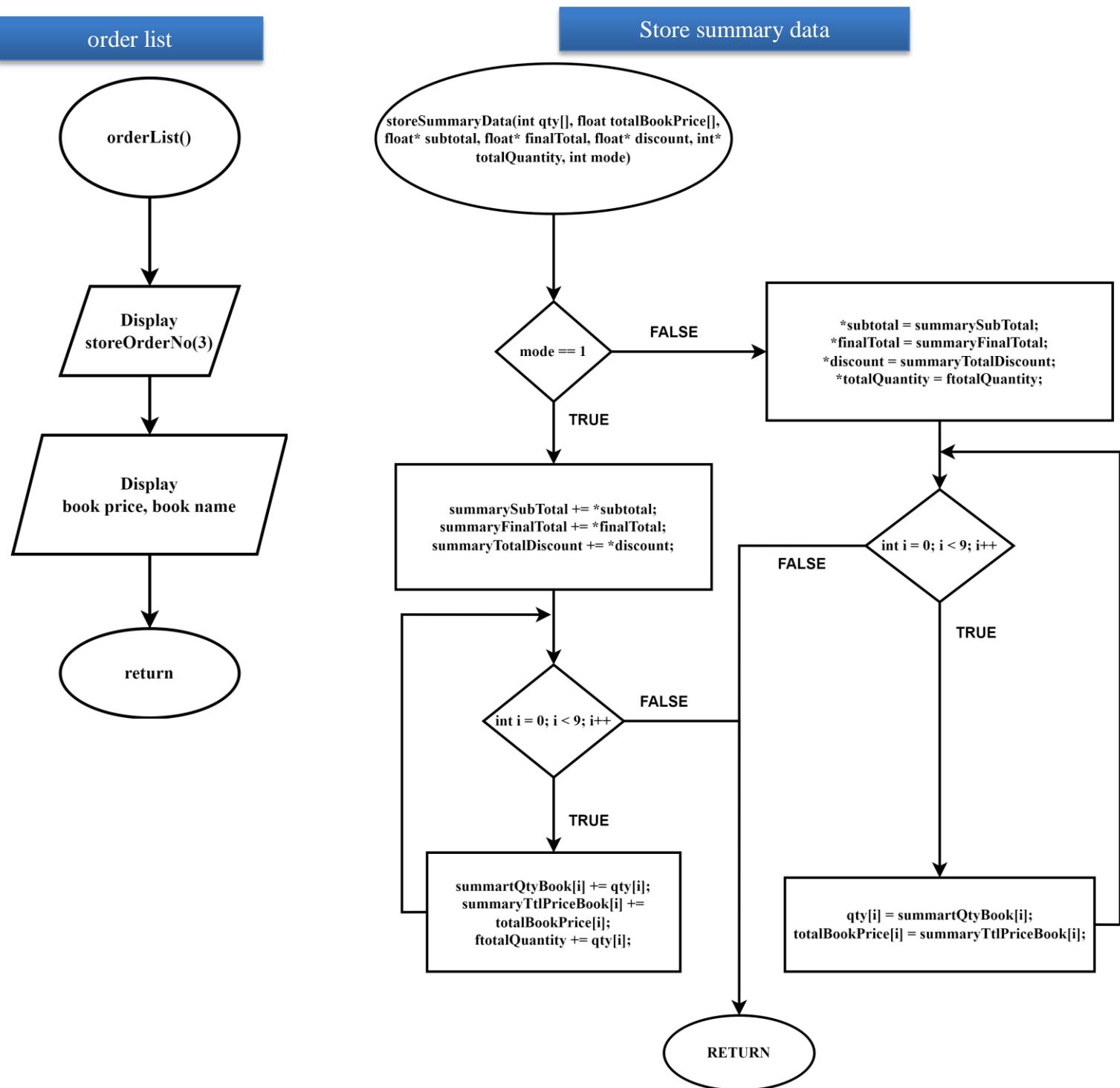


getbookchoice

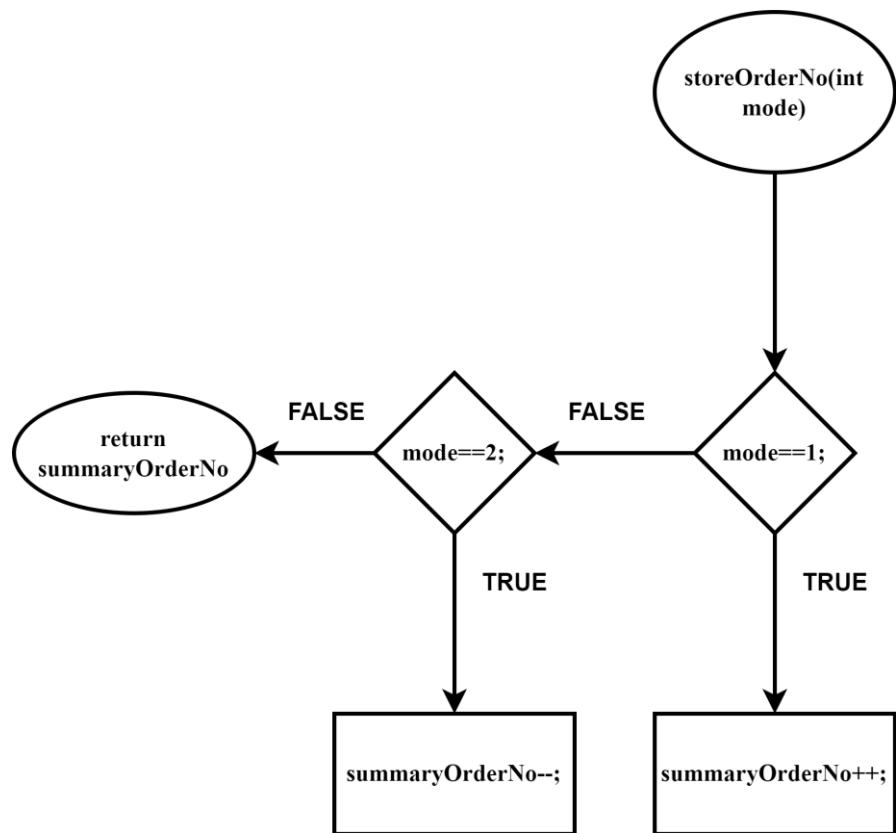


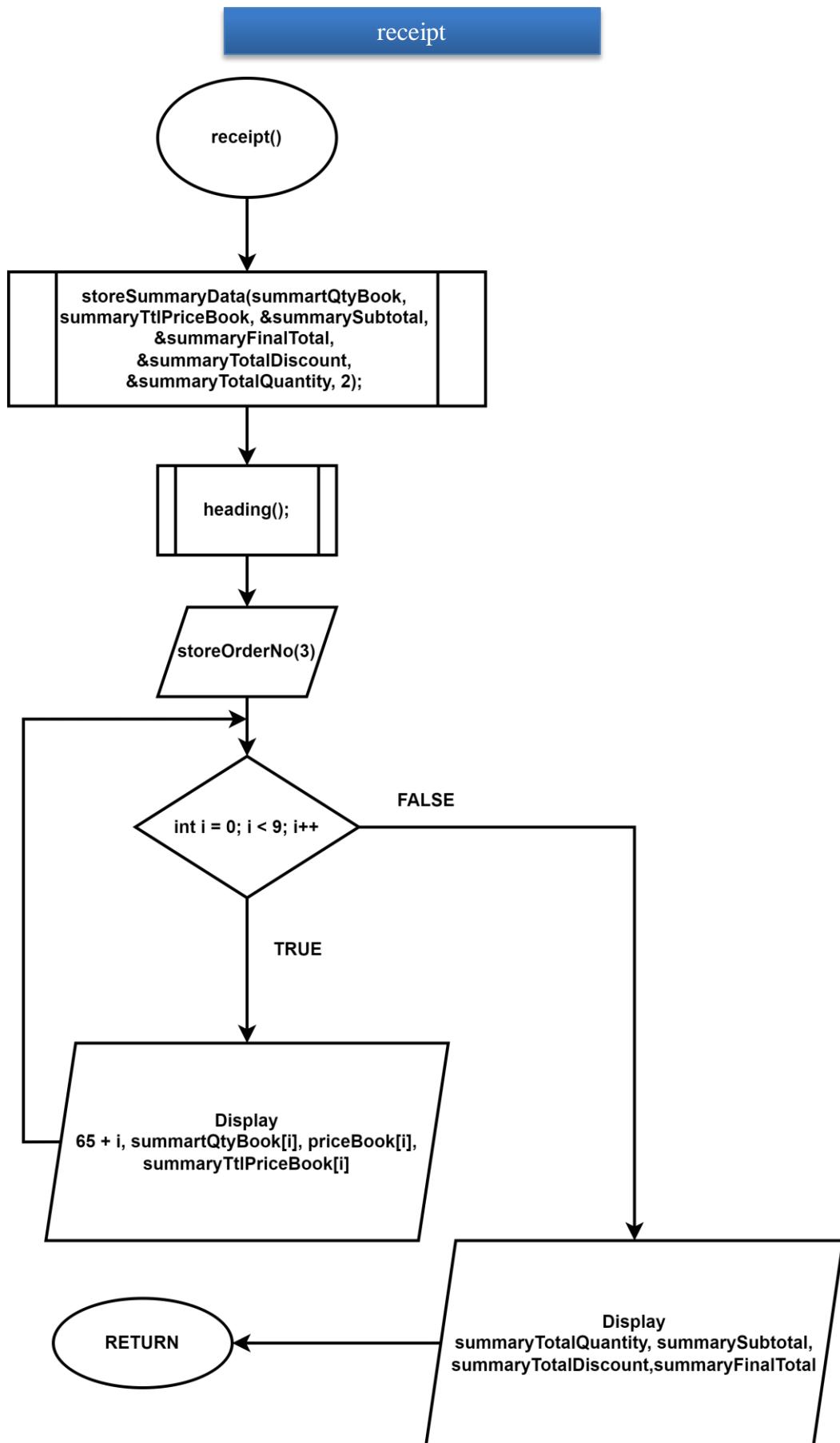




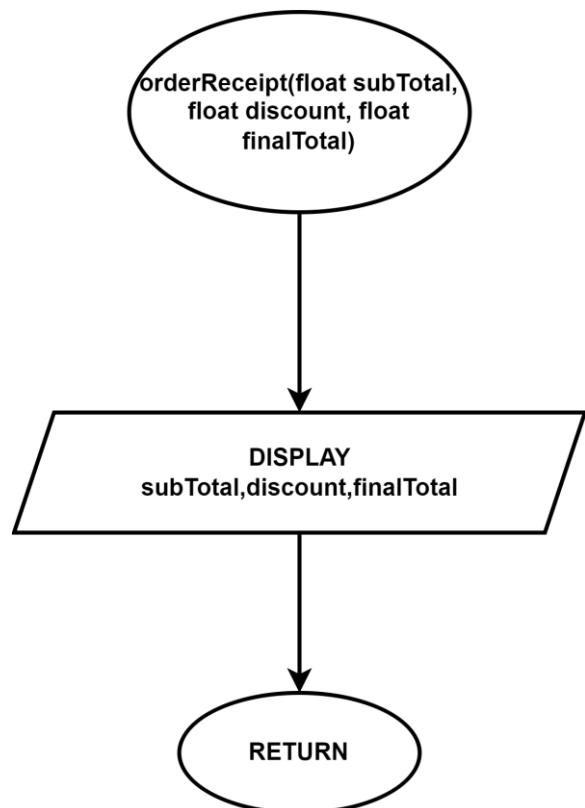


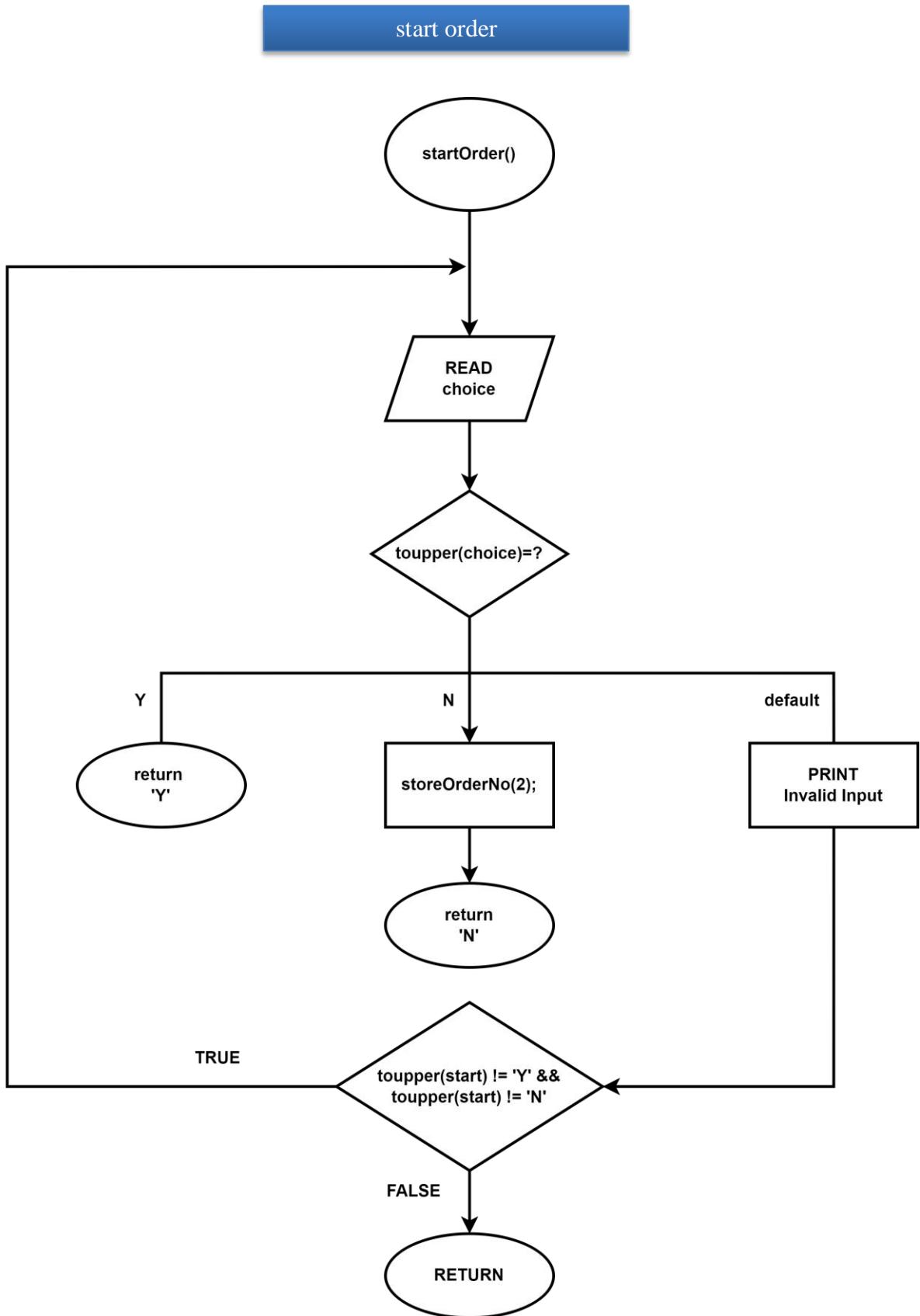
store order no



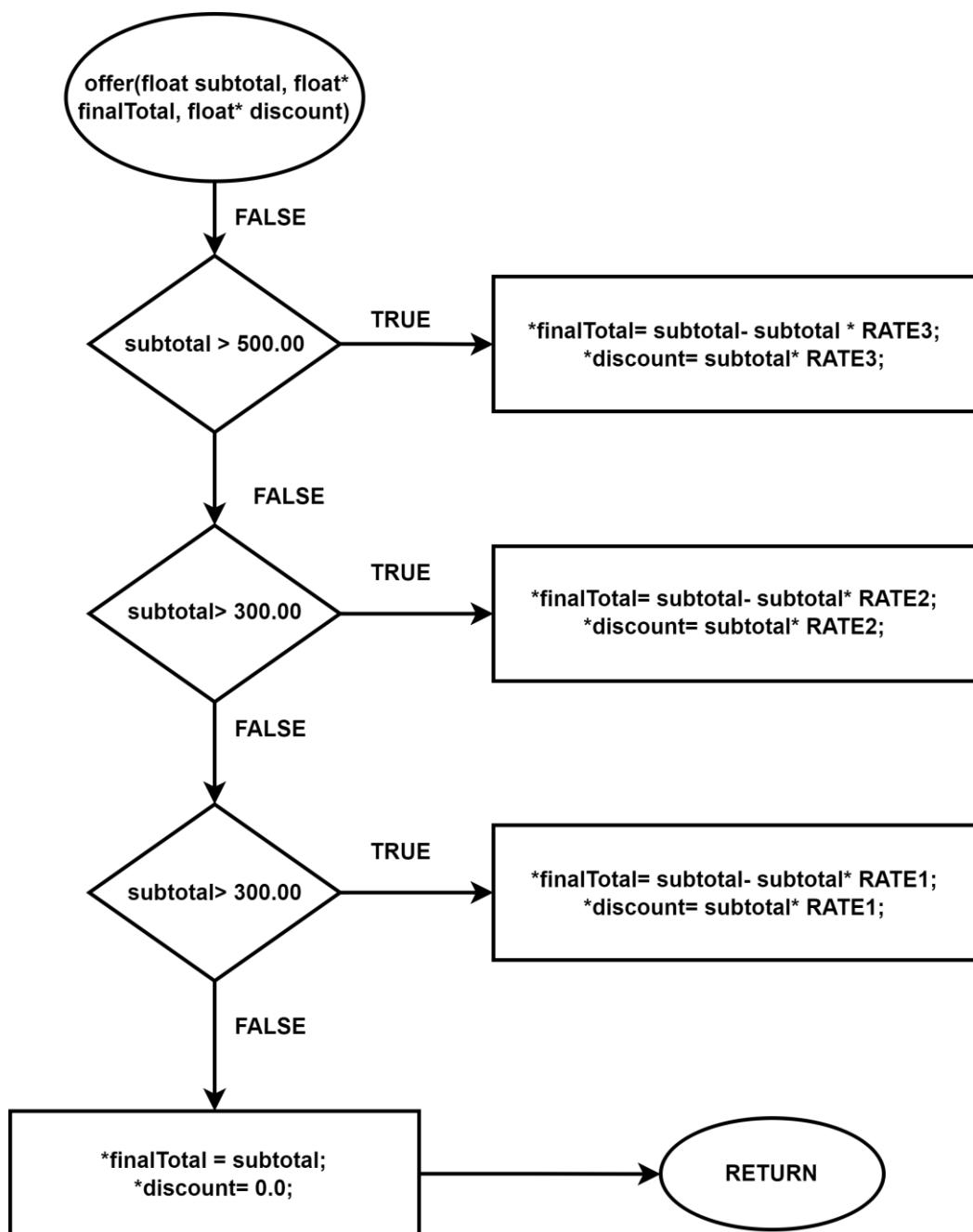


order receipt

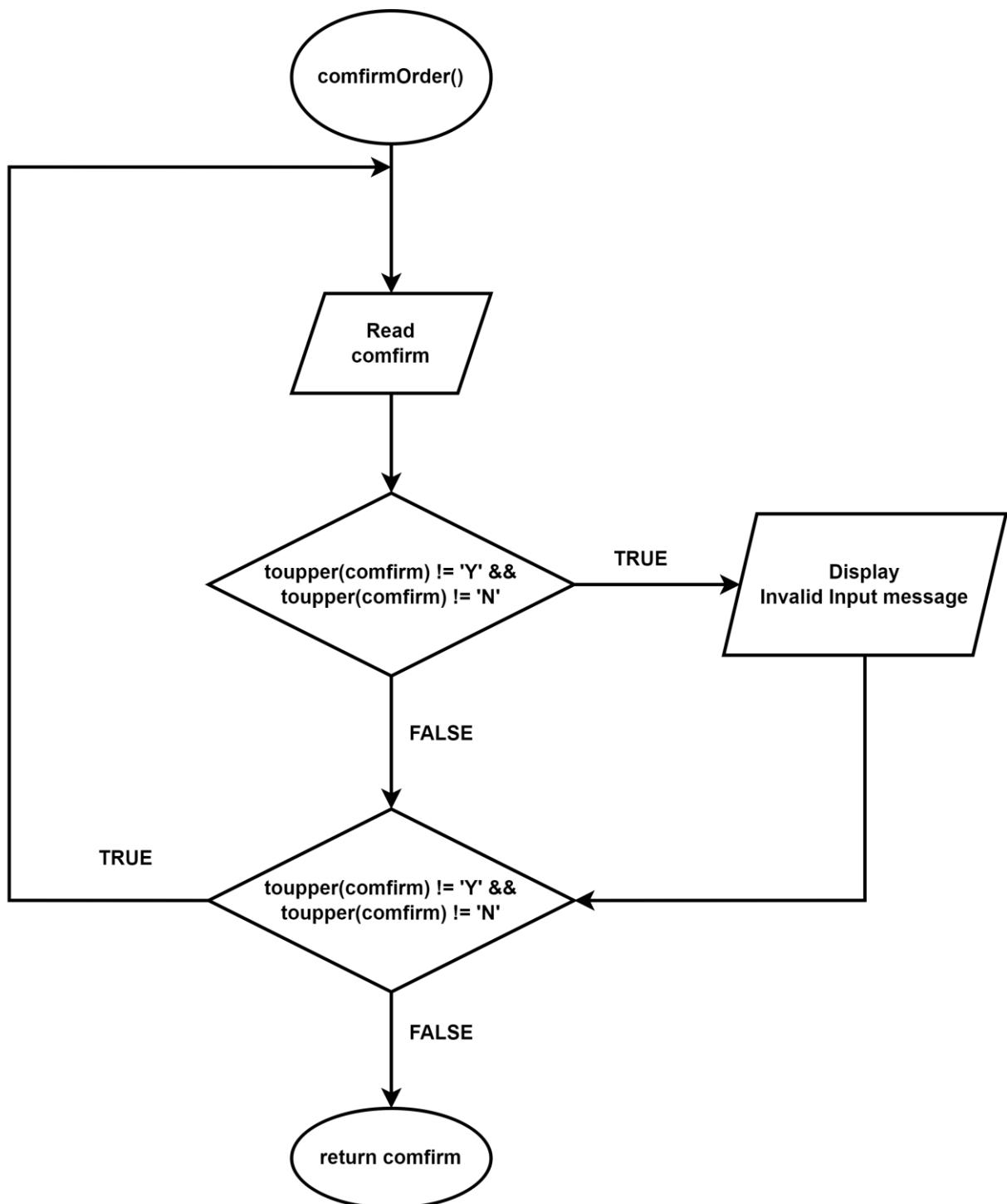




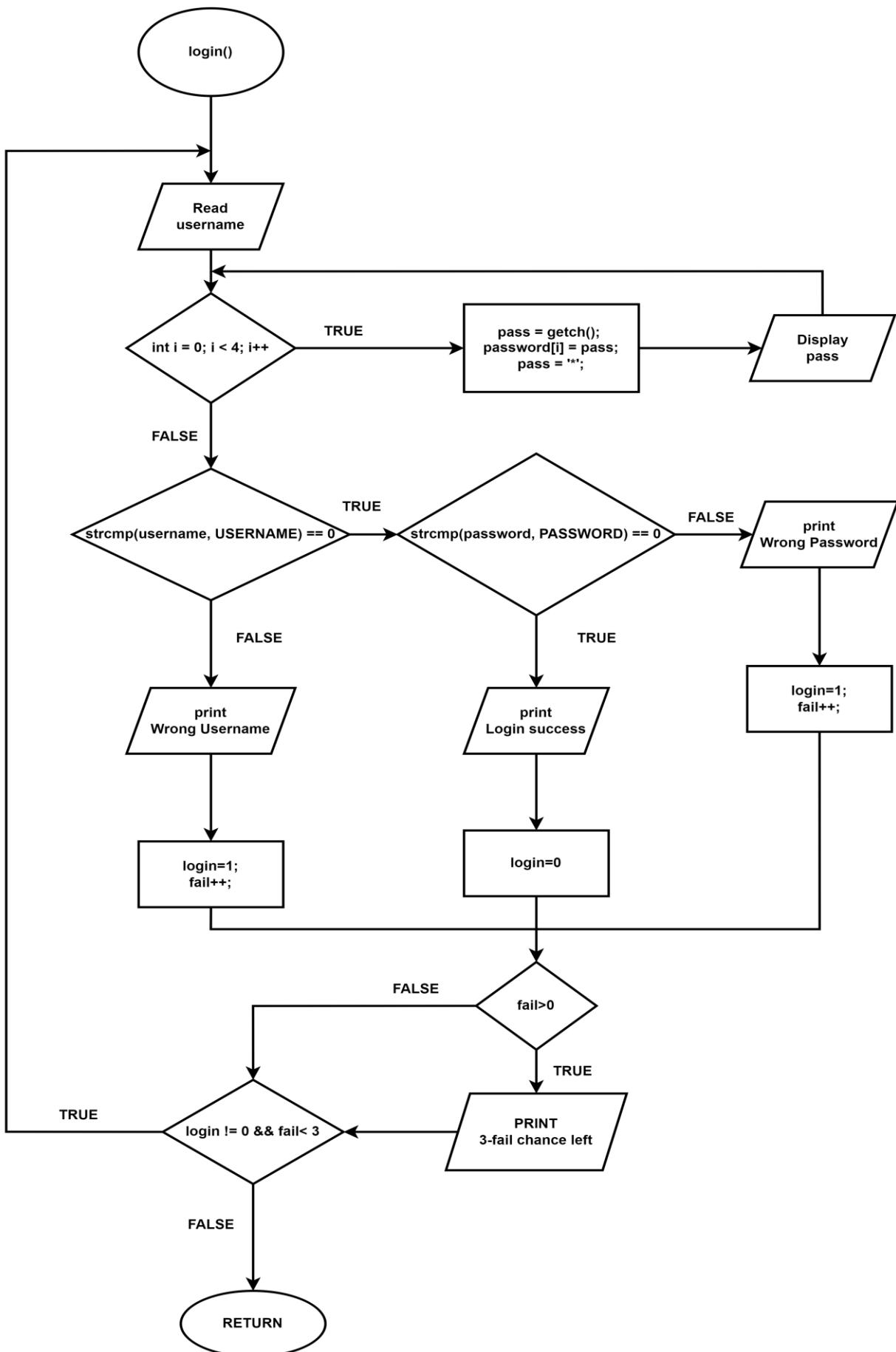
Offer



Comfirm order



Login



3.0 Constants and Variables

```
#define RATE1 0.05
#define RATE2 0.10
#define RATE3 0.15
#define BOOK_A "A: Beginning with Programming Logic and Design"
#define BOOK_B "B: JavaScript: The Definitive Guide"
#define BOOK_C "C: Fullstack Vue: The Complete Guide to Vue.js"
#define BOOK_D "D: Web Design With HTML, CSS, JavaScript and jQuery Set"
#define BOOK_E "E: Clean Code"
#define BOOK_F "F: The DevOps Handbook"
#define BOOK_G "G: Beginning C++ Through Game Programming"
#define BOOK_H "H: Game Programming Patterns"
#define BOOK_I "I: Game Engine Architecture"
#define USERNAME "admin"
#define PASSWORD "1234"
const float priceBook[9] = { 69.00,70.00,55.50,58.00,65.00,89.00,73.50,80.00,50.00 };

int choice, exit, qty,quantity[9], totalquantity,login=0,fail = 0, summartQtyBook[9],
summaryTotalQuantity;

float totalBookPrice[9], subTotal, finalTotal, discount , summarySubtotal,
summaryFinalTotal, summaryTotalDiscount, summaryTtlPriceBook[9];

char bookChoice,choice, start, comfirm, exit = 'A',username[30],password[30] , pass;

static float summarySubtotal = 0.0, summaryFinalTotal = 0.0,
summaryTotalDiscount = 0.0,
summaryTtlPriceBook[9] = { 0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0 };

static int summartQtyBook[9] = { 0,0,0,0,0,0,0,0,0 },
summaryTotalQuantity = 0, summaryOrderNo = 0;
```

3.1 Constants

Name	Value	Description / purpose
RATE1	0.05	Used to store discount rate for purchase more than RM200
RATE2	0.10	Used to store discount rate for purchase more than RM300
RATE3	0.15	Used to store discount rate for purchase more than RM500
BOOK_A	"A: Beginning with Programming Logic and Design"	Used to store name of book A
BOOK_B	"B: JavaScript: The Definitive Guide"	Used to store name of book B
BOOK_C	"C: Fullstack Vue: The Complete Guide to Vue.js"	Used to store name of book C
BOOK_D	"D: Web Design With HTML, CSS, JavaScript and jQuery Set"	Used to store name of book D
BOOK_E	"E: Clean Code"	Used to store name of book E
BOOK_F	"F: The DevOps Handbook"	Used to store name of book F
BOOK_G	"G: Beginning C++ Through Game Programming"	Used to store name of book G
BOOK_H	"H: Game Programming Patterns"	Used to store name of book H
BOOK_I	"I: Game Engine Architecture"	Used to store name of book I
USERNAME	"admin"	Used to store login id
PASSWORD	"1234"	Used to store login password
priceBook[9]	{69.00,70.00,55.50,58.00,65.00,89.00,73.50,80.00,50.00};	Used to store the sold price for each book

3.2 Variables

Data type	Name	Value	Description / purpose
int	login	0	Used in loop for control of validation username and password.
	fail		Used to store user times of user insert wrong username and password
	choice		Used to store the choice of the user when doing selection.
	exit		Used to store the choice of the user to exit or continue program when doing selection.
	qty		Used to store the quantity amount of book purchase from user's input.
	quantity[9]		Used to store the quantity amount of each book in each order.
	totalquantity		Used to store the quantity amount of all book in each order.
	summartQtyBook[9]		Used to store the quantity amount of each book in all order from store function.
	summaryTotalQuantity		Used to store the quantity amount of all book in all order from store function.
float	totalBookPrice[9]	Depend on user's input	Used to store the amount of each book in each order.
	subTotal		Used to store the sales amount of all book in each order.
	finalTotal		Used to store the net amount of all book in each order.
	discount		Used to store the amount of all discount in each order.
	summarySubTotal		Used to store the sales amount of all book in all order from store function.

static int	summartQtyBook[9]	{ 0,0,0,0,0,0,0,0,0 }	Used to store the quantity amount of each book in all order to store function.
	summaryTotalQuantity	0	Used to store the quantity amount of all book in all order to store function.
	summaryOrderNo	0	Used to store the increasing order number value with depend on the user are done how many bill to store function.

1.0 Program Testing & Outputs

1.1 Run 1 Scenario

Have 1 sales order for that day. Summary Report is displayed after last sale order.

Test Data + Expected Outputs Table

Input			Expected Results / Outputs																																			
Ord #	Book ordered	Qty	Book charges	Discounts	Total charges																																	
1	A D G	1 3 5	$1 * 69.00 = 69.00$ $3 * 58.00 = 174.00$ $5 * 73.50 = 367.50$	91.575 ≈ 91.58	518.92																																	
			Sales Order Summary Report <table border="1"><tr><td>A</td><td>1</td><td>69.00</td></tr><tr><td>B</td><td>0</td><td>0.00</td></tr><tr><td>C</td><td>0</td><td>0.00</td></tr><tr><td>D</td><td>3</td><td>174.00</td></tr><tr><td>E</td><td>0</td><td>0.00</td></tr><tr><td>F</td><td>0</td><td>0.00</td></tr><tr><td>G</td><td>5</td><td>367.50</td></tr><tr><td>H</td><td>0</td><td>0.00</td></tr><tr><td>I</td><td>0</td><td>0.00</td></tr><tr><td colspan="3">Total sales:</td></tr><tr><td colspan="3">610.50(x)</td></tr></table>	A	1	69.00	B	0	0.00	C	0	0.00	D	3	174.00	E	0	0.00	F	0	0.00	G	5	367.50	H	0	0.00	I	0	0.00	Total sales:			610.50(x)			91.58(y)	518.92 (x-y)
A	1	69.00																																				
B	0	0.00																																				
C	0	0.00																																				
D	3	174.00																																				
E	0	0.00																																				
F	0	0.00																																				
G	5	367.50																																				
H	0	0.00																																				
I	0	0.00																																				
Total sales:																																						
610.50(x)																																						

卷之三

Date : 2022- 9-15

Time : 17:20:45

UMT BOOKSTORE POS SYSTEM

Sales Order No : 1

Software Development Programming

A: Beginning with Programming Logic and Design	69.00
B: JavaScript: The Definitive Guide	70.00
C: Fullstack Vue: The Complete Guide to Vue.js	55.50

Web Programming

D: Web Design With HTML, CSS, JavaScript and jQuery Set	58.00
E: Clean Code	65.00
F: The DevOps Handbook	89.00

Game Development Programming

G: Beginning C++ Through Game Programming	73.50
H: Game Programming Patterns	80.00
I: Game Engine Architecture	50.00

Start order? (Y=yes / N=no) >1

=====

Invalid Input

=====

```

E: Clean Code           65.00
F: The DevOps Handbook 89.00
=====
Game Development Programming
=====
G: Beginning C++ Through Game Programming 73.50
H: Game Programming Patterns            80.00
I: Game Engine Architecture           50.00
=====

Start order? (Y=yes / N=no) >1
=====
Invalid Input
=====
Start order? (Y=yes / N=no) >y
Enter Your Choice (A-I) > q

=====
Invalid Input
=====
Enter Your Choice (A-I) > A

Enter Quantity > 1
Any more book ? (Y= Yes / N= No) > Y
Enter Your Choice (A-I) > D

Enter Quantity > 3
Any more book ? (Y= Yes / N= No) > Y
Enter Your Choice (A-I) > G

Enter Quantity > 5
Any more book ? (Y= Yes / N= No) > N

Comfirm order? (Y=confirm N=Cancel) >Y

```

UMT BOOKSTORE POS SYSTEM



Date : 2022- 9-15 Time : 17:23:46

```

=====
Book A: 1 @ RM 69.00 = 69.00
Book D: 3 @ RM 58.00 = 174.00
Book G: 5 @ RM 73.50 = 367.50
=====
Subtotal = 610.50
Discount = 91.57
=====
FinalTotal = 518.92
=====

Thank you have a nice day
=====

Next Order? (Y/N) >N

```



Date : 2022- 9-15

Time : 17:24:11

=====

UMT BOOKSTORE POS SYSTEM

=====

SUMMARY REPORT

=====

Order number = 1

=====

Book	Quantity of books	Price per book	Total
A	1	69.00	69.00
B	0	70.00	0.00
C	0	55.50	0.00
D	3	58.00	174.00
E	0	65.00	0.00
F	0	89.00	0.00
G	5	73.50	367.50
H	0	80.00	0.00
I	0	50.00	0.00

=====

Total Sales	9	610.50
Total Discount		91.57
		=====
Total Net Sales		518.92
		=====

=====

THANK YOU FOR YOUR ORDER! ^~^

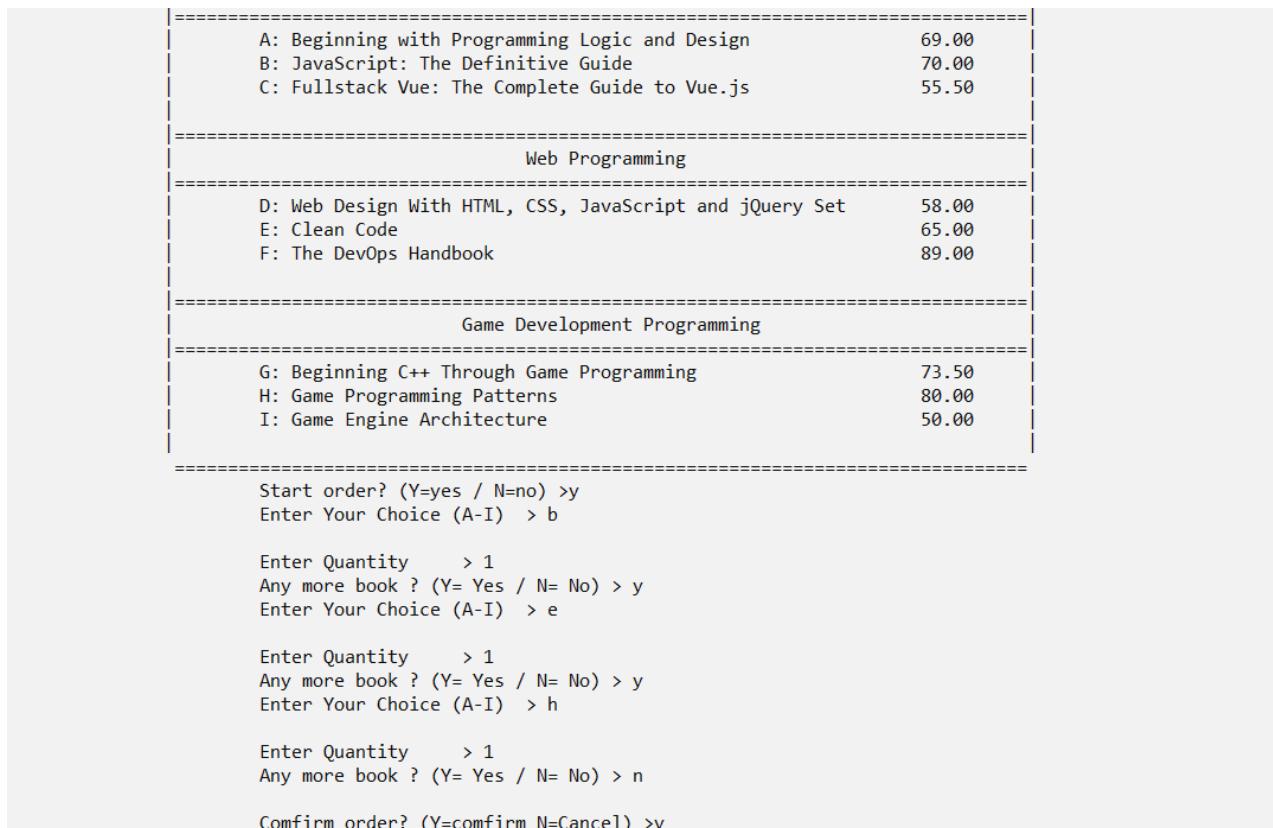
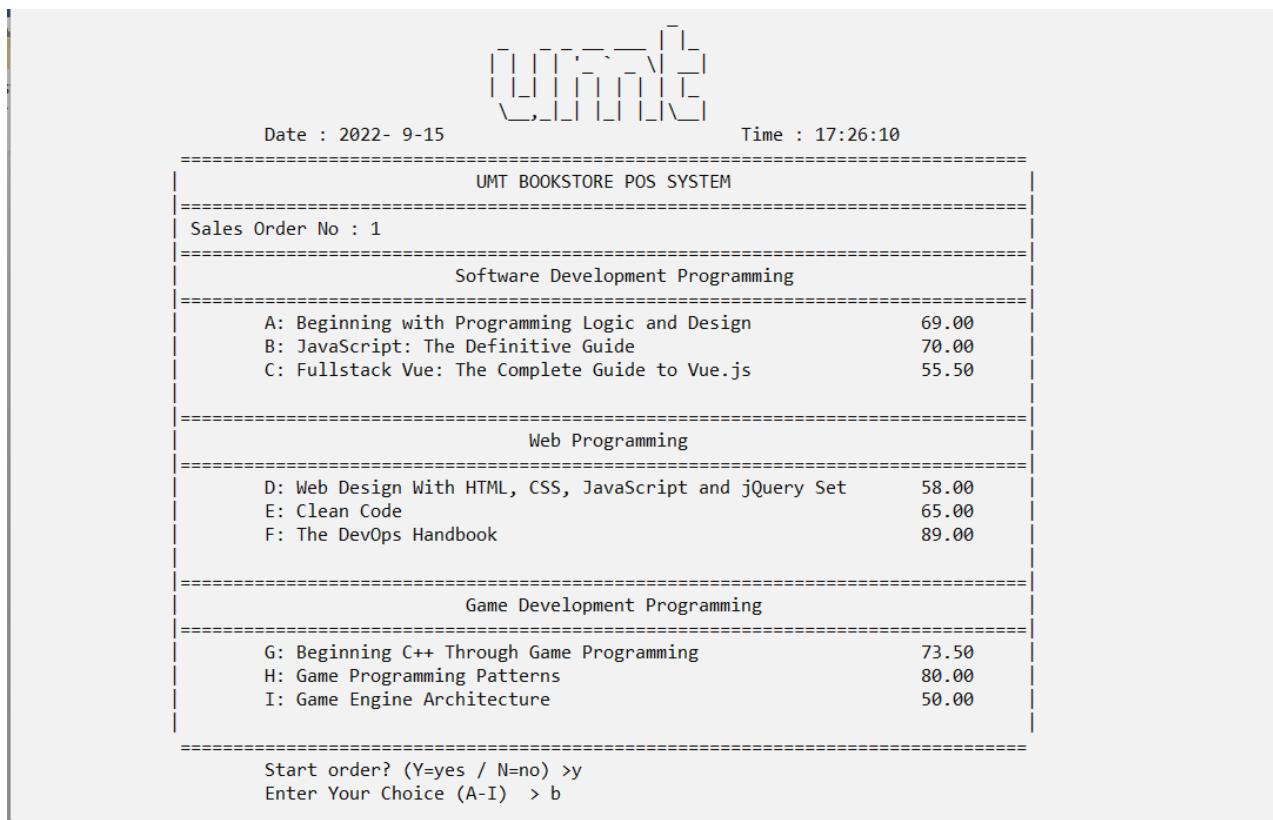
Press any key to continue . . . ■

1.2 Run 2 Scenario

Have 2 sales order for that day. Summary Report is displayed after last sale order.

Test Data + Expected Outputs Table

Input			Expected Results / Outputs																																
Ord #	Book ordered	Qty	Book charges	Discounts	Total charges																														
1	B E H	1 1 1	1 * 70.00 = 70.00 1 * 65.00 = 65.00 1 * 80.00 = 80.00	10.75	204.25																														
2	H	1	1 * 80.00 = 80.00	0.00	80.00																														
			Sales Order Summary Report <table border="1"> <tr><td>A</td><td>0</td><td>0.00</td></tr> <tr><td>B</td><td>1</td><td>70.00</td></tr> <tr><td>C</td><td>0</td><td>0.00</td></tr> <tr><td>D</td><td>0</td><td>0.00</td></tr> <tr><td>E</td><td>1</td><td>65.00</td></tr> <tr><td>F</td><td>0</td><td>0.00</td></tr> <tr><td>G</td><td>0</td><td>0.00</td></tr> <tr><td>H</td><td>2</td><td>160.00</td></tr> <tr><td>I</td><td>0</td><td>0.00</td></tr> <tr> <td colspan="2">Total sales:</td><td>295.00(x)</td></tr> </table>	A	0	0.00	B	1	70.00	C	0	0.00	D	0	0.00	E	1	65.00	F	0	0.00	G	0	0.00	H	2	160.00	I	0	0.00	Total sales:		295.00(x)	10.75(y)	284.25 (x-y)
A	0	0.00																																	
B	1	70.00																																	
C	0	0.00																																	
D	0	0.00																																	
E	1	65.00																																	
F	0	0.00																																	
G	0	0.00																																	
H	2	160.00																																	
I	0	0.00																																	
Total sales:		295.00(x)																																	



UMT BOOKSTORE

Date : 2022- 9-15 Time : 17:30:37

UMT BOOKSTORE POS SYSTEM

Book B:	1 @ RM 70.00	=	70.00
Book E:	1 @ RM 65.00	=	65.00
Book H:	1 @ RM 80.00	=	80.00
		=====	=====
Subtotal		=	215.00
Discount		=	10.75
		=====	=====
FinalTotal		=	204.25

Thank you have a nice day

Next Order? (Y/N) >n

UMT BOOKSTORE

Date : 2022- 9-15 Time : 17:31:30

UMT BOOKSTORE POS SYSTEM

SUMMARY REPORT

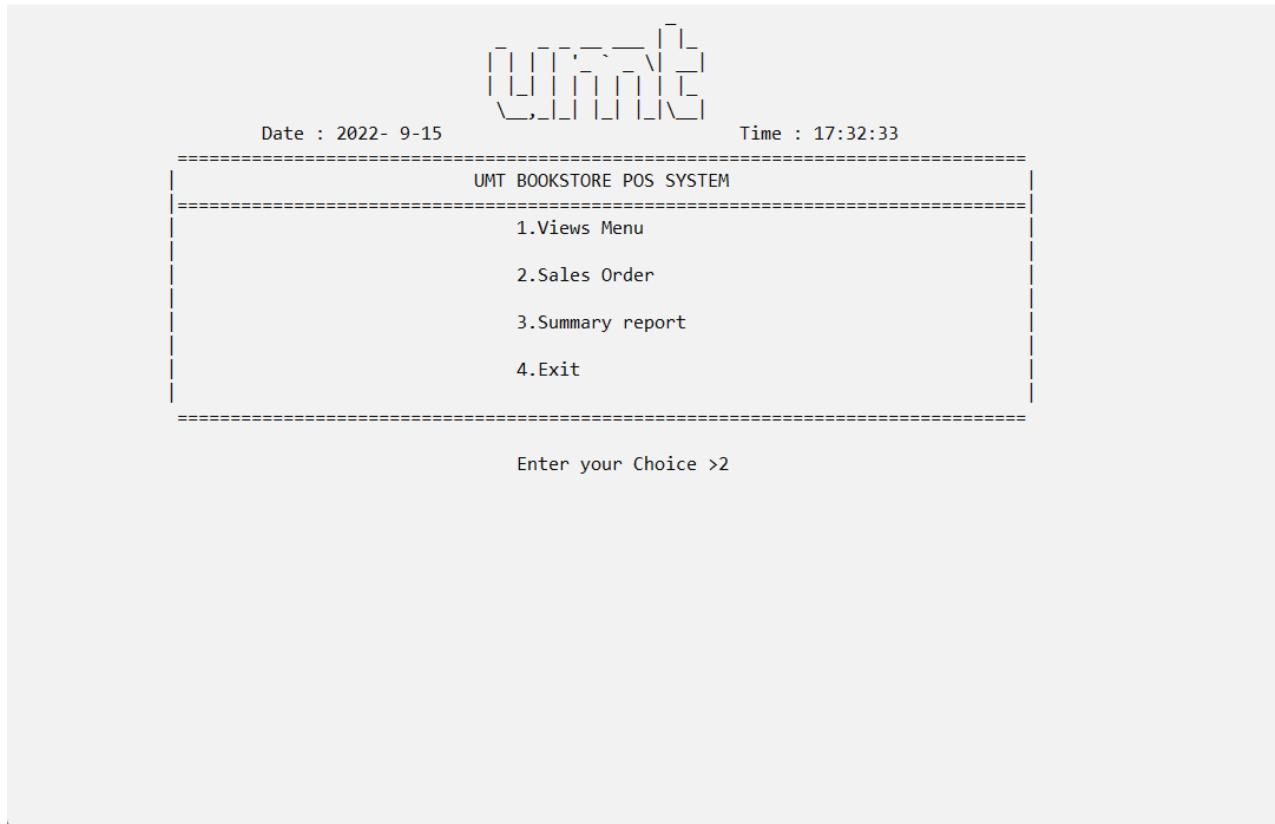
Order number = 1

Book	Quantity of books	Price per book	Total
A	0	69.00	0.00
B	1	70.00	70.00
C	0	55.50	0.00
D	0	58.00	0.00
E	1	65.00	65.00
F	0	89.00	0.00
G	0	73.50	0.00
H	1	80.00	80.00
I	0	50.00	0.00

Total Sales	3	215.00
Total Discount		10.75
		=====
Total Net Sales		204.25
		=====

THANK YOU FOR YOUR ORDER! ^~^

Press any key to continue . . .



__,-|_|_|_|_|_|___ Date : 2022- 9-15 Time : 17:32:51

=====

UMT BOOKSTORE POS SYSTEM

=====

Sales Order No : 2

=====

Software Development Programming

=====

A: Beginning with Programming Logic and Design	69.00
B: JavaScript: The Definitive Guide	70.00
C: Fullstack Vue: The Complete Guide to Vue.js	55.50

=====

Web Programming

=====

D: Web Design With HTML, CSS, JavaScript and jQuery Set	58.00
E: Clean Code	65.00
F: The DevOps Handbook	89.00

=====

Game Development Programming

=====

G: Beginning C++ Through Game Programming	73.50
H: Game Programming Patterns	80.00
I: Game Engine Architecture	50.00

=====

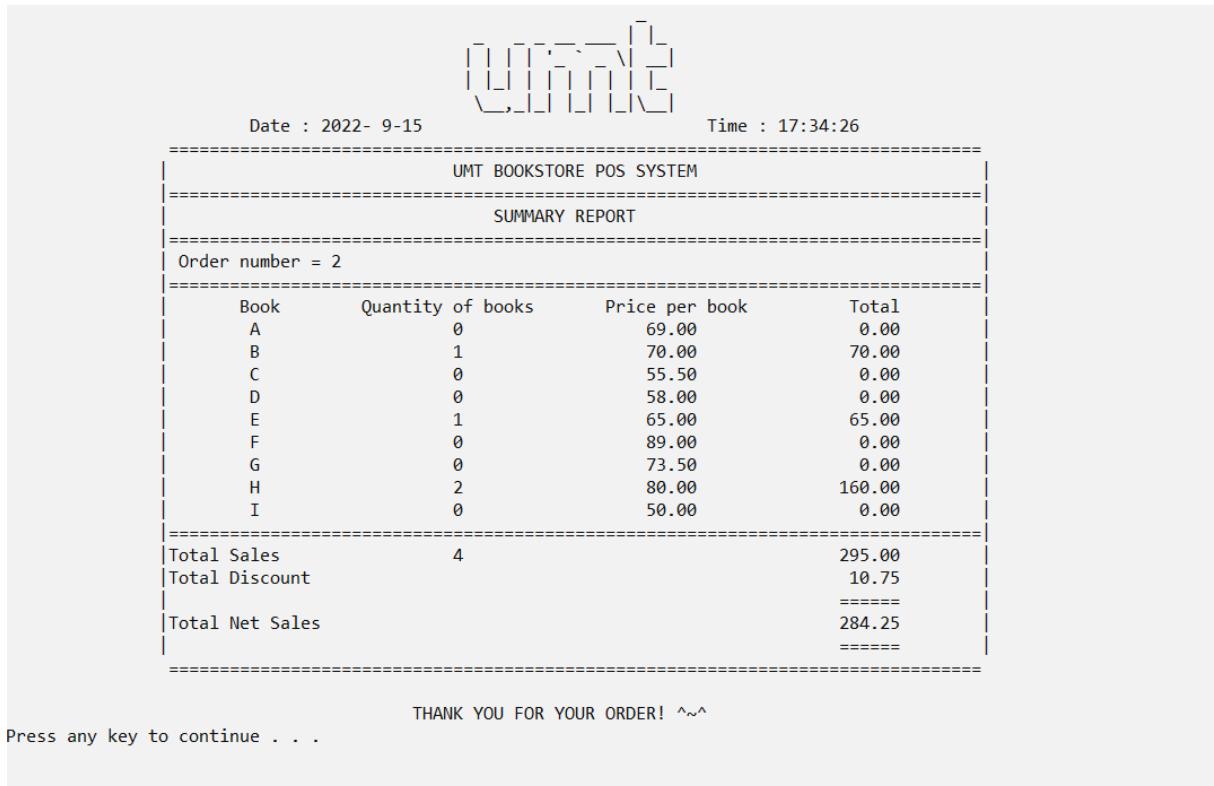
Start order? (Y=yes / N=no) >y

Enter Your Choice (A-I) > h

Enter Quantity > 1

Any more book ? (Y= Yes / N= No) > n

Comfirm order? (Y=confirm N=Cancel) >y



1.3 Run 3 Scenario

Have 3 sales order for that day. Summary Report is displayed after last sale order.

Test Data + Expected Outputs Table

Input			Expected Results / Outputs																																			
Ord #	Book ordered	Qty	Book charges	Discounts	Total charges																																	
1	C A H	1 2 3	1 * 55.50 = 55.50 2 * 69.00 = 138.00 3 * 80.00 = 240.00	43.35	390.15																																	
2	F B	1 5	1 * 89.00 = 89.00 5 * 70.00 = 350.00	43.90	395.10																																	
3	I	6	6 * 50.00 = 300.00	15.00	285.00																																	
			Sales Order Summary Report <table border="1"> <tr><td>A</td><td>2</td><td>138.00</td></tr> <tr><td>B</td><td>5</td><td>350.00</td></tr> <tr><td>C</td><td>1</td><td>55.50</td></tr> <tr><td>D</td><td>0</td><td>0.00</td></tr> <tr><td>E</td><td>0</td><td>0.00</td></tr> <tr><td>F</td><td>1</td><td>89.00</td></tr> <tr><td>G</td><td>0</td><td>0.00</td></tr> <tr><td>H</td><td>3</td><td>240.00</td></tr> <tr><td>I</td><td>6</td><td>300.00</td></tr> <tr> <td colspan="3">Total sales:</td></tr> <tr> <td colspan="3">1172.50(x)</td></tr> </table>	A	2	138.00	B	5	350.00	C	1	55.50	D	0	0.00	E	0	0.00	F	1	89.00	G	0	0.00	H	3	240.00	I	6	300.00	Total sales:			1172.50(x)			102.25 (y)	1070.25(x-y)
A	2	138.00																																				
B	5	350.00																																				
C	1	55.50																																				
D	0	0.00																																				
E	0	0.00																																				
F	1	89.00																																				
G	0	0.00																																				
H	3	240.00																																				
I	6	300.00																																				
Total sales:																																						
1172.50(x)																																						

UMT BOOKSTORE



Date : 2022- 9-15 Time : 22:33:32

===== UMT BOOKSTORE POS SYSTEM =====

Sales Order No : 1

===== Software Development Programming =====

A: Beginning with Programming Logic and Design	69.00
B: JavaScript: The Definitive Guide	70.00
C: Fullstack Vue: The Complete Guide to Vue.js	55.50

===== Web Programming =====

D: Web Design With HTML, CSS, JavaScript and jQuery Set	58.00
E: Clean Code	65.00
F: The DevOps Handbook	89.00

===== Game Development Programming =====

G: Beginning C++ Through Game Programming	73.50
H: Game Programming Patterns	80.00
I: Game Engine Architecture	50.00

Start order? (Y=yes / N=no) >y
Enter Your Choice (A-I) > c

A: Beginning with Programming Logic and Design	69.00
B: JavaScript: The Definitive Guide	70.00
C: Fullstack Vue: The Complete Guide to Vue.js	55.50

===== Web Programming =====

D: Web Design With HTML, CSS, JavaScript and jQuery Set	58.00
E: Clean Code	65.00
F: The DevOps Handbook	89.00

===== Game Development Programming =====

G: Beginning C++ Through Game Programming	73.50
H: Game Programming Patterns	80.00
I: Game Engine Architecture	50.00

Start order? (Y=yes / N=no) >y
Enter Your Choice (A-I) > c

Enter Quantity > 1
Any more book ? (Y= Yes / N= No) > y
Enter Your Choice (A-I) > a

Enter Quantity > 2
Any more book ? (Y= Yes / N= No) > y
Enter Your Choice (A-I) > h

Enter Quantity > 3
Any more book ? (Y= Yes / N= No) > n

Comfirm order? (Y=confirm N=Cancel) >y_

UMT BOOKSTORE POS SYSTEM

Date : 2022- 9-15 Time : 22:35:31

Book A:	2 @ RM 69.00	=	138.00
Book C:	1 @ RM 55.50	=	55.50
Book H:	3 @ RM 80.00	=	240.00
		=====	
Subtotal		=	433.50
Discount		=	43.35
		=====	
FinalTotal		=	390.15
Thank you have a nice day			

Next Order? (Y/N) >y

```

=====
Sales Order No : 2
=====
Software Development Programming
=====
A: Beginning with Programming Logic and Design      69.00
B: JavaScript: The Definitive Guide                70.00
C: Fullstack Vue: The Complete Guide to Vue.js     55.50
=====
Web Programming
=====
D: Web Design With HTML, CSS, JavaScript and jQuery Set 58.00
E: Clean Code                                      65.00
F: The DevOps Handbook                            89.00
=====
Game Development Programming
=====
G: Beginning C++ Through Game Programming          73.50
H: Game Programming Patterns                      80.00
I: Game Engine Architecture                       50.00
=====

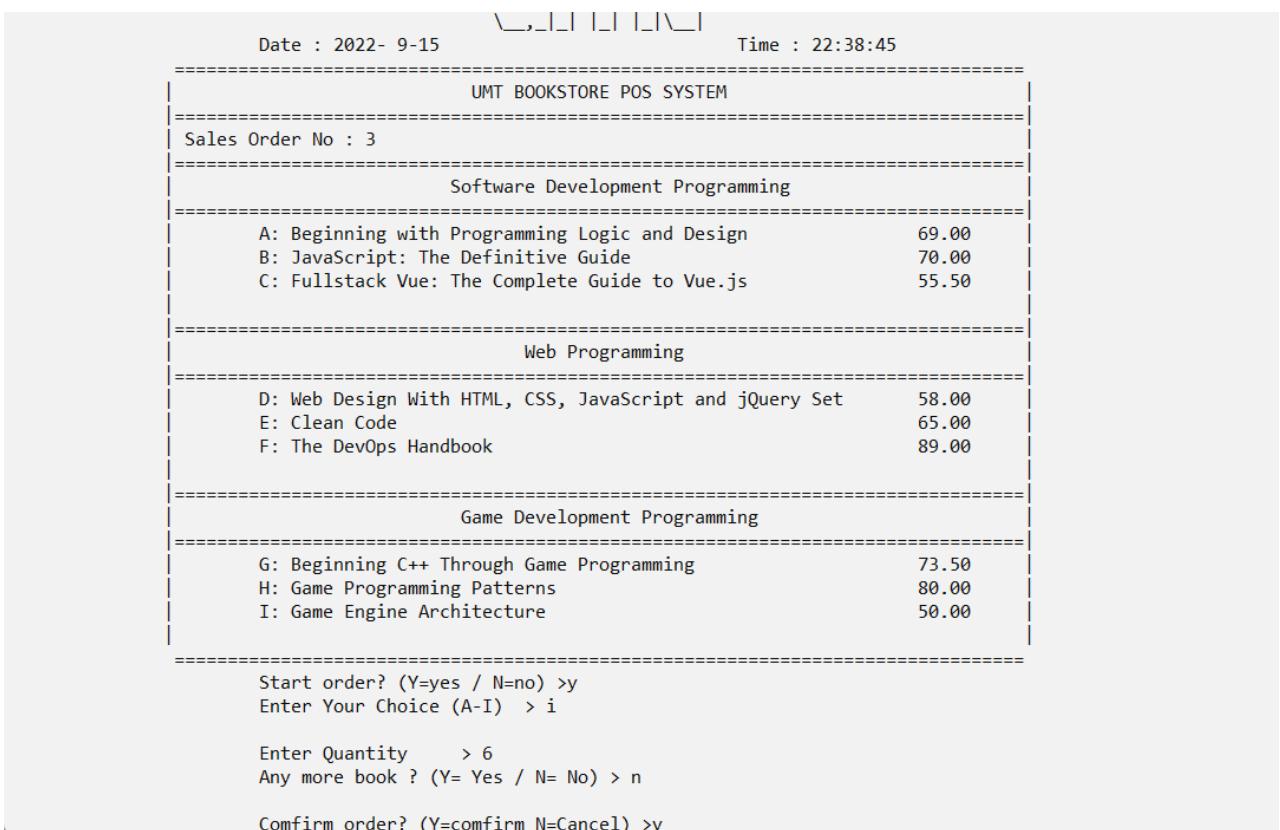
Start order? (Y=yes / N=no) >y
Enter Your Choice (A-I) > f

Enter Quantity > 1
Any more book ? (Y= Yes / N= No) > y
Enter Your Choice (A-I) > b

Enter Quantity > 5
Any more book ? (Y= Yes / N= No) > n

Comfirm order? (Y=confirm N=Cancel) >y

```



Date : 2022- 9-15

Time : 22:39:31

UMT BOOKSTORE POS SYSTEM

Book I:	6 @ RM 50.00	=	300.00
			=====
Subtotal		=	300.00
Discount		=	15.00
			=====
FinalTotal		=	285.00

Thank you have a nice day

Next Order? (Y/N) >n

Date : 2022- 9-15

Time : 22:39:56

UMT BOOKSTORE POS SYSTEM

Onder nummer 3

Book	Quantity of books	Price per book	Total
A	2	69.00	138.00
B	5	70.00	350.00
C	1	55.50	55.50
D	0	58.00	0.00
E	0	65.00	0.00
F	1	89.00	89.00
G	0	73.50	0.00
H	3	80.00	240.00
I	6	50.00	300.00

Total Sales	18	1172.50
Total Discount		102.25
		=====
Total Net Sales		1070.25

THANK YOU FOR YOUR ORDER! > >

Press any key to continue.

Appendix – Program Listing

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <ctype.h>
4 #include <time.h>
5 #include <string.h>
6 #include <stdbool.h>
7 #pragma warning (disable:4996)
8
9 //define constant value
10#define RATE1 0.05 //discount for purchase above 500
11#define RATE2 0.10 //discount for purchase above 300
12#define RATE3 0.15 //discount for purchase above 200
13#define BOOK_A "A: Beginning with Programming Logic and Design"
14#define BOOK_B "B: JavaScript: The Definitive Guide"
15#define BOOK_C "C: Fullstack Vue: The Complete Guide to Vue.js"
16#define BOOK_D "D: Web Design With HTML, CSS, JavaScript and jQuery Set"
17#define BOOK_E "E: Clean Code"
18#define BOOK_F "F: The DevOps Handbook"
19#define BOOK_G "G: Beginning C++ Through Game Programming"
20#define BOOK_H "H: Game Programming Patterns"
21#define BOOK_I "I: Game Engine Architecture"
22#define USERNAME "admin" //username for login function
23#define PASSWORD "1234" //password for login function
24
25 const float priceBook[9] =
26     { 69.00,70.00,55.50,58.00,65.00,89.00,73.50,80.00,50.00 };
27
28 //design code
29 void purple() {
30     printf("\033[1;35m");
31 }
32 void yellow() {
33     printf("\033[0;33m");
34 }
35 void green() {
36     printf("\033[0;32m");
37 }
38 void red() {
39     printf("\033[0;31m");
40 };
41 void blue() {
42     printf("\033[0;34m");
43 }
44 void defaultcolor() {
45     printf("\033[0m");
46 };
47 void delay(float number_of_seconds) {
48     float milli_seconds = 1000 * number_of_seconds;
49
50     clock_t start_time = clock();
51
52     while (clock() < start_time + milli_seconds);
```

```
53 }
54 void screen() {
55     red();
56     printf("\t\t\t\t\t%s\n", " _");
57     delay(0.2);
58
59     yellow();
60     printf("\t\t\t\t\t%s\n", " - - - - | |_");
61     delay(0.2);
62
63     blue();
64     printf("\t\t\t\t\t%s\n", " ||| | '_` - \\|_|");
65     delay(0.2);
66
67     green();
68     printf("\t\t\t\t\t%s\n", " | |_||| | | | | |_");
69     delay(0.2);
70
71     purple();
72     printf("\t\t\t\t\t%s\n", " \\_,_||| |_||| |_\\|_");
73     delay(0.2);
74     defaultcolor();
75 }
76
77
78 //declare function
79 void logo();
80 void heading();
81 void sales();
82 void menu();
83 void bookmenu();
84 char startOrder();
85 void errorMesage();
86 void orderList();
87 void storeSummaryData(int qty[], float totalBookPrice[], float* subtotal,    ?
88                         float* finalTotal, float* discount, int* totalQuantity, int mode);
89 int storeOrderNo(int mode);
90 void receipt();
91 void orderReceipt(float subTotal, float discount, float finalTotal);
92 int bookField(char book1[], char book2[], char book3[], float price1, float ?
93                 price2, float price3);
94 void offer(float subtotal, float* finalTotal, float* discount);
95 int login();
96 void zero(int qty[], float totalBookPrice[], float* subtotal, float*    ?
97             finalTotal, float* discount);
98 char confirmOrder();
99
100 //validation function
101 char getBookChoice();
102 char nextChoice(char message[]);
103 int getQty();
```

```

103
104
105 void main()
106 {
107     screen();
108     menu();
109 }
110
111 void menu() {
112     int choice, exit;
113
114
115     exit = login(); //to get id from user to loin the program if wrong 3
116     // time will end program
116     if (exit < 3) {
117         do
118         {
119             choice = 0;
120             system("cls");
121             heading();
122             printf("\n%16s %43s %36s", "|", "1.Views Menu", "|");
123             printf("\n%16s %80s\n", "|", "|");
124             printf("%16s %44s %35s", "|", "2.Sales Order", "|");
125             printf("\n%16s %80s\n", "|", "|");
126             printf("%16s %47s %32s", "|", "3.Summary report", "|");
127             printf("\n%16s %80s\n", "|", "|");
128             printf("%16s %37s %42s", "|", "4.Exit", "|");
129             printf("\n%16s %80s\n", "|", "|");
130             printf("%
131             =====
132             =====\n", "");
133             printf("\n\t\t\t\t\t\t\t\t\t\t\tEnter your Choice >");
134
135             rewind(stdin);
136
137             scanf("%d", &choice);
138
139             switch (choice) {
140                 case 1:
141                     bookmenu(); //view menu
142                     break;
143                 case 2:
144                     sales(); //order
145                     break;
146                 case 3:
147                     receipt(); //receipt
148                     break;
149                 case 4:
150                     break; //exit
151                 default:
152                     errorMessage(); //error message
153             }
154         } while (choice != 4);

```



```
197     printf("%16s %80s\n", " | ", " | ");
198     printf("%
199         16s=====
200         =====\n", "");
201
202     //book field choice validation
203     do
204     {
205
206         printf("\t\t\t%s", "Enter Your Choice      > ");
207         rewind(stdin);
208
209         scanf("%d", &choice);
210
211         if (choice <= 0 || choice > 4)
212         {
213             printf("\n%25s=====", "");
214             printf("\n%24s %s", "", "Invalid Input!");
215             printf("\n%25s=====\\n", "");
216         }
217     } while (choice <= 0 || choice > 4);
218
219     switch (choice)
220     {
221     case 1:
222         exit = bookField(BOOK_A, BOOK_B, BOOK_C, priceBook[0], priceBook [
223             1, priceBook[2]]; //bookfield 1
224         break;
225
226     case 2:
227         exit = bookField(BOOK_D, BOOK_E, BOOK_F, priceBook[3], priceBook [
228             4, priceBook[5]]; //bookfield 2
229         break;
230
231     case 3:
232         exit = bookField(BOOK_G, BOOK_H, BOOK_I, priceBook[6], priceBook [
233             7, priceBook[8]]; //bookfield 3
234         break;
235     case 4:
236         exit = 1;
237         break;
238     default:
239         errorMesage();
240     }
241     } while (exit != 1);
242 }
243
244 int bookField(char book1[], char book2[], char book3[], float price1, float
245 price2, float price3) {
246     int choice, exit;
247     do
248     {
```

```
244     exit = 0;
245     system("cls");
246     heading();
247     printf("\n%15s|%80s|\n", "", "");
248     printf("%14s |%22s %-57s|\n", "", "", "Software Development      ↵
249         Programming");
250     printf("%14s |          |          |\n", "", "");           ↵
251     printf("%14s |%20s %-21s %20s %-16s|\n", "", "", "Book", "",      ↵
252         "Price");
253     printf("%14s |%-63s %-16.2f|\n", "", book1, price1);
254     printf("%14s |%-63s %-16.2f|\n", "", book2, price2);
255     printf("%14s |%-63s %-16.2f|\n", "", book3, price3);
256     printf("%15s|%80s|\n", "", "");
257     printf("%14s |%5s %-19s %10s %-12s %10s %-7s %11s|\n", "", "",      ↵
258         "1.Back to Main Menu", "", "2.View Other", "", "3.Order", "");    ↵
259     printf("%14s |          |          |\n", "", "");           ↵
260     printf("\n\t\t\tEnter your choice > ");
261
262     rewind(stdin);
263     scanf("%d", &choice);
264
265     switch (choice)
266     {
267     case 1:
268         return 1;          //return 1 to bookmenu function for exit the      ↵
269             bookmenu function
270         break;
271     case 2:
272         return 0;          //return 0 to bookmenu function for loop again      ↵
273             the bookmenu function
274         break;
275     case 3:
276         sales();          //to the order function and after completed back      ↵
277             to main menu
278         return 1;
279         break;
280     default:
281         exit = 1;
282         errorMessage();
283     }
284 } while (exit == 1);
285
286 void sales() {
287
288 }
```

```
285     char bookChoice, choice, start, comfirm, exit = 'A'; //set to any value ↵
        to avoid can't execute when choose no in start order
286     int qty, quantity[9], totalquantity;
287     float totalBookPrice[9], subtotal, finalTotal, discount;
288
289     do {
290
291         system("cls");
292         zero(quantity, totalBookPrice, &subtotal, &finalTotal,
293             &discount); //initialize total value to 0 when loop back ↵
294         heading();
295         storeOrderNo(1); //increase order number
296         orderList();
297
298         start = startOrder(); //start order or exit to main menu
299
300         //if true start order
301         if (start == 'Y') {
302
303             do {
304                 bookChoice = getBookChoice(); //ask user which book want to ↵
305                     purchase
306
307                 qty = getQty(); //ask user how many book want to purchase
308
309                 for (int i = 0; i < 9; i++)
310                 {
311                     if (toupper(bookChoice) == (char)i + 65) {
312                         quantity[i] += qty;
313                         break;
314                     }
315                     choice = nextChoice("Any more book ? (Y= Yes / N= No) > ");
316
317                 } while (toupper(choice) != 'N');
318
319
320                 comfirm = comfirmOrder();
321
322                 //go to next page after comfirm order
323                 if (toupper(comfirm) == 'Y')
324                 {
325                     system("cls");
326                     heading();
327
328                     //calculate total per receipt and output order invoice
329                     for (int i = 0; i < 9; i++)
330                     {
331                         totalBookPrice[i] = quantity[i] * priceBook[i];
332                         subtotal += totalBookPrice[i];
333                         if (quantity[i] != 0)
334                         {
```

```

335             printf("\n%16s %19s %c: %6d @ RM%.2f \t=%25.2f\t|    ?  

336             \n", "|", "Book", 65 + i, quantity[i], priceBook[i],    ?  

337             totalBookPrice[i]);  

338         }  

339     }  

340  

341     offer(subtotal, &finalTotal, &discount); //count discount    ?  

342     and output the total value per order  

343  

344     orderReceipt(subtotal, discount, finalTotal); //display part    ?  

345     total of order receipt  

346  

347  

348     exit = nextChoice("Next Order? (Y/N) >"); //start next order  

349 }  

350 else if (toupper(confirm) == 'N')  

351     storeOrderNo(2);  

352 }  

353 else  

354     break; //Exit sales function  

355  

356 if (toupper(exit) == 'N')  

357     receipt(); //display summary receipt after exit order  

358  

359  

360 } while (toupper(exit) == 'Y');  

361  

362  

363 }  

364  

365  

366 void zero(int quantity[], float totalBookPrice[], float* subtotal, float*    ?  

367     finalTotal, float* discount) {  

368     *discount = 0.0;  

369     *subtotal = 0.0;  

370     *finalTotal = 0.0;  

371     for (int i = 0; i < 9; i++)  

372     {  

373         quantity[i] = 0;  

374         totalBookPrice[i] = 0.0;  

375     }  

376  

377 char getBookChoice() {  

378     char choice;  

379     do  

380     {

```

```
381     printf("\t\t\t%s", "Enter Your Choice (A-I) > ");
382     rewind(stdin);
383     scanf("%c", &choice);
384
385
386     if (!(toupper(choice) >= 65 && toupper(choice) <= 73))
387     {
388         printf("\n%25s=====", "");
389         printf("\n%24s %s", "", "Invalid Input");
390         printf("\n%25s=====\\n", "");
391     }
392 } while (!(toupper(choice) >= 65 && toupper(choice) <= 73));
393 return choice;
394 }
395
396 char nextChoice(char message[]) {
397     char choice;
398     do
399     {
400         printf("\t\t\t%s", message);
401         rewind(stdin);
402         scanf("%c", &choice);
403
404         if (toupper(choice) != 'Y' && toupper(choice) != 'N')
405         {
406             printf("\n%25s=====", "");
407             printf("\n%24s %s", "", "Invalid Input");
408             printf("\n%25s=====\\n", "");
409         }
410     } while (toupper(choice) != 'Y' && toupper(choice) != 'N');
411     return choice;
412 }
413
414 int getQty() {
415     int qty;
416
417     do
418     {
419         printf("\n\t\t\tEnter Quantity > ");
420
421         rewind(stdin);
422         scanf("%d", &qty);
423
424         if (qty <= 0)
425         {
426             printf("\n%25s=====", "");
427             printf("\n%24s %s", "", "Invalid Input");
428             printf("\n%25s=====\\n", "");
429         }
430     } while (qty <= 0);
431     return qty;
432 }
433
```

```
434 }
435
436 void orderList() {
437
438     printf("\n%16s Sales Order No : %d %61s\n", "|", storeOrderNo(3), "|");
439
440     printf("%
441         16s=====
442             =====|\n", "|");
443     printf("%16s %57s %22s\n", "|", "Software Development Programming", "|");
444     printf("%16s %42s %31.2f %5s\n", "|", BOOK_A, priceBook[0], "|");
445     printf("%16s %53s %20.2f %5s\n", "|", BOOK_B, priceBook[1], "|");
446     printf("%16s %80s\n", "|", "|");
447     printf("%
448         16s=====
449             =====|\n", "|");
450     printf("%16s %47s %32s\n", "|", "Web Programming", "|");
451     printf("%
452         16s=====
453             =====|\n", "|");
454     printf("%
455         16s=====
456             =====|\n", "|");
457     printf("%16s %54s %25s\n", "|", "Game Development Programming", "|");
458     printf("%
459         16s=====
460             =====|\n", "|");
461     printf("%
462         16s=====
463             =====|\n", "|");
464
465 void storeSummaryData(int qty[], float totalBookPrice[], float* subtotal,
466                      float* finalTotal, float* discount, int* totalQuantity, int mode) {
467
468     static float summarySubtotal = 0.0, summaryFinalTotal = 0.0,
469                 summaryTotalDiscount = 0.0, summaryTtlPriceBook[9] =
470                 { 0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0,0.0 };
471     static int summartQtyBook[9] = { 0,0,0,0,0,0,0,0,0 },
```

```
summaryTotalQuantity = 0;
469
470     //mode 1 store value
471     //mode 2 get value
472     if (mode == 1)
473     {
474         summarySubtotal += *subtotal;
475         summaryFinalTotal += *finalTotal;
476         summaryTotalDiscount += *discount;
477         for (int i = 0; i < 9; i++)
478         {
479             summartQtyBook[i] += qty[i];
480             summaryTtlPriceBook[i] += totalBookPrice[i];
481             summaryTotalQuantity += qty[i];
482         }
483     }
484     else
485     {
486         *subtotal = summarySubtotal;
487         *finalTotal = summaryFinalTotal;
488         *discount = summaryTotalDiscount;
489         *totalQuantity = summaryTotalQuantity;
490         for (int i = 0; i < 9; i++)
491         {
492             qty[i] = summartQtyBook[i];
493             totalBookPrice[i] = summaryTtlPriceBook[i];
494         }
495     }
496 }
497 }
498
499
500 }
501
502 int storeOrderNo(int mode) {
503     static int summaryOrderNo = 0;
504
505     if (mode == 1) {
506         summaryOrderNo++;    //mode 1 add order number
507     }
508     else if (mode == 2) {
509         summaryOrderNo--;    //mode 2 deduct order number
510     }
511     else
512     {
513         return summaryOrderNo; //mode 3 get order number from static value
514     }
515 }
516
517 //summary report
518 void receipt()
519 {
520     float summarySubtotal, summaryFinalTotal, summaryTotalDiscount,
```

```

        summaryTtlPriceBook[9];
521    int summartQtyBook[9], summaryTotalQuantity;
522
523    storeSummaryData(summartQtyBook, summaryTtlPriceBook, &summarySubtotal,    ↵
524      &summaryFinalTotal, &summaryTotalDiscount, &summaryTotalQuantity,    ↵
525      2); //get data from store function
526    system("cls");
527    heading();
528    printf("\n%16s %45s %34s", "|", "SUMMARY REPORT", "|");
529    printf("\n%
530      16s=====|", "|");
531    printf("\n%16s Order number = %d %63s\n", "|", storeOrderNo(3), "|");
532    printf("%
533      16s=====| \n", "|");
534    printf("%16s %10s %24s %20s %14s %8s\n", "|", "Book", "Quantity of
535      books", "Price per book", "Total", "|");
536    for (int i = 0; i < 9; i++)
537    {
538        printf("%16s %8c %19d %22.2f %19.2f %8s\n", "|", 65 + i,
539              summartQtyBook[i], priceBook[i], summaryTtlPriceBook[i], "|");
540    }
541    printf("%
542      16s=====| \n", "|");
543    printf("%16sTotal Sales %17d %42.2f %8s\n", "|", summaryTotalQuantity,    ↵
544      summarySubtotal, "|");
545    printf("%16sTotal Discount %57.2f %8s\n", "|", summaryTotalDiscount,    ↵
546      "|");
547    printf("%16s %64s %s %8s\n", "|", "", "=====", "|");
548    printf("%16sTotal Net Sales %56.2f %8s\n", "|", summaryFinalTotal, "|");
549    printf("%16s %64s %s %8s\n", "|", "", "=====", "|");
550    printf("%
551      16s=====| \n", "|");
552    printf("%16s %73s %6s\n", "|", "=====|", "|");
553    printf("%16s %14s FinalTotal %21s=%25.2f %6s\n", "|", "", "",    ↵
554      finalTotal, "|");
555    printf("%
556      16s=====|", "|");

```

```

554     printf("\n%16s %50s %29s\n", "|", "Thank you have a nice day", "|");
555     printf("%
556         16s=====
557         =====\n\n", "");
558 }
559
560 char startOrder() {
561     char choice;
562
563     printf("\t\t\tStart order? (Y=yes / N=no) >");
564     rewind(stdin);
565     scanf("%c", &choice);
566
567     switch (toupper(choice))
568     {
569     case 'Y':
570         return 'Y';
571     case 'N':
572         storeOrderNo(2);
573         return 'N';
574     default:
575         printf("%24s=====\\n", "");
576         printf("%24sInvalid Input\\n", "");
577         printf("%24s=====\\n", "");
578     }
579 } while (toupper(choice) != 'Y' && toupper(choice) != 'N');
580
581 }
582
583 void offer(float subtotal, float* finalTotal, float* discount) {
584
585     //discount calculation
586     if (subtotal > 500.00) {
587         *finalTotal = subtotal - subtotal * RATE3;
588         *discount = subtotal * RATE3;
589     }
590     else if (subtotal > 300.00)
591     {
592         *finalTotal = subtotal - subtotal * RATE2;
593         *discount = subtotal * RATE2;
594     }
595     else if (subtotal > 200.00)
596     {
597         *finalTotal = subtotal - subtotal * RATE1;
598         *discount = subtotal * RATE1;
599     }
600     else
601     {
602         *finalTotal = subtotal;
603         *discount = 0.0;
604     }

```

```
605 }
606
607 int login() {
608     char username[30] = "", password[30] = "", pass;
609     int login = 0, fail = 0;
610     //username = "admin"
611     //password = "1234"
612     do {
613         system("cls");
614         logo();
615         printf("\n\n%50s Login Page\n\n", "");
616         printf("%40s %-12s", "", "Username : ");
617         gets(username);      //read username from users
618         printf("\n\n");
619         printf("%40s %-11s", "", "Password (4 digits only) :");
620
621         for (int i = 0; i < 4; i++)
622         {
623             pass = getch();           //read password from users and    ↵
624             display it in *
625             password[i] = pass;
626             pass = '*';
627             printf("%c", pass);
628         }
629
630         printf("\n\n");
631
632         //string compare between user's input and value fixed
633         if (strcmp(username, USERNAME) == 0)
634         {
635             if (strcmp(password, PASSWORD) == 0)
636             {
637                 printf("%40s %-14s\n", "", "Login success");
638                 login = 0;
639             }
640             else {
641                 printf("%40s %-15s\n", "", "Wrong password");
642                 login = 1;
643                 fail++;
644             }
645         }
646         else
647         {
648             printf("%40s %-16s\n", "", "Wrong user name");
649             login = 1;
650             fail++;
651         }
652
653
654         if (fail > 0)
655         {
656             printf("\n%50s %d chance left", "", 3 - fail);
```

```

657         }
658     delay(0.8);
659
660
661 } while (login != 0 && fail < 3);
662
663 return fail;
664 }
665 }
666
667 char comfirmOrder() {
668     char choice;
669     do
670     {
671         printf("\n\t\t\tComfirm order? (Y=confirm N=Cancel) >");
672         rewind(stdin);
673         scanf("%c", &choice);
674
675         if (toupper(choice) != 'Y' && toupper(choice) != 'N')
676         {
677
678             printf("\n%25s====", "");
679             printf("\n%24s %s", "", "Invalid Input");
680             printf("\n%25s====\n", "");
681         }
682     } while (toupper(choice) != 'Y' && toupper(choice) != 'N');
683
684     return choice;
685 }
686
687 void errorMessage() {
688     system("cls");
689     printf("\n\n\n\n\n\n%40s====", "");
690     printf("\n\n%40sInvalid Input Press any key to go back.....\n\n", "");
691     printf("%40s=====\n", "");
692     system("pause");
693 }
694
695

```