VTC Academy
Think Ahead, Beyond Boundaries

PROJECT REPORT

Book Store

Semester: Programming Fundamentals

Class: PF1126

Group: TBN Group

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I. Project introduction

This is a simple simulation of a book selling system with some basic features including: create orders, user login, view book list, search book, view order list, view order details.

1. Proposed System
   - Creating a program to Manager manage store
   - Creating a program to User create order
2. The scope of the project to be applied
   - Make for actor are Manager and User
3. System Name
   - Store management system
4. Deployment Environment
   - Windows, Mac
5. Development Tools
   - Visual Studio Code
   - Draw.io Diagram
   - MySQL Workbench 8.0 CE
6. Customer Requirements (System features)
   - Manager login
   - Manage users
   - Manage books
   - Show order list
   - User login
   - Search books
   - Create order

II.   Analyze System Requirements

The system is designed to facilitate the management of book inventory, sales, and customer information for a small bookstore. The system provides functionalities for the manager such as adding and updating books, managing customer information, and recording sales transactions. As for the user, the system allows them to view the books in store and create order, updating account info and view order history.

1. Use Case

1.1 Use Case
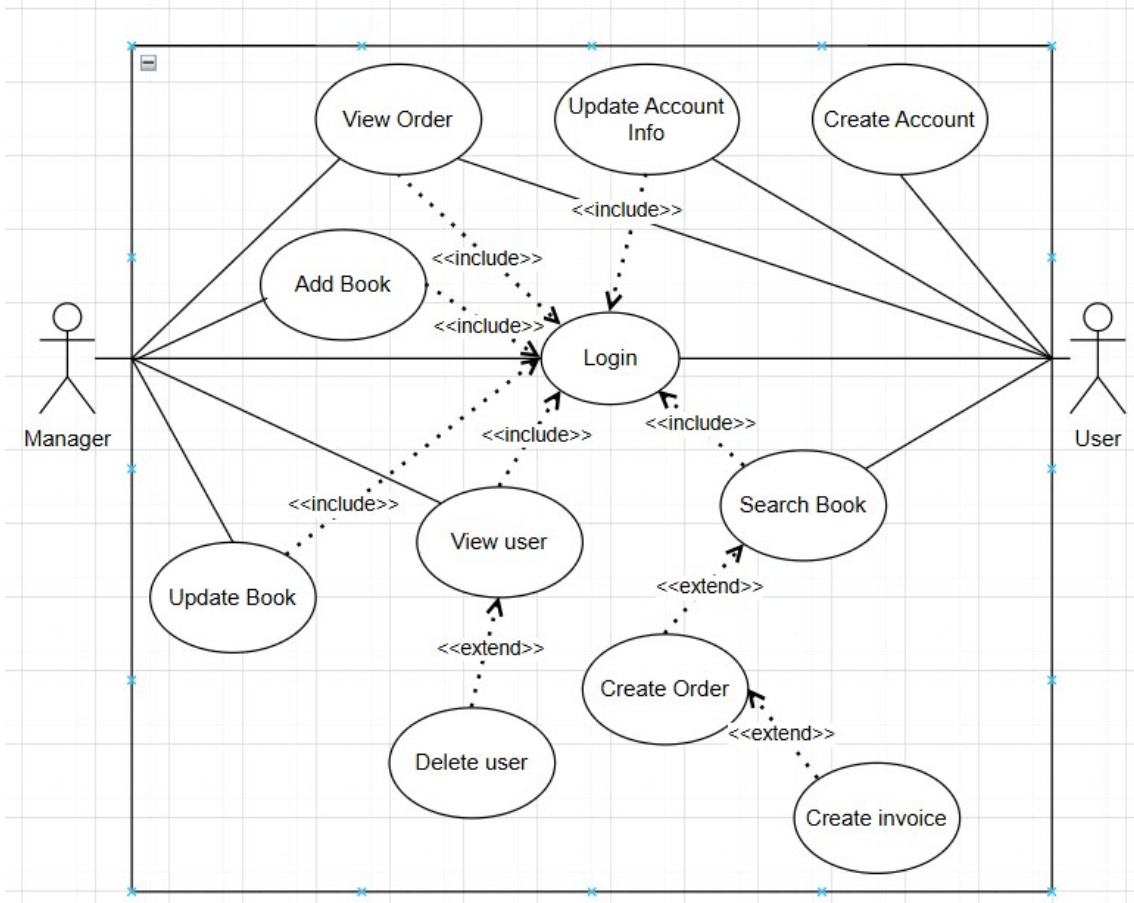
1.2 Login Description

Name	Login
ID	UC_001
Description	Used to access program and define the feature accessible depending on the type of account
Actor	Manager and User
Organizational Benefits	To define the feature and data that manager and user can access in the program
Triggers	Select login option from the main menu
Preconditions	Must enter correct username and password, the database must be connected, account must be made available
Postconditions	Success: Manager or User logged into the system, must display menu according to account type Fail: Manager or User haven't logged into the system
Main Course	1. Input username and password 2. Verify login 3. Show menu
Alternate Courses	AC1: Enter wrong username or password 1. Display message error 2. Ask for retry 3. Re-enter request AC2: username and password exist 1. Show menu
Exceptions	EX1: Input username/password 1. Display "Invalid" and ask for retry 2. Request to re-enter EX1: Disconnect to database 1. Display error message 2. Return to main menu

1.3 Create Account Description

Name	Create account
ID	UC_002
Description	Used to create an user account for access the system
Actor	User
Organizational Benefits	To create an user that can access the program
Triggers	Select sign in option from the main menu
Preconditions	Must enter all the info that required by the system
Postconditions	Success: User added into the database, return to main menu Fail: User haven't added into the database
Main Course	1. Input username, password, full name, phone number, address 2. Verify info 3. Return to main menu
Alternate Courses	AC1: Username exist 1. Display message 2. Return to main menu
Exceptions	EX1: Input info 1. Display "Invalid" and ask for re-enter until correct 2. Request to re-enter EX1: Disconnect to database 1. Display error message 2. Return to main menu

1.4 Update Account Info Description

Name	Update account info
ID	UC_003
Description	Used to change user account info
Actor	User
Organizational Benefits	To change info that user want
Triggers	Select account info option from the user menu, then select update account info
Preconditions	Must be an available user
Postconditions	Success: Change the info selected by the user Fail: Info remains unchanged
Main Course	1. Select the info need to change 2. Enter new info 3. Verify info 4. Return to user menu
Alternate Courses	AC1: Select exit 1. Return to user menu
Exceptions	EX1: Input info 1. Display "Invalid" and ask for re-enter until correct 2. Request to re-enter EX1: Disconnect to database 1. Display error message 2. Return to main menu

1.5 Search Book Description

Name	Search Book
ID	UC_004
Description	Used to search for books
Actor	Manager and User
Organizational Benefits	Allow for faster access to books and other feature
Triggers	Logged in to the system
Preconditions	Must be an available account
Postconditions	Success: Show list of valid books Fail: No valid book
Main Course	1. Input book name/category wants to find 2. Show list found
Alternate Courses	AC1: Data doesn't exist in the database 1. Display "Book not found"
Exceptions	EX1: Disconnect to database 1. Display error message 2. Return to menu

1.6 Create Order Description

Name	Create order
ID	UC_005
Description	Used to create order for book
Actor	User
Organizational Benefits	Allow for create transaction of book
Triggers	Logged in to the system with an user account
Preconditions	Must have at least one book created
Postconditions	Success: Create order complete Fail: No order created
Main Course	1. Search book 2. Show list found 3. Select a book from list 4. Enter quantity to buy 5. Confirm order
Alternate Courses	AC1: Quantity entered larger than available stock or invalid number 1. Display error message 2. Request for re-enter AC2: Quantity entered is 0 1.No order created 2. Return to menu AC3: Exit from selection list 1. Press "ESC" key
Exceptions	EX1: Disconnect to database 1. Display error message 2. Return to menu

1.7 View Order Description

Name	View Order
ID	UC_006
Description	Used to display order list
Actor	Manager and User
Organizational Benefits	Allow for access to recorded order data
Triggers	Logged in to the system
Preconditions	Must be an available account
Postconditions	Success: Show list of orders Fail: No valid order
Main Course	1. Trigger the function 2. Show list found
Alternate Courses	AC1: Data doesn't exist in the database 1. Display nothing 2. Press any key to go back
Exceptions	EX1: Disconnect to database 1. Display error message 2. Return to menu

1.8 Delete User Description

| Name	Delete user
ID	UC_007
Description	Used to deactivate an user account
Actor	Manager
Organizational Benefits	Allow for control over user access to the data and feature
Triggers	Logged into the system with a manager account
Preconditions	Must have at least one user created
Postconditions	Success: Deactivate the selected user account Fail: No change in user status
Main Course	1. Input name of user 2. Show list found 3. Select an user from the list 4. Confirm selection
Alternate Courses	AC1: Data doesn't exist in the database 1. Display nothing 2. Press any key to go back AC2: User already deactivated 1. No change
Exceptions	EX1: Disconnect to database 1. Display error message 2. Return to menu

1.9 Update Book Description

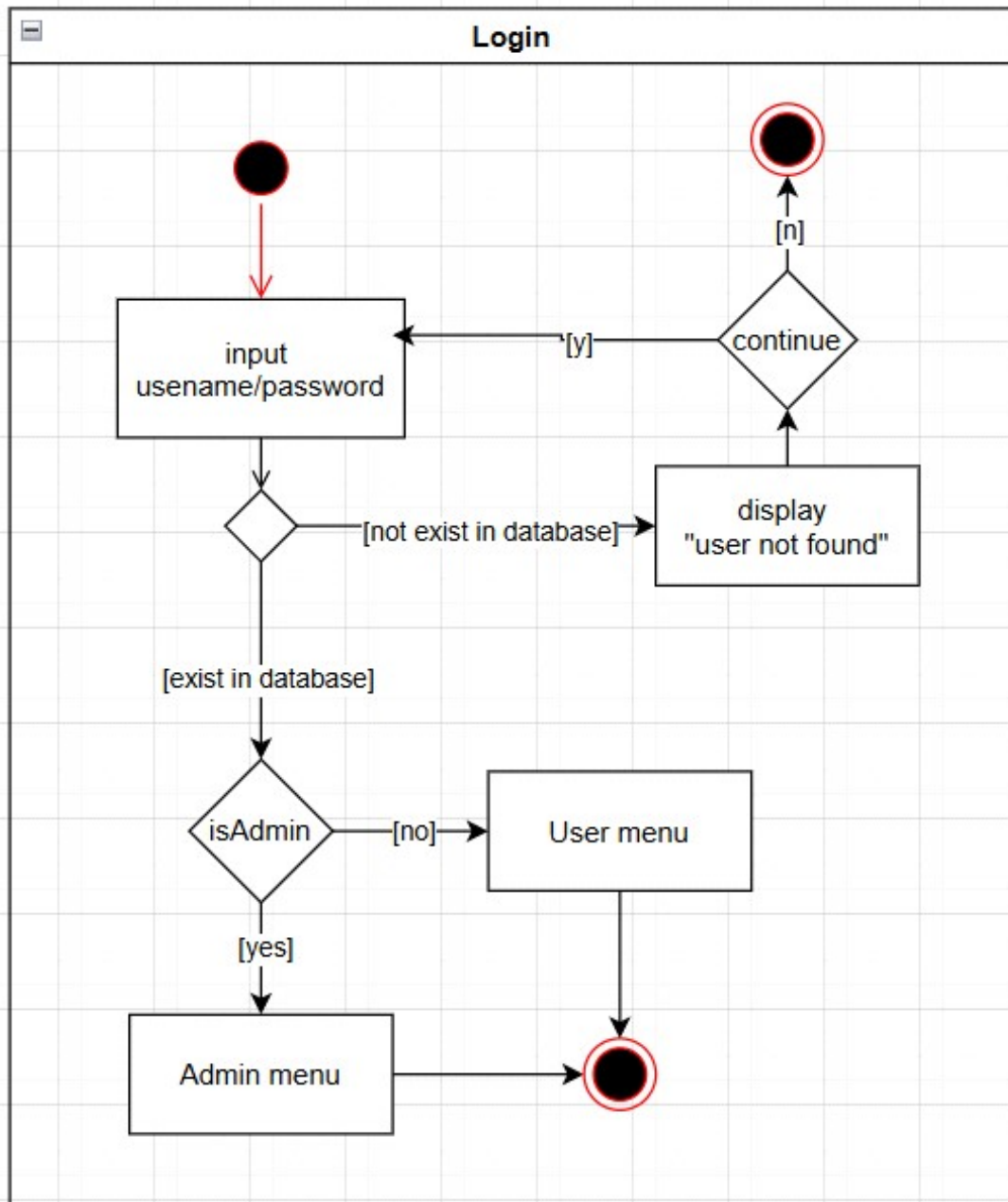| Name	Update book
ID	UC_008
Description	Used to change book info
Actor	Manager
Organizational Benefits	To update books info
Triggers	Logged into the system with a manager account
Preconditions	Must have at least one book created
Postconditions	Success: Change the selected info of a book Fail: No change in book info
Main Course	1. Input name of book 2. Show list found 3. Select a book from the list 4. Select info to change 5. Input new info 6. Confirm change
Alternate Courses	AC1: Data doesn't exist in the database 1. Display nothing 2. Press any key to go back AC2: Exit from list selection 1. Press "ESC" key to go back
Exceptions	EX1: Disconnect to database 1. Display error message 2. Return to menu

1.10 Add Book Description

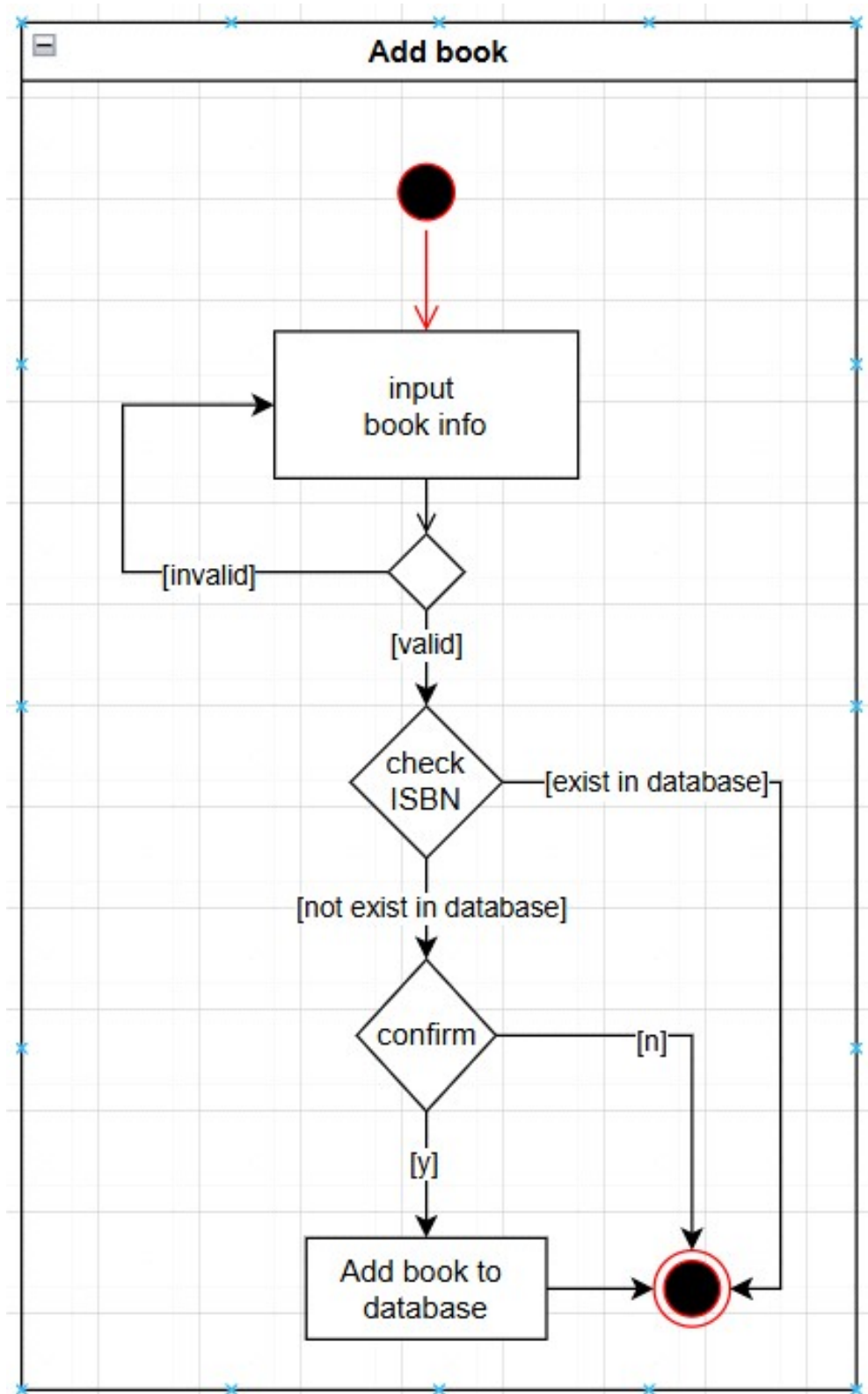| Name	Add book
ID	UC_009
Description	Used to add new book into database
Actor	Manager
Organizational Benefits	Allow for new books to be added
Triggers	Logged into the system with a manager account
Preconditions	Must be a manager account
Postconditions	Success: Added a new book into database Fail: No book added
Main Course	1. Input info of book required by the system 2. Confirm
Alternate Courses	AC1: Data exist in the database 1. Display "book exist" 2. Press any key to go back
Exceptions	EX1: Disconnect to database 1. Display error message 2. Return to menu

2. Activity Diagram:
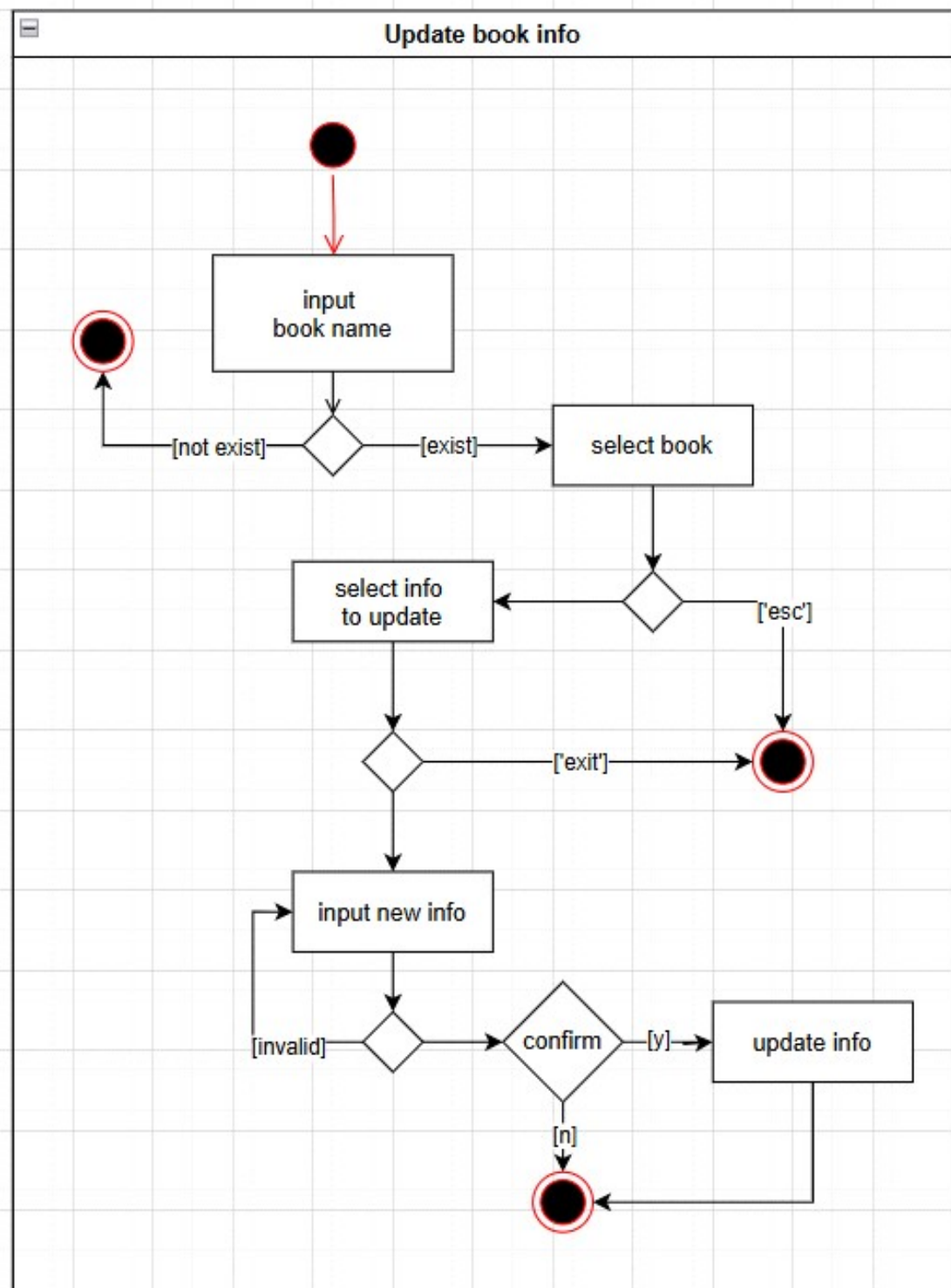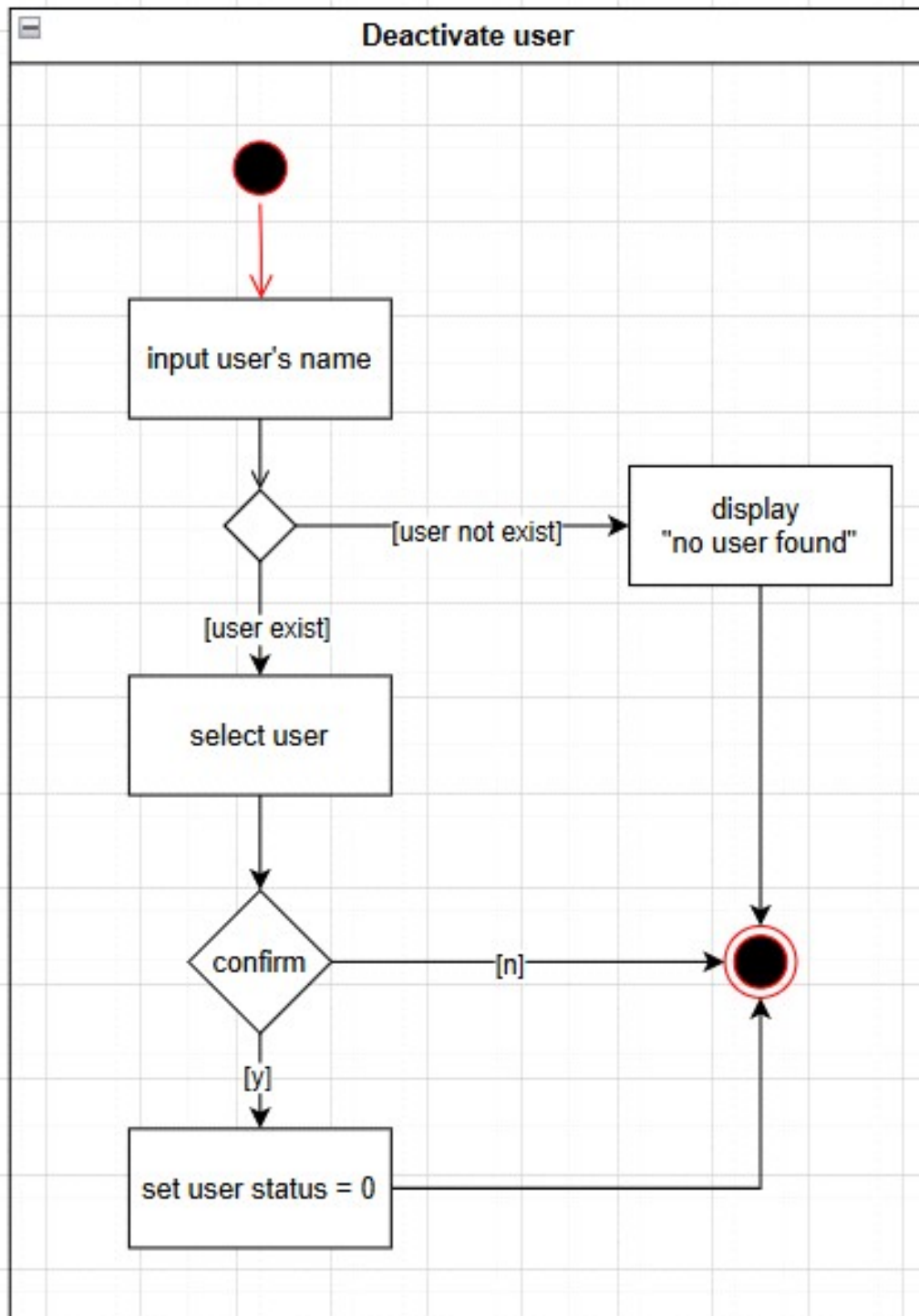
2.1 Create account
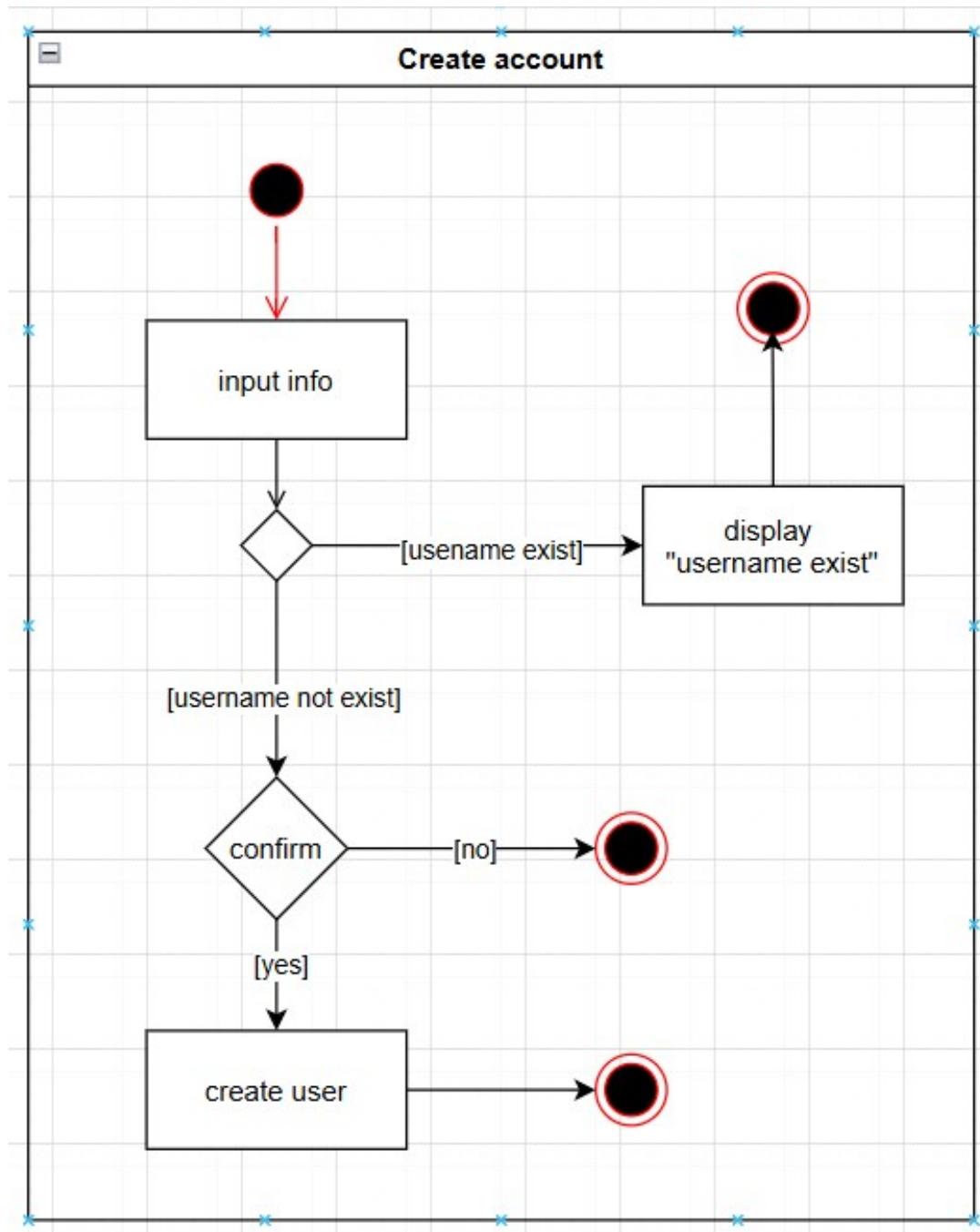
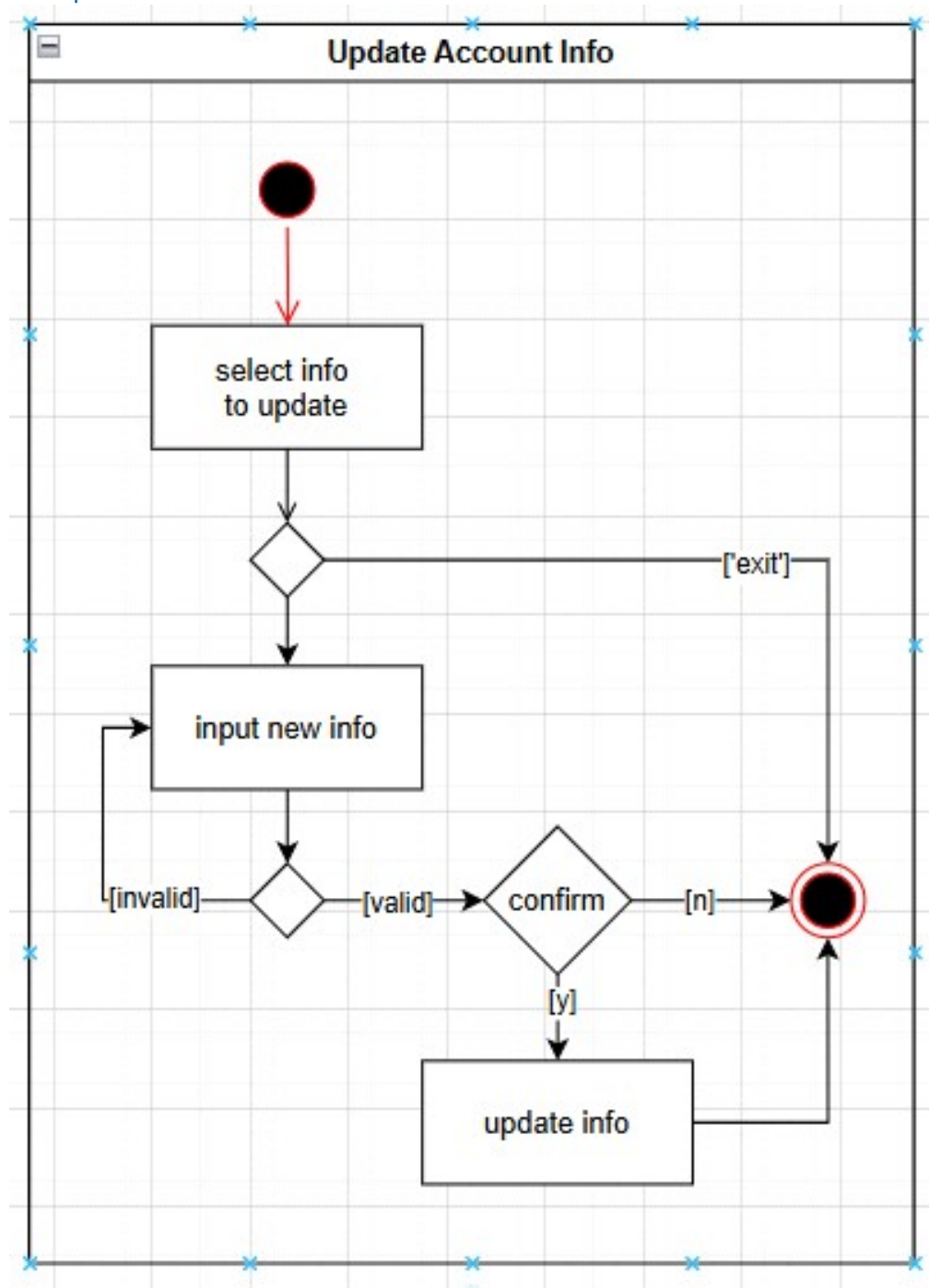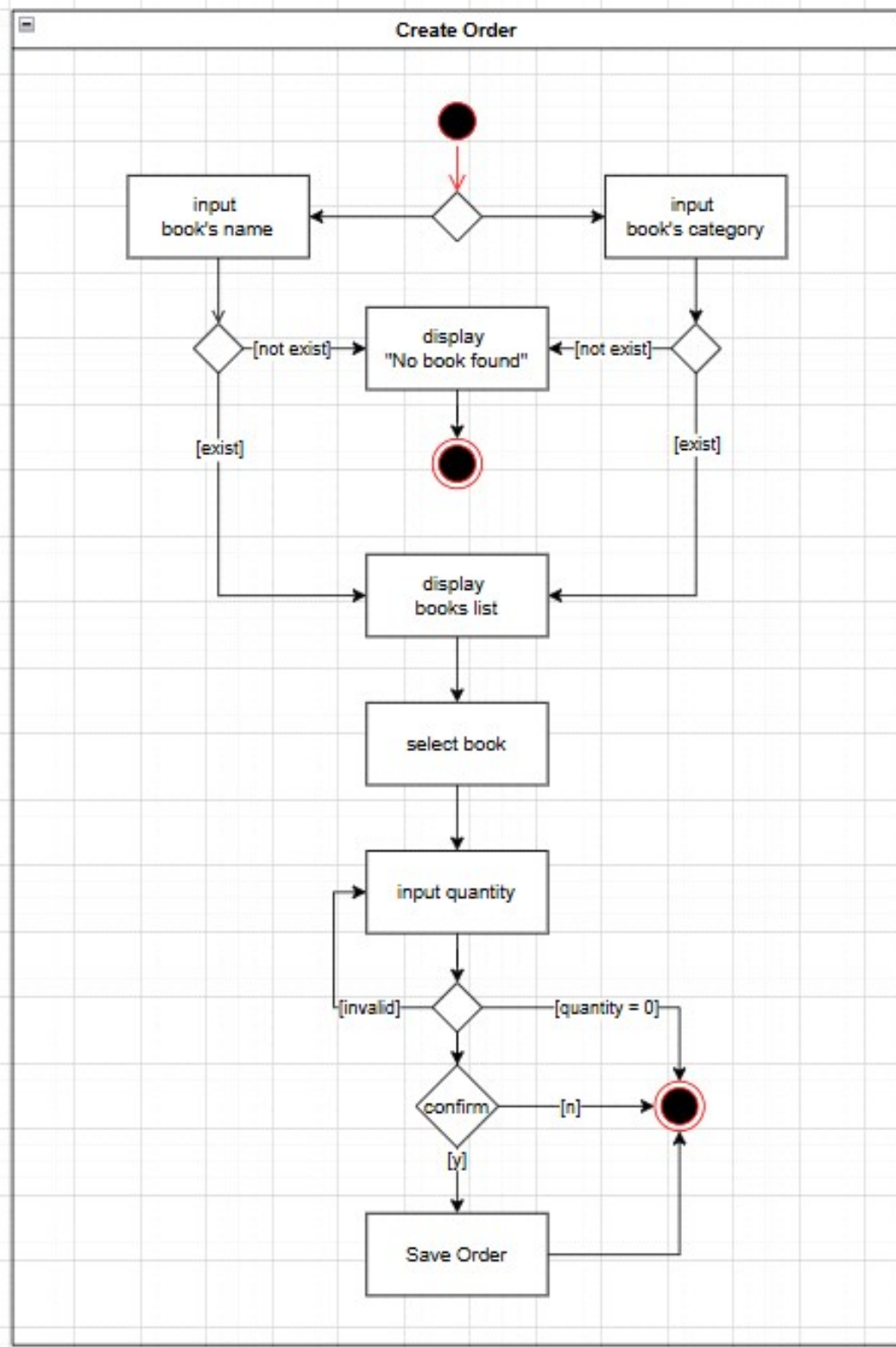## 2.2 Login

2.3 Add Book

2.4 Update Book Info
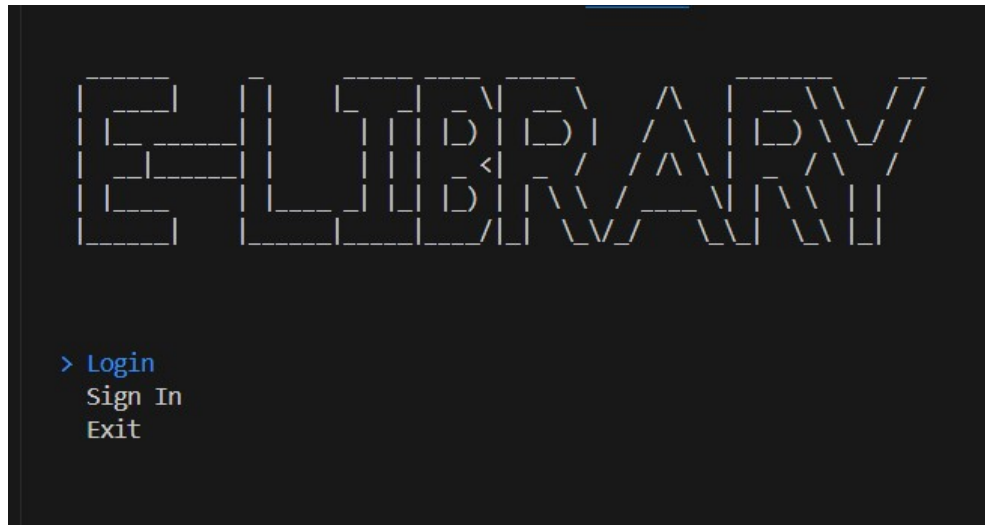
2.5 Deactivate User

2.6 Update Account Info

2.7 Create Order

Create Order

III.   Design Details

1. UI Design

1.1 Main Menu

1.2 Sign In
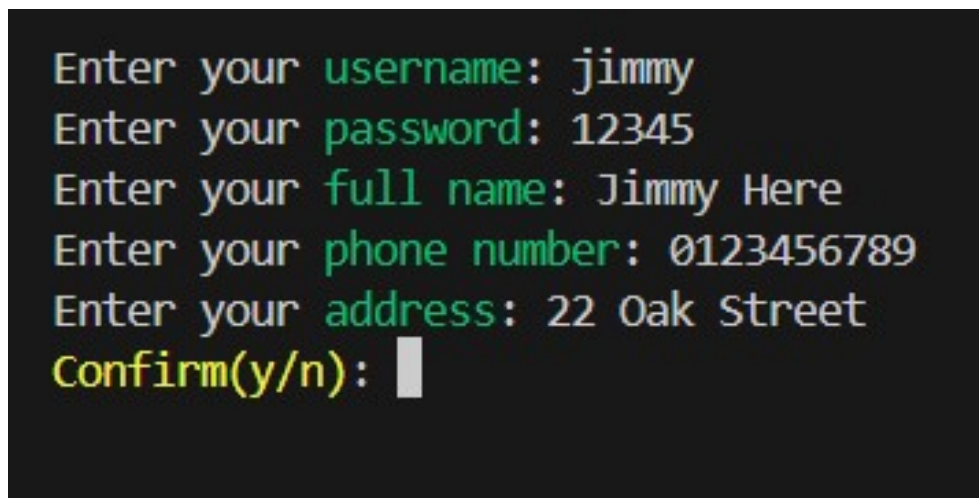
1.3 Log In
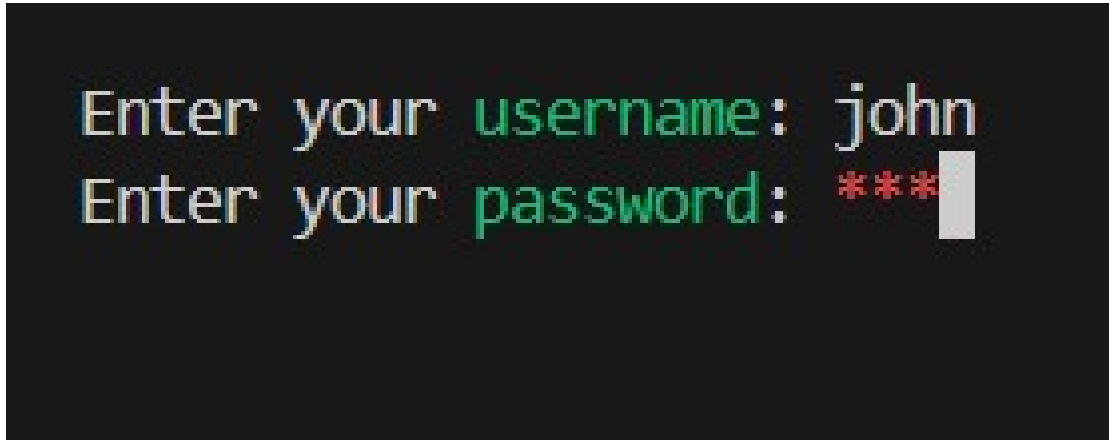
1.4 Manager Menu
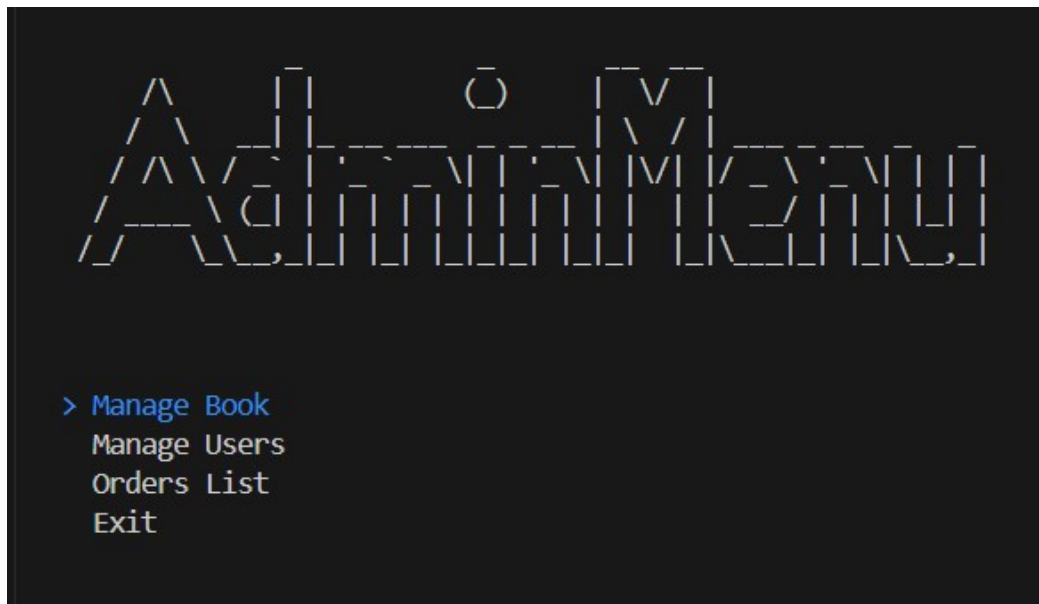
1.5 Manage Book Menu
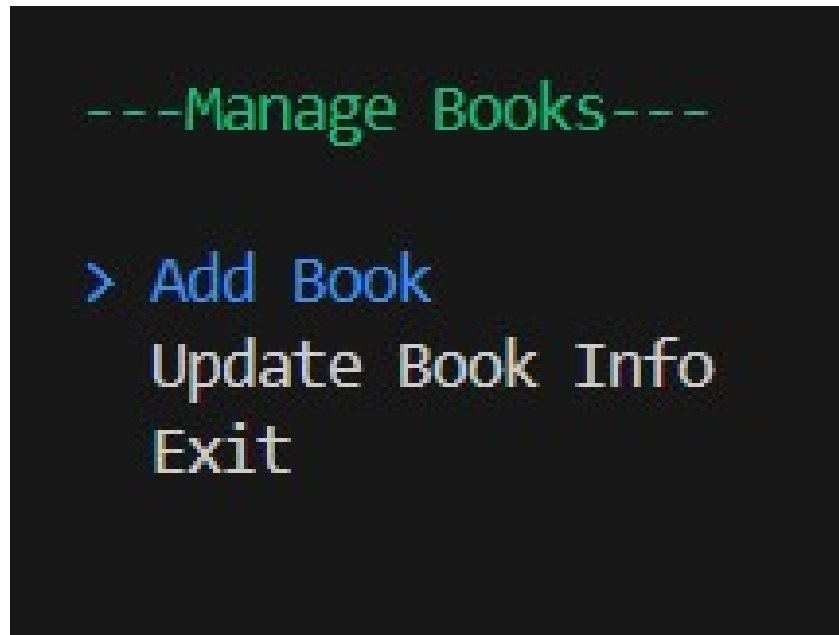
1.6 Add Book
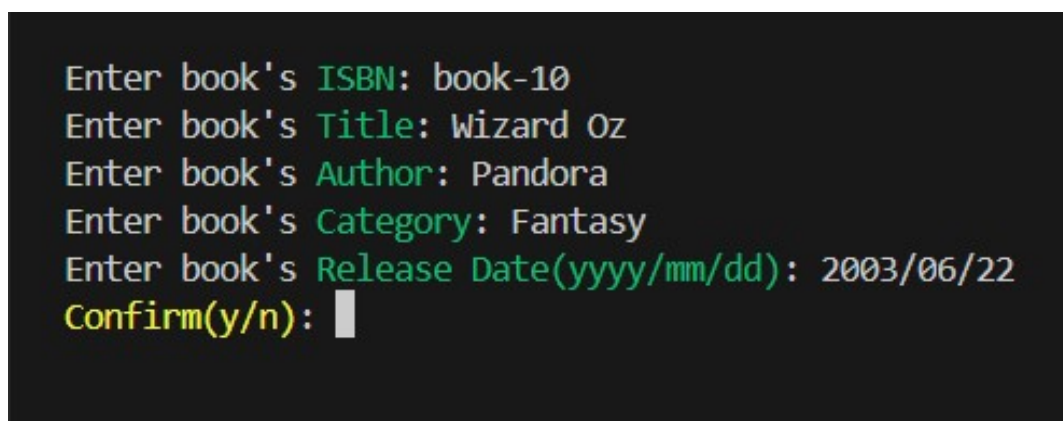
1.7 Update Book Info

ISBN	Name	Author	Category	Release Date	Price	Quantity	Description
book-01	Harry Potter and the Philosopher Stone	J.K. Rowling	Fiction	6/26/1997	19.99	50	A young boy discovers he is a wizard on his 11th birthday.
book-02	A Game of Thrones	George R.R. Martin	Science Fiction	8/6/1996	29.99	35	The first book in the Song of Ice and Fire series.
book-03	Foundation	Isaac Asimov	Science Fiction	5/1/1951	14.99	40	A science fiction novel about the fall and rise of a Galactic Empire.
book-04	Steve Jobs	Walter Isaacson	Biography	10/24/2011	24.99	20	A biography of Steve Jobs, the co-founder of Apple Inc.

```
---Book Info---
ISBN: book-02
Category: Science Fiction
Name: A Game of Thrones
Author: George R.R. Martin
Release Date: 8/6/1996
Price: 29.99
Quantity: 35
-----------------------------

-Select What to Change:

> Category
  Name
  Author
  Release Date
  Price
  Quantity
  Exit
```

1.8 Manager User Menu

1.9 Activate/Deactivate User

1.10 User Menu
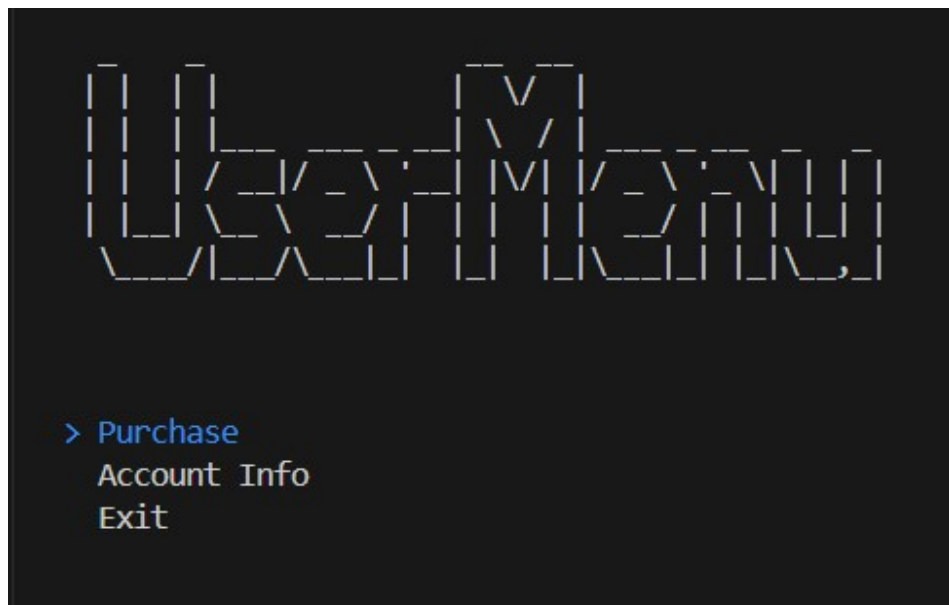
1.11 Purchase Menu
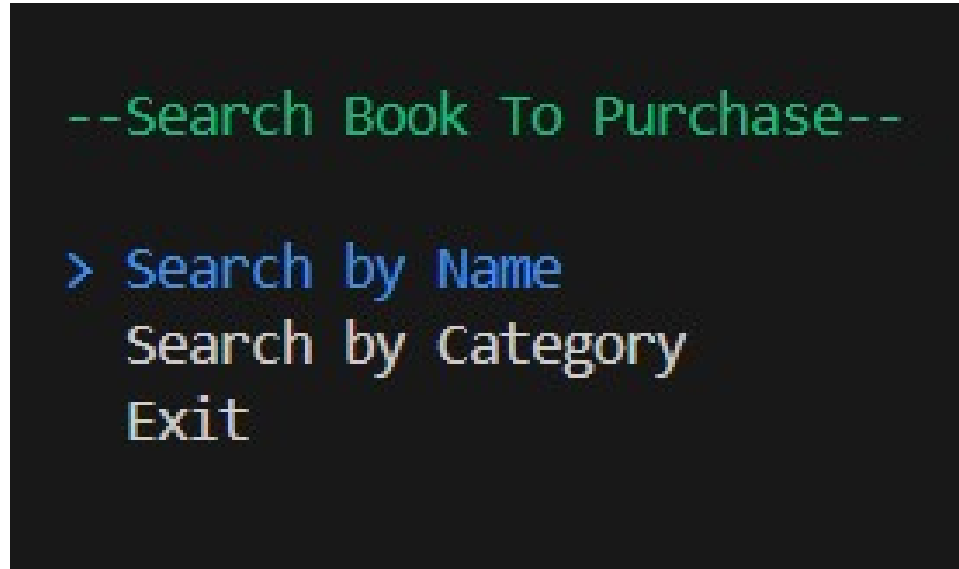
1.12 Create Order

ISBN	Name	Author	Category	Release Date	Price	Quantity	Description
book-01	Harry Potter and the Philosopher Stone	J.K. Rowling	Fiction	6/26/1997	19.99	50	A young boy discovers he is a wizard on his 11th birthday.
book-02	A Game of Thrones	George R.R. Martin	Science Fiction	8/6/1996	29.99	35	The first book in the Song of Ice and Fire series.
book-03	Foundation	Isaac Asimov	Science Fiction	5/1/1951	14.99	40	A science fiction novel about the fall and rise of a Galactic Empire.
book-04	Steve Jobs	Walter Isaacson	Biography	10/24/2011	24.99	20	A biography of Steve Jobs, the co-founder of Apple Inc.

You selected: book-01 - Harry Potter and the Philosopher Stone
Enter quantity to buy: 20

Total Price: 399.80
Confirm your order(y/n):

1.13 User Info Menu

1.14 Update Account Info

2. Code Design (Class Diagram)

DBHelper

- connection : MySqlConnection

+ GetConnection() : MySqlConnection
+ OpenConnection() : MySqlConnection
+ ExecQuery() : MySqlDataReader
+ CloseConnection()

MySQL

Book

+ Isbn : string
+ Category : string
+ Name : string
+ Author : string
+ ReleaseDate : DateOnly
+ Price : decimal
+ Quantity : int
+ Description : string

+ bookInfo(c: Book)
+checkAuthor(c: Book): int
+checkCategory(c: Book): int
+bookExist(isbn: string): bool
+addBook(c: Book, date: string)
+updateBook(c: Book)
+infoChange(c: Book)
+bookSelector(b: List<Book>): Book
+SearchByName(): Book
+SearchByCategory(): Book

Order

+BookID: string
+UserID: int
+Stock: int
+UnitPrice: decimal
+TotalPrice: decimal

+Order(u: User, b: Book)
+Transaction()

User

+ ID : int
+ Username : string
+ Password : string
+ Name : string
+ Phone : string
+ Address : string
+ Role : int
+Status: int

+ userSave()
+GetUser(username: string, pass: string)
+displayOrders()
+GetOrders(u: User)
+userInfo(u: User)
+updateInfo(u: User, string, string)
+userSelector(u: List<User>): User
+SearchUserByName(): User
+updateUserStatus(u: User, int)
+IsAdmin(): bool
+SignIn()
+Login(username: string, pass: string): int

3. Sequence Diagram

3.1 Login
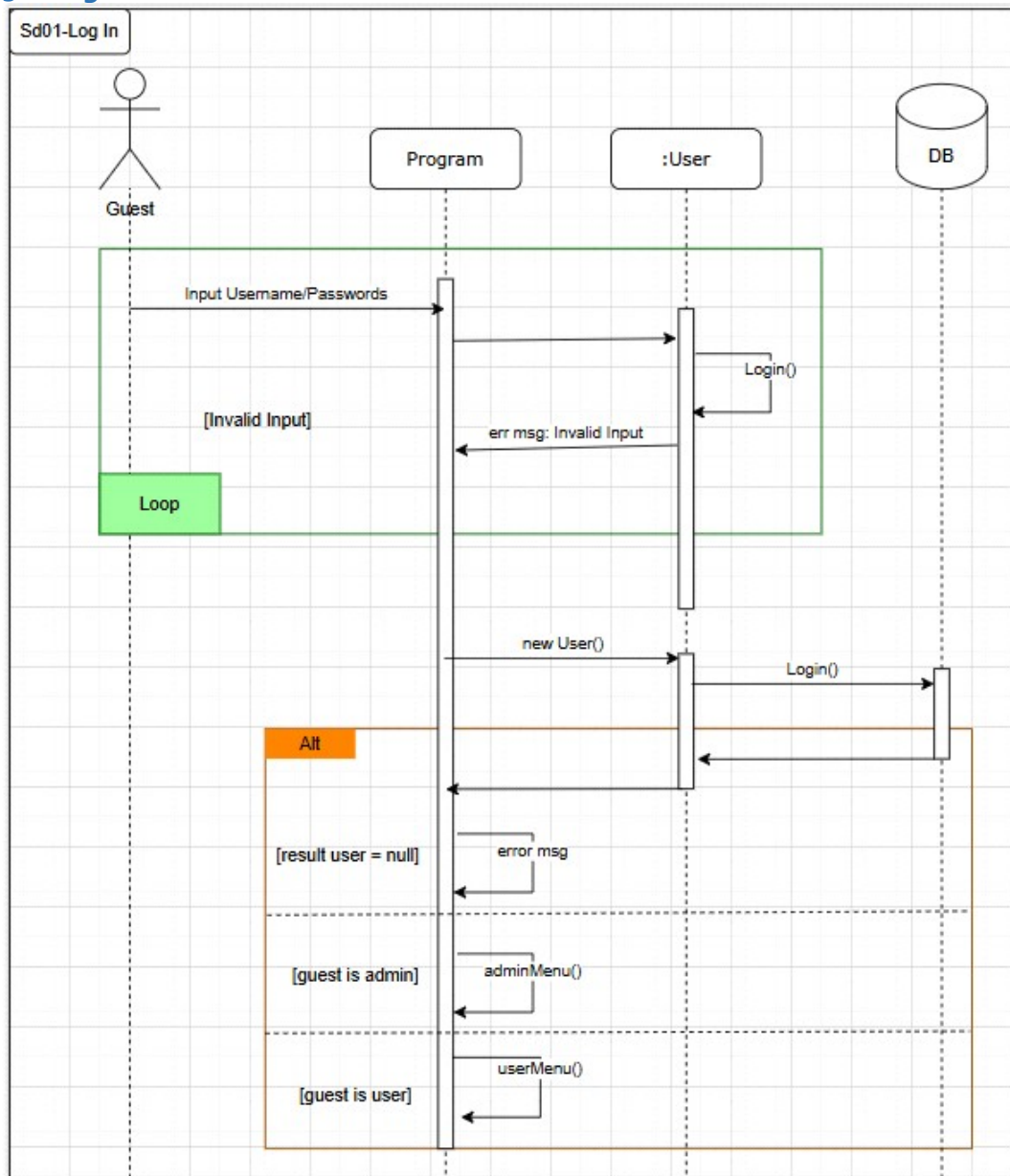
3.2 Sign In
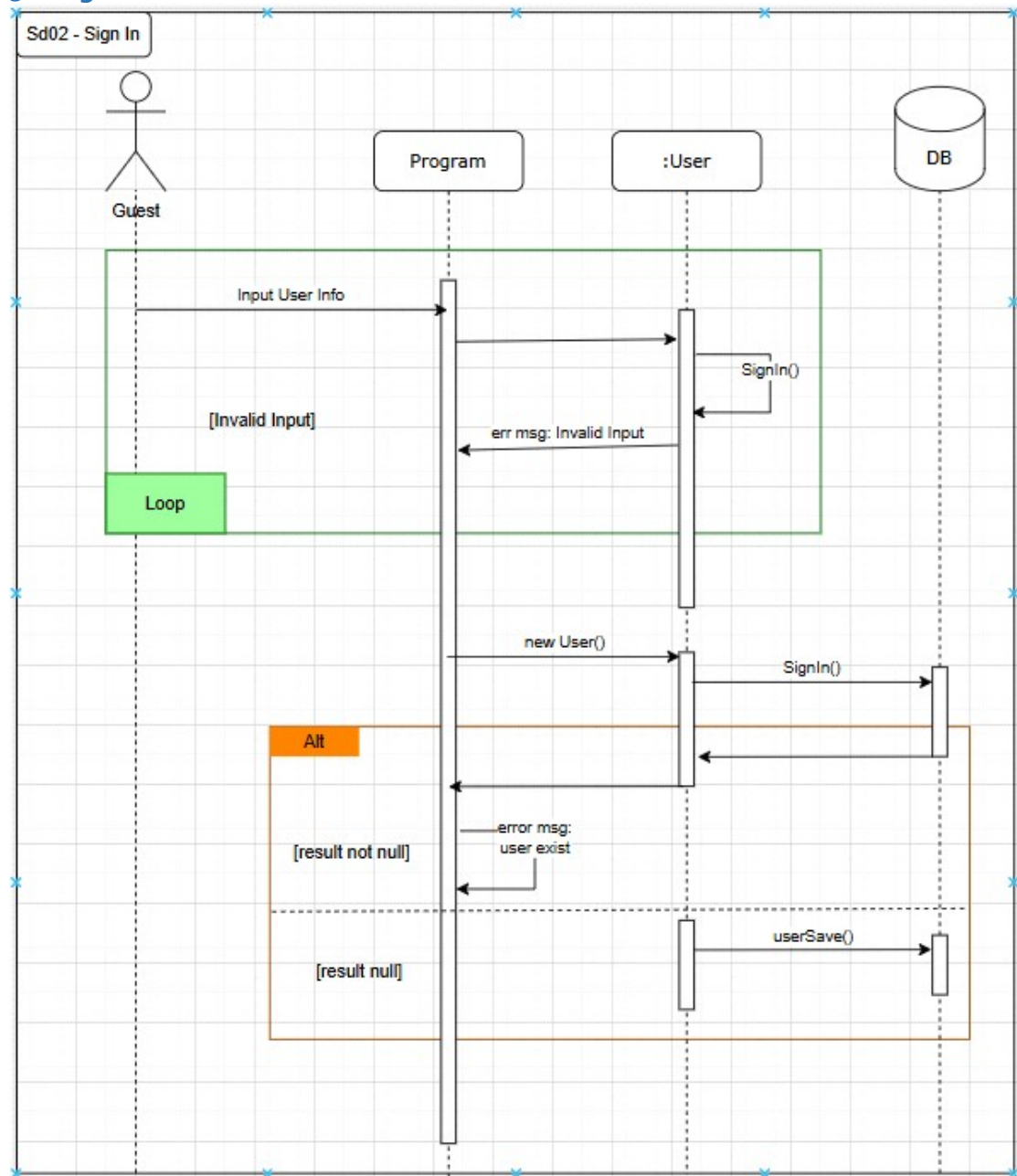
3.3 Add Book
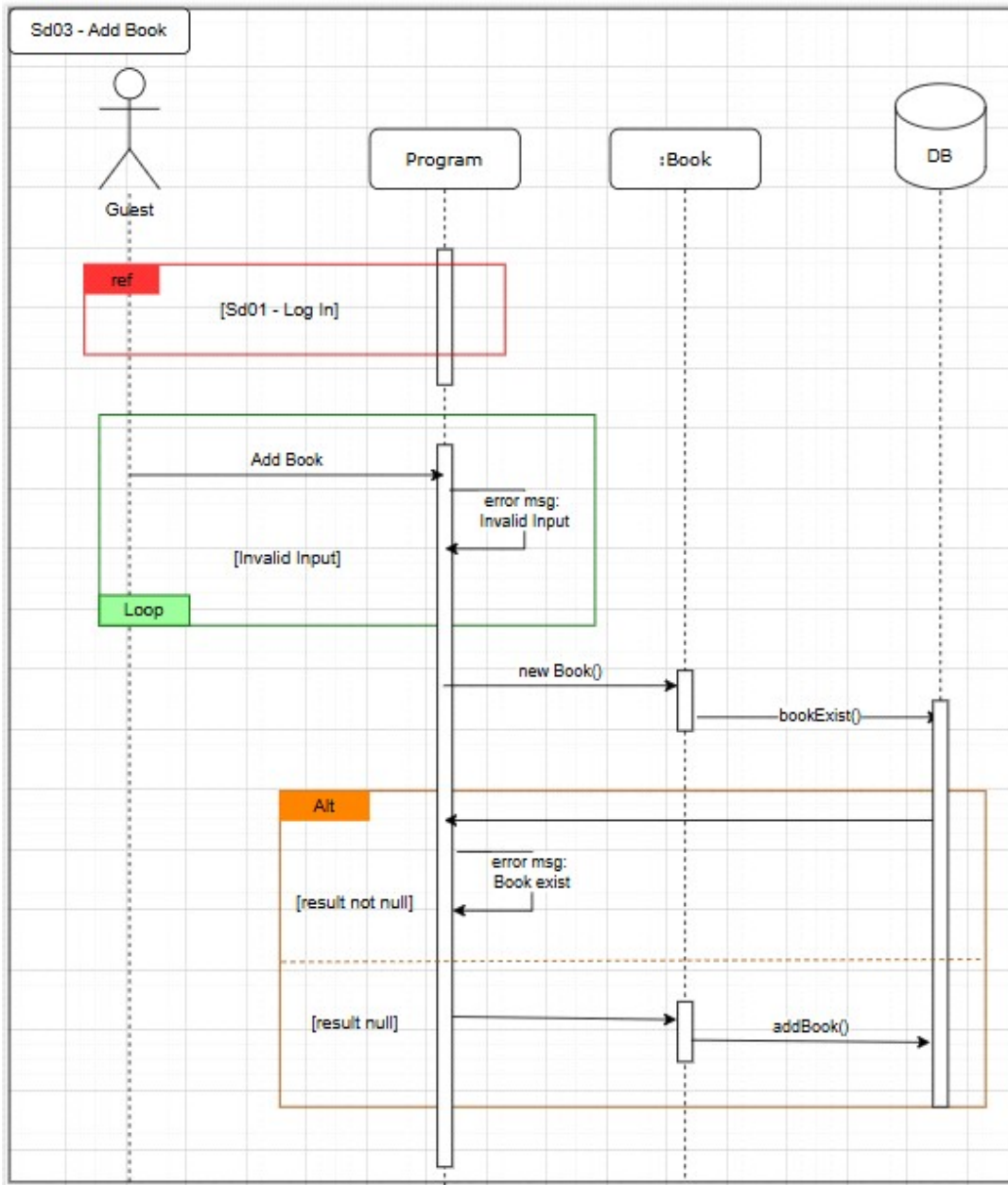
3.4 Deactivate User
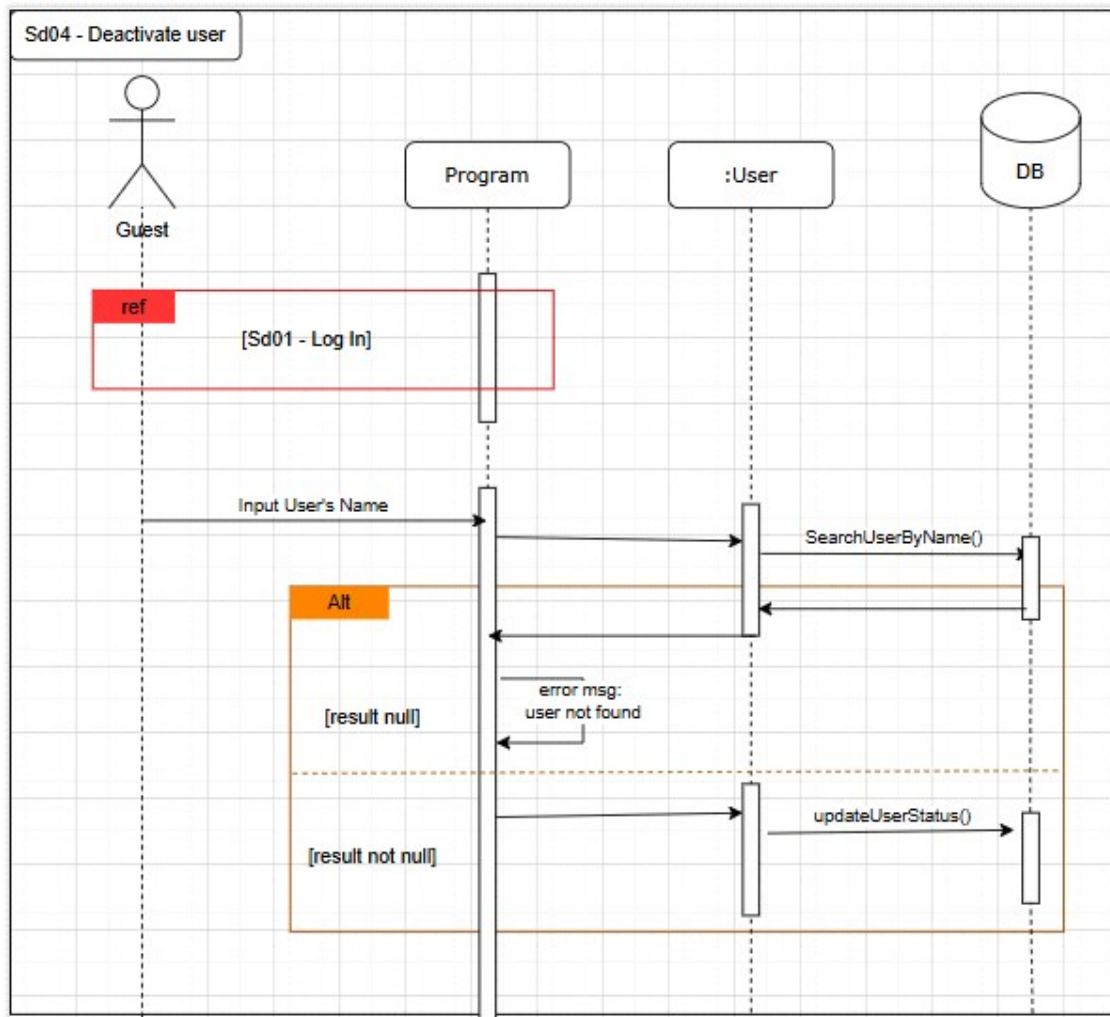
3.5 Update Account Info
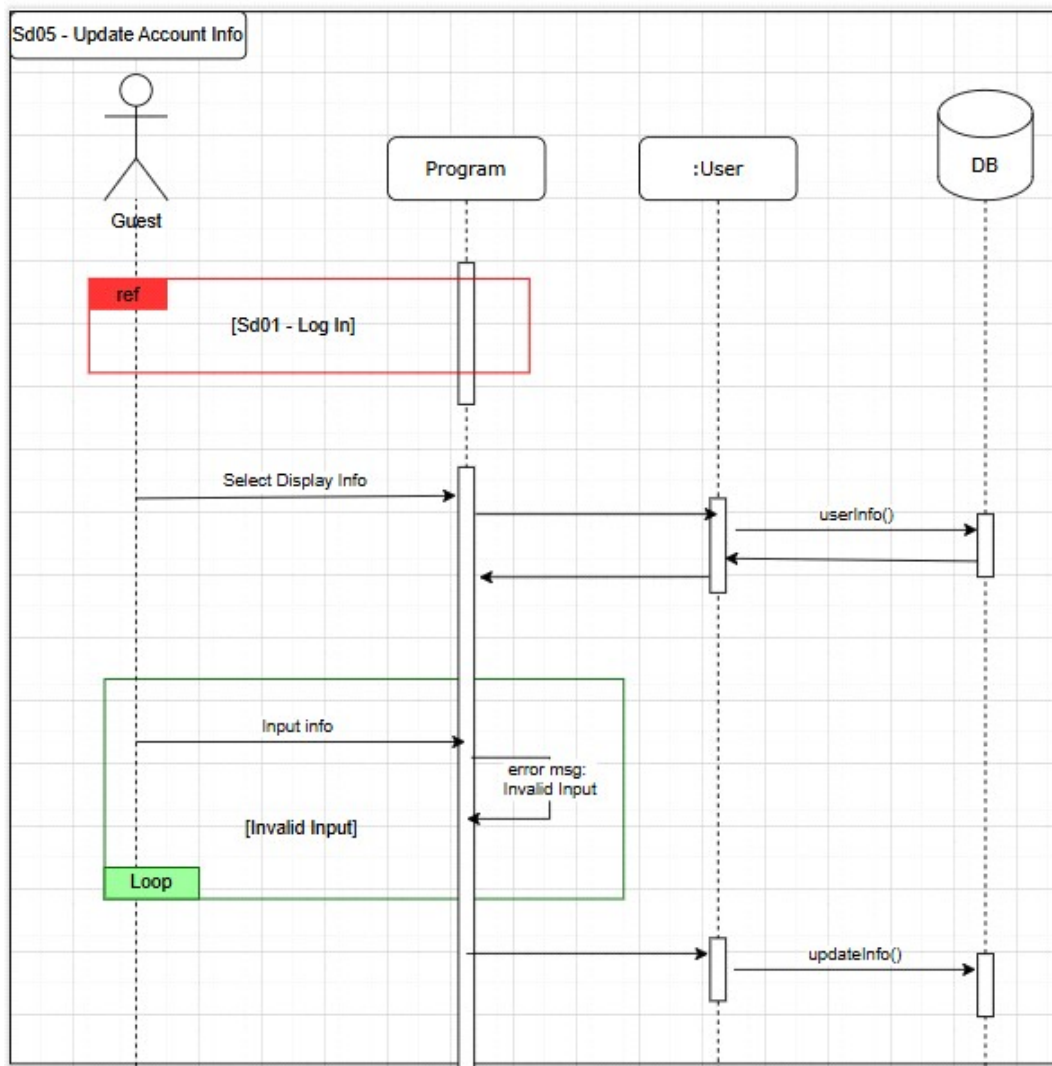
3.6 Purchase Book

Sd06 - Purchase Book
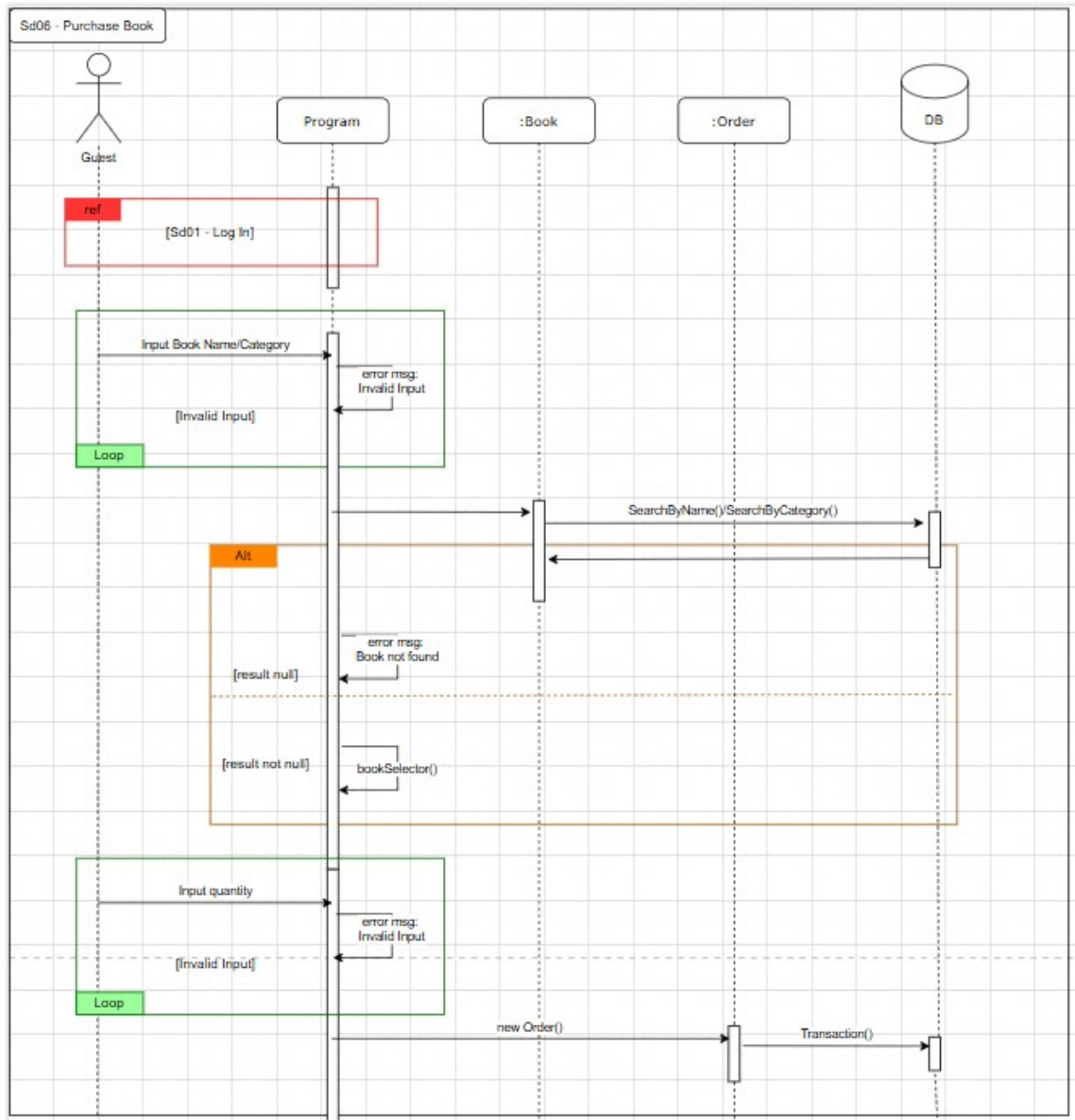
4. Database Design

a. Entity Relationship Diagram
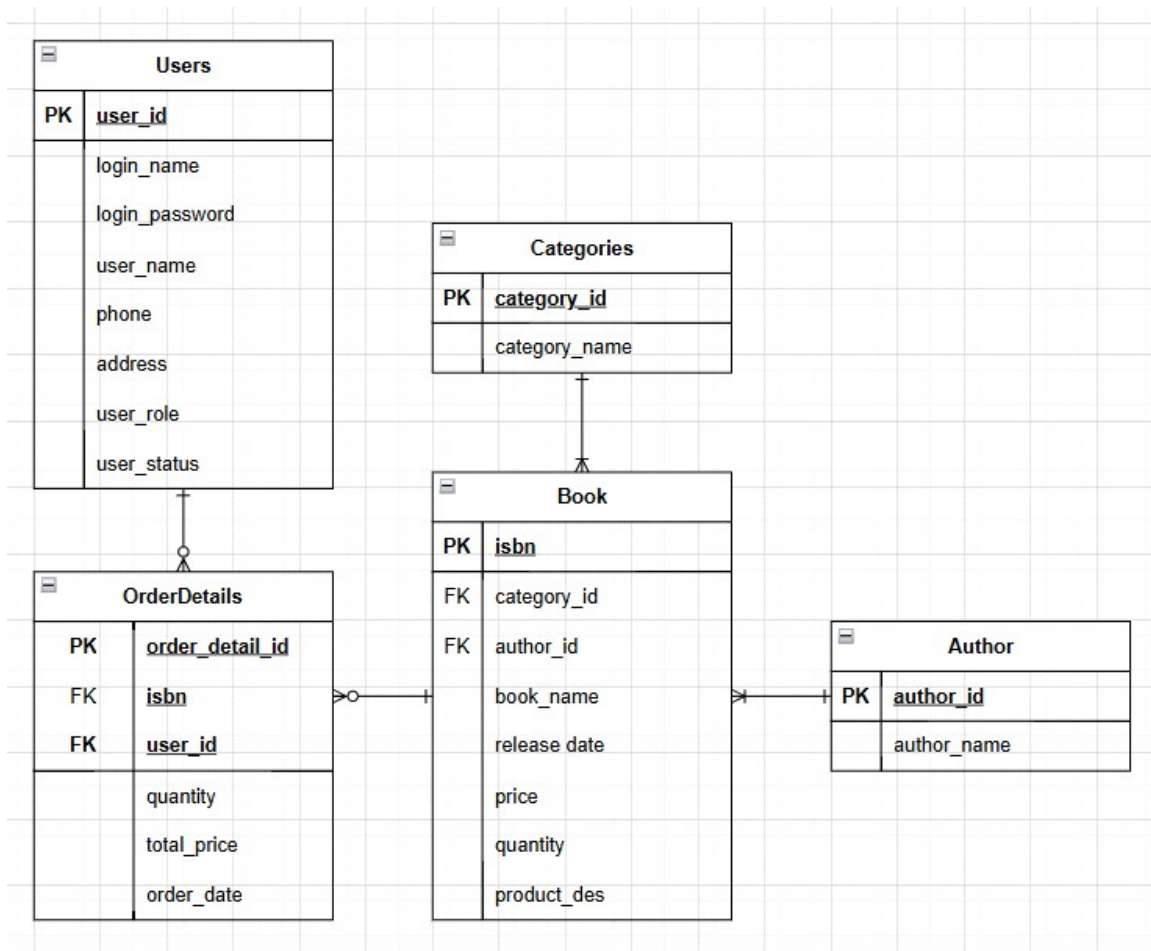
b. Database Design Details

Users			
Column Name	Data Type	Constraints	Description
User_id	int	Primary Key, Autoincrement	
Login_name	varchar(50)	NOT NULL	Username for login
Login_password	varchar(50)	NOT NULL	Password for login
User_name	varchar(100)	NOT NULL	Fullname
Phone	varchar(20)	NOT NULL	Phone Number
Address	varchar(255)	NOT NULL	
User_role	int	DEFAULT 0	0: User 1: Admin
User_status	int	DEFAULT 1	0: Not active 1: Active

Categories			
Column Name	Data Type	Constraints	Description
Category_id	int	Primary Key, Autoincrement	
Category_name	varchar(100)	NOT NULL	

Author			
Column Name	Data Type	Constraints	Description
Author_id	int	Primary Key, Autoincrement	
Author_name	varchar(100)	NOT NULL	

Book			
Column Name	Data Type	Constraints	Description
Isbn	varchar(20)	Primary Key	Book ID
Category_id	int	Foreign key	
Author_id	int	Foreign Key	
Book_name	varchar(255)	NOT NULL	
Release_date	date	NOT NULL	
Price	decimal(10,2)	NOT NULL	Unit price
Quantity	int	NOT NULL	Quantity in stock
Product_des	text	DEFAULT 'No desc'	Description of book

OrderDetails			
Column Name	Data Type	Constraints	Description
Order_detail_id	int	Primary Key, Autoincrement	
User_id	int	Foreign key	
Isbn	varchar(20)	Foreign Key	
Order_date	datetime	Default Current Date	Order Creation date
Total_price	decimal(10,2)	NOT NULL	Total price of order
Quantity	int	NOT NULL	Quantity of order

IV. Test

1. Sign In Test

1.1 Sign In Test 1

Test Case Number	001
Test Case Name	SignInTest01()
Test Case Description	This test case check for user info input
Preconditions	Username not exist in database
Test Case Input	"jim", "123", "Jimmy", "0123456789", "20 Oak Street" "jake", "123", "Jake", "0123456789", "21 Oak Street"
Test Case Expected Output	New User
Test Case Steps	New User Call SignIn method Compare output with expected output
Default Value Preverving	

1.2 Sign In Test 2

Test Case Number	002
Test Case Name	SignInTest02()
Test Case Description	This test case check for user info input
Preconditions	
Test Case Input	"jim" "jake"
Test Case Expected Output	"Username Exist!"
Test Case Steps	New User Call SignIn method Compare output with expected output
Default Value Preverving	

2. Login Test

2.1 Login Test 1

Test Case Number	001
Test Case Name	LoginTest01()
Test Case Description	This test case check username and password correct or not
Preconditions	Username and password must exist in database
Test Case Input	"jim", "123" "admin1", "123"
Test Case Expected Output	An User
Test Case Steps	New User Call Login method Compare output with expected output
Default Value Preverving	

2.2 Login Test 2

Test Case Number	002
Test Case Name	LoginTest02()
Test Case Description	This test case check username and password correct or not
Preconditions	
Test Case Input	"jimm", "123" "jakee", "123" "jake", "124"
Test Case Expected Output	"User Not Found!"
Test Case Steps	New User Call Login method Compare output with expected output
Default Value Preverving	

3. Book Search Test

3.1 Searh by Name Test 1

Test Case Number	001
Test Case Name	SearchByNameTest01()
Test Case Description	Search for book in the system
Preconditions	Logged in
Test Case Input	" " "a" "foundation"
Test Case Expected Output	List Book
Test Case Steps	New Book Call SearchByName method Compare output with expected output
Default Value Preverving	

3.2 Searh by Name Test 2

Test Case Number	002
Test Case Name	SearchByNameTest02()
Test Case Description	Search for book in the system
Preconditions	Logged in
Test Case Input	"1" "#" "]"
Test Case Expected Output	"No Book Found!"
Test Case Steps	New Book Call SearchByName method Compare output with expected output
Default Value Preverving	

3.3 Seacrh by Category Test 1

Test Case Number	003
Test Case Name	SearchByCategoryTest01()
Test Case Description	Search for book in the system
Preconditions	Logged in
Test Case Input	"1" "#" "]"
Test Case Expected Output	"No Book Found!"
Test Case Steps	New Book Call SearchByCategory method Compare output with expected output
Default Value Preverving	

3.4 Seacrh by Category Test 2

Test Case Number	004
Test Case Name	SearchByCategoryTest02()
Test Case Description	Search for book in the system
Preconditions	Logged in
Test Case Input	" " "s" "fiction"
Test Case Expected Output	List Book
Test Case Steps	New Book Call SearchByCategory method Compare output with expected output
Default Value Preverving	

4. Create Order Test

4.1 Create Order Test 1

Test Case Number	001
Test Case Name	CreateOrderTest01()
Test Case Description	Create order for a book with quantity to buy
Preconditions	Logged in
Test Case Input	"10" "20"
Test Case Expected Output	New Order
Test Case Steps	New Order Call Transaction method Compare output with expected output
Default Value Preverving	

4.2 Create Order Test 2

Test Case Number	002
Test Case Name	CreateOrderTest02()
Test Case Description	Create order for a book with quantity to buy
Preconditions	Logged in
Test Case Input	"-1" "0" "9999999999999"
Test Case Expected Output	Null
Test Case Steps	New Order Call Transaction method Compare output with expected output
Default Value Preverving	

5. Update Account Info Test

Test Case Number	001
Test Case Name	UpdateAccountTest01()
Test Case Description	Change selected info of user account
Preconditions	Logged in
Test Case Input	"Johnny" "0123456789" "54 Oak Street"
Test Case Expected Output	True
Test Case Steps	New Order Call Transaction method Compare output with expected output
Default Value Preverving	

6. Add Book Test

6.1 Add Book Test 1

Test Case Number	001
Test Case Name	AddBookTest01()
Test Case Description	Add a Book into database
Preconditions	Logged in
Test Case Input	"book-11", "Wizard of Oz", "Frank", "Fantasy", "1990/12/20" "book-12", "Algebra", "William", "Science", "2005/6/2"
Test Case Expected Output	True
Test Case Steps	New Book Call AddBook method Compare output with expected output
Default Value Preverving	

6.2 Add Book Test 2

Test Case Number	002
Test Case Name	AddBookTest02()
Test Case Description	Add a Book into database
Preconditions	Logged in
Test Case Input	"book-11" "book-12"
Test Case Expected Output	False
Test Case Steps	New Book Call AddBook method Compare output with expected output
Default Value Preverving	

7. Update Book Info Test

Test Case Number	001
Test Case Name	UpdateBookTest01()
Test Case Description	Change selected info of a book
Preconditions	Logged in
Test Case Input	"Wizard Oz" "Fiction" "Frank Baum" "1996/12/22" "19.99" "100"
Test Case Expected Output	True
Test Case Steps	New Order Call updateBook method Compare output with expected output
Default Value Preverving	

8. User Search Test

8.1 User Seacrh Test 1

Test Case Number	001
Test Case Name	UserSearchTest01()
Test Case Description	Search for user in the database
Preconditions	Logged in
Test Case Input	" " "j" "jim"
Test Case Expected Output	List User
Test Case Steps	New User Call SearchUserByName method Compare output with expected output
Default Value Preverving	

8.2 User Seacrh Test 2

Test Case Number	002
Test Case Name	UserSearchTest02()
Test Case Description	Search for user in the database
Preconditions	Logged in
Test Case Input	"@" "1"
Test Case Expected Output	Null
Test Case Steps	New User Call SearchUserByName method Compare output with expected output
Default Value Preverving	

9. Change User Status Test

9.1 Deactivate User Status Test

| Test Case Number	001
Test Case Name	DeactivateUserStatusTest01()
Test Case Description	Change User Status
Preconditions	Logged in
Test Case Input	
Test Case Expected Output	True
Test Case Steps	New User Call updateUserStatus method Compare output with expected output
Default Value Preverving	

9.2 Activate User Status Test

Test Case Number	002
Test Case Name	ActivateUserStatusTest02()
Test Case Description	Change User Status
Preconditions	Logged in
Test Case Input	
Test Case Expected Output	True
Test Case Steps	New User Call updateUserStatus method Compare output with expected output
Default Value Preverving	

V. Task Assign

TBN Group	Book Store					
No	Task name	Description	Start Date	End Date	Member	Self assessment
1	Code		July 1	July 7	Nga	
2	Code		July 8	July 20	Thanh & Nga	
3	Code		July 8	July 15	Binh	
4	Control		July 21	July 27	Thanh & Binh	
5	Write Report		July 21	July 27	Thanh	

VI. Installation Instructions

1. Deployment Diagram
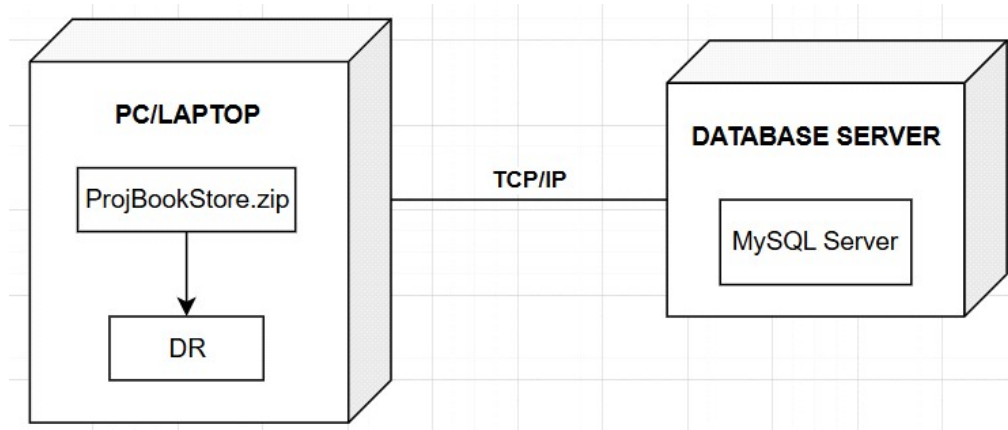
2. Installation steps

- Database Install
- Server install
- Application install