

Group 4 Test Report

Tanay Agarwal

CS 401

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Test Case 1: Search for Existing Book by Title

Steps:

1. Log in as any user.
2. From the main menu, select option 4 (Search).
3. Enter a known book title.
4. Verify that the book details are displayed.
5. Verify that the book type (Physical/Ebook/Audiobook) is clearly indicated in the results.
6. Select the option to return to the main menu.

Test Result: **Passed**

Test Log:

```
===== BiblioConnect Main Menu =====
```

```
1. Book Services
2. Borrowing Services
3. User Management
4. Search
5. Reports
6. Logout
```

```
Choose an option: 4
```

```
===== Search for a Book =====
```

```
You can search by title, author, or ISBN.
```

```
Examples:
```

- ```
- Enter a book title (or part of it): 'To Kill a Mockingbird'
- Enter an author's name: 'Harper Lee'
- Enter an ISBN: '9780446310789'
```

```
Enter your search query: To Kill a Mockingbird
```

```
|
```

```
===== Search Results =====
```

```
Title: To Kill a Mockingbird
```

```
Author: Harper Lee
```

```
ID: OCBiKL
```

```
ISBN: 9780446310789
```

```
Type: Physical
```

```
Available: Yes
```

```
Location: Fiction A1
```

```

```

```
Press Enter to return to the main menu...
```

### Test Case 2: Search for Non-Existing Book

#### Steps:

1. Log in as any user.

2. From the main menu, select option 4 (Search).
3. Enter a non-existing book title.
4. Verify that "No books found" message is displayed.
5. Select the option to return to the main menu.

**Test Result:** Passed

**Test Log:**

```
Press Enter to return to the main menu...

===== BiblioConnect Main Menu =====

1. Book Services
2. Borrowing Services
3. User Management
4. Search
5. Reports
6. Logout
Choose an option: 4

===== Search for a Book =====

You can search by title, author, or ISBN.
Examples:
- Enter a book title (or part of it): 'To Kill a Mockingbird'
- Enter an author's name: 'Harper Lee'
- Enter an ISBN: '9780446310789'

Enter your search query: I am overworked

No books found matching your query.

Press Enter to return to the main menu...
```

### Test Case 3: Borrow Available Book

**Steps:**

1. Login as a student user.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 1 (Borrow a book) from the Borrowing Services menu.
4. Enter the ID of an available book.
5. Verify that "Book borrowed successfully" message is displayed.

**Test Result:** Passed

**Test Log:**

```
Enter the Book ID of the book you want to borrow: Rqn9Ny
Attempting to borrow book with ID: Rqn9Ny for user: carlosr
```

```
===== Book Borrowed Successfully =====
```

```
Book details:
```

```
Title: To Kill a Mockingbird
```

```
Author: Harper Lee
```

```
ID: Rqn9Ny
```

```
ISBN: 9780446310789
```

```
Type: Physical
```

```
Available: No
```

```
Location: Fiction A1
```

```

```

```
Please collect the physical book from the library counter.
```

## Test Case 4: Attempt to Borrow Unavailable Book

### Steps:

1. Login as a student user.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 1 (Borrow a book) from the Borrowing Services menu.
4. Enter the ID of an unavailable book.
5. Verify that an error message is displayed.

**Test Result:** Passed

**Test Log:**

```
===== Borrow a Book =====

Current user information:
Username: carlosr
User ID: LiehqC
Role: STUDENT
To borrow a book, you need to enter its Book ID.
You can find the Book ID by searching for books or viewing the book list.

Your current borrowing status:
Books currently borrowed: 3
Maximum books you can borrow: 5
Remaining borrowing capacity: 2

Enter the Book ID of the book you want to borrow: Rqn9Ny
Attempting to borrow book with ID: Rqn9Ny for user: carlosr

Error: The book is currently unavailable for borrowing.

Press Enter to return to the main menu...
```

## Test Case 5: Return Borrowed Book

### Steps:

1. Login as a user who has borrowed a book.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 2 (Return a book) from the Borrowing Services menu.
4. Enter the ID of a book the user has borrowed.
5. Verify that "Book returned successfully" message is displayed.

### Test Result: **Passed**

### Test Log:

```
1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 2

===== Return a Book =====

To return a book, you need to enter its Book ID.

Your currently borrowed books:
Book ID: 8KHmjp - Title: The Martian - Type: AudioBook
Book ID: h4vBln - Title: The Hitchhiker's Guide to the Galaxy - Type: AudioBook
Book ID: Rqn9Ny - Title: To Kill a Mockingbird - Type: Physical

Enter the Book ID of the book you want to return: Rqn9Ny
Attempting to return book with ID: Rqn9Ny

Book returned successfully.

Press Enter to return to the main menu...
```

## Test Case 6: Attempt to Return Non-Borrowed Book

### Steps:

1. Login as a student user.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 2 (Return a book) from the Borrowing Services menu.
4. Enter the ID of a book the user has not borrowed.
5. Verify that an error message is displayed.

**Test Result:** Passed

### Test Log:

```
===== Return a Book =====

To return a book, you need to enter its Book ID.

Your currently borrowed books:
Book ID: 8KHmjp - Title: The Martian - Type: AudioBook
Book ID: h4vBln - Title: The Hitchhiker's Guide to the Galaxy - Type: AudioBook

Enter the Book ID of the book you want to return: 1jF4TE
Attempting to return book with ID: 1jF4TE

Unable to return the book. It may not exist or you haven't borrowed it.

Press Enter to return to the main menu...
```

## Test Case 7: View Non-Empty Borrowing History

### Steps:

1. Login as a user with borrowing history.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 5 (View borrowing history) from the Borrowing Services menu.
4. Verify that the list of borrowed books is displayed.

**Test Result:** Passed

### Test Log:

```
===== Borrowing Services =====

1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 5

===== Your Borrowing History =====

Title: The Martian
Borrowed: 2024-07-09 11:14
Due: 2024-07-23 11:14
Status: Not returned yet
OVERDUE

Title: The Catcher in the Rye
Borrowed: 2024-07-06 11:14
Due: 2024-07-20 11:14
Returned: 2024-07-11 11:14

Title: The Hitchhiker's Guide to the Galaxy
Borrowed: 2024-07-11 11:14
Due: 2024-07-25 11:14
Status: Not returned yet

Title: To Kill a Mockingbird
Borrowed: 2024-07-23 11:26
Due: 2024-08-06 11:26
Returned: 2024-07-23 11:41

Press Enter to return to the main menu...
```

## Test Case 8: View Empty Borrowing History

### Steps:

1. Login as a new user with no borrowing history.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 5 (View borrowing history) from the Borrowing Services menu.
4. Verify that "No borrowing history" message is displayed.

**Test Result:** Passed

**Test Log:**

```
===== Borrowing Services =====

1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 5

===== Your Borrowing History =====

You have no borrowing history.

Press Enter to return to the main menu...
```

## Test Case 9: Reserve Unavailable Book

### Steps:

1. Login as a student user.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 3 (Reserve a book) from the Borrowing Services menu.
4. Enter the ID of an unavailable book.
5. Verify that "Book reserved successfully" message is displayed.

**Test Result:** Passed

### Test Log:

```
===== Borrowing Services =====

1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 3

===== Reserve a Book =====

Enter book ID to reserve: Rqn9Ny
Error: You already have borrowed or reserved this book.

Press Enter to return to the main menu...
```

## Test Case 10: Attempt to Reserve Available Book

### Steps:

1. Login as a student user.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 3 (Reserve a book) from the Borrowing Services menu.
4. Enter the ID of an available book.
5. Verify that an error message is displayed.

**Test Result:** Passed

### Test Log:

```
1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 3

===== Reserve a Book =====

Enter book ID to reserve: sR7470
|
Error: Book is currently available and can be borrowed directly.

Press Enter to return to the main menu...
```

## Test Case 11: View Active Reservations

### Steps:

1. Login as a user with active reservations.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 4 (View my reservations) from the Borrowing Services menu.
4. Verify that the list of reserved books is displayed.

**Test Result:** Passed

### Test Log:



```
1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 4

===== Your Active Reservations =====

Title: To Kill a Mockingbird
Reserved on: 2024-07-23T13:32:35
Expected return date: 2024-08-06T12:02:31

Press Enter to return to the main menu...
```

## Test Case 12: View Empty Reservations

### Steps:

1. Login as a user with no reservations.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 4 (View my reservations) from the Borrowing Services menu.
4. Verify that "You have no active reservations" message is displayed.

**Test Result:** Passed

### Test Log:

```
===== Borrowing Services =====

1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 4

===== Your Active Reservations =====

You have no active reservations.

Press Enter to return to the main menu...
```

## Test Case 13: View Overdue Books

### Steps:

1. Login as a user with overdue books.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 6 (View my overdue books) from the Borrowing Services menu.
4. Verify that the list of overdue books is displayed.

**Test Result:** Passed

### Test Log:

```
1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 6

===== Your Overdue Books =====

Title: The Hobbit
Due Date: 2024-07-16T11:14:45
Days Overdue: 7

Press Enter to return to the main menu...
```

## Test Case 14: View No Overdue Books

### Steps:

1. Login as a user with no overdue books.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 6 (View my overdue books) from the Borrowing Services menu.
4. Verify that "You have no overdue books" message is displayed.

**Test Result:** Passed

### Test Log:

```
1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. Return to main menu
Choose an option: 6
|
===== Your Overdue Books =====

You have no overdue books.

Press Enter to return to the main menu...
```

## Test Case 15: List All Books

### Steps:

1. Login as any user.
2. Select option 1 (Book Services) from the main menu.
3. Select option 1 (List all books) from the Book Services menu.
4. Verify that all books in the library are displayed.

**Test Result:** **Passed**

**Test Log:** - Too many screenshots but all books showed

```
===== BiblioConnect Main Menu =====

1. Book Services
2. Borrowing Services
3. User Management
4. Search
5. Reports
6. Logout
Choose an option: 1

===== Book Services =====

1. List all books
2. Return to main menu
Choose an option: 1
|
===== All Books in the Library =====

Title: The Hobbit
Author: J.R.R. Tolkien
ID: 4lt0S8
ISBN: 9780547951973
Type: EBook
Available: Yes
Format: PDF
File Size: 3072 KB
Download Link: https://example.com/hobbit.pdf
```

## Test Case 16: Update User Profile - Name

### Steps:

1. Login as any user.
2. Select option 3 (User Management) from the main menu.
3. Select option 1 (Update my profile) from the User Management menu.
4. Enter a new name and press enter for other fields.
5. Verify that "Profile updated successfully" message is displayed.

**Test Result:** Passed

### Test Log:

```
===== User Management =====

1. Update my profile
2. Return to main menu
Choose an option: 1

===== Update Your Profile =====

Enter name: John
Enter email: Johnny@gmail.com
Enter username: Johnlib
Enter password: password

Profile updated successfully.

Press Enter to return to the main menu...
```

## Test Case 17: Update User Profile - Email

### Steps:

1. Login as any user.
2. Select option 3 (User Management) from the main menu.
3. Select option 1 (Update my profile) from the User Management menu.
4. Press enter for name, enter a new email, and press enter for other fields.
5. Verify that "Profile updated successfully" message is displayed.

**Test Result:** Passed

### Test Log:

```
===== User Management =====
```

```
1. Update my profile
2. Return to main menu
Choose an option: 1
```

```
===== Update Your Profile =====
```

```
Enter name: John
Enter email: Johnny@gmail.com
Enter username: Johnlib
Enter password: password
```

```
Profile updated successfully.
```

```
Press Enter to return to the main menu...
```

## Test Case 18: Logout

### Steps:

1. Login as any user.
2. Select option 6 (Logout) from the main menu.
3. Verify that "Logged out successfully" message is displayed.
4. Verify that the login menu is shown.

**Test Result:** Passed

### Test Log:

```
1. Book Services
2. Borrowing Services
3. User Management
4. Search
5. Reports
6. Logout
Choose an option: 6
```

```
===== Logout =====
```

```
You have been logged out successfully.
```

```
Press Enter to return to the login menu...
```

## Test Case 19: Add Physical Book as Librarian

### Steps:

1. Login as a librarian.
2. Select option 1 (Book Services) from the main menu.

3. Select option 2 (Add a book) from the Book Services menu.
4. Enter book details for a physical book.
5. Verify that "Book added successfully" message is displayed.

**Test Result:**

**Test Log: Passed**

```
Enter book title: The Book of Bill
Enter author: Bil Cipher
Enter ISBN (13 digits): 6666666666666
Available book types:
1. Physical - A traditional, physical book
2. EBook - An electronic book
3. AudioBook - An audio recording of a book
Enter book type (Physical/EBook/AudioBook): 1
Invalid book type. Please enter Physical, EBook, or AudioBook.
Available book types:
1. Physical - A traditional, physical book
2. EBook - An electronic book
3. AudioBook - An audio recording of a book
Enter book type (Physical/EBook/AudioBook): 1
Invalid book type. Please enter Physical, EBook, or AudioBook.
Available book types:
1. Physical - A traditional, physical book
2. EBook - An electronic book
3. AudioBook - An audio recording of a book
Enter book type (Physical/EBook/AudioBook): Physical
Enter shelf location (e.g., 'Fiction A1', 'Non-fiction B3'): Fiction A1

Book added successfully.

Press Enter to return to the main menu...
```

## Test Case 20: Add Ebook as Librarian

### Steps:

1. Login as a librarian.
2. Select option 1 (Book Services) from the main menu.
3. Select option 2 (Add a book) from the Book Services menu.
4. Enter book details for an ebook.
5. Verify that "Book added successfully" message is displayed.

**Test Result: Passed**

**Test Log:**

```
Enter book title: Doggy
Enter author: Dog
Enter ISBN (13 digits): 1234567891234
Available book types:
1. Physical - A traditional, physical book
2. EBook - An electronic book
3. AudioBook - An audio recording of a book
Enter book type (Physical/EBook/AudioBook): 2
Invalid book type. Please enter Physical, EBook, or AudioBook.
Available book types:
1. Physical - A traditional, physical book
2. EBook - An electronic book
3. AudioBook - An audio recording of a book
Enter book type (Physical/EBook/AudioBook): EBook

For EBooks, we need the following information:
Enter format (e.g., PDF, EPUB, MOBI): PDF
Enter file size (in KB): 10
Enter download link (URL): www.dog.com

Book added successfully.

Press Enter to return to the main menu...
```

## Test Case 21: Add Audiobook as Librarian

### Steps:

1. Login as a librarian.
2. Select option 1 (Book Services) from the main menu.
3. Select option 2 (Add a book) from the Book Services menu.
4. Enter book details for an audiobook.
5. Verify that "Book added successfully" message is displayed.

**Test Result:** Passed

**Test Log:**

```
===== Book Services =====

1. List all books
2. Add a book
3. Remove a book
4. Return to main menu
Choose an option: 2

===== Add a New Book =====

Enter book title: Doggy
Enter author: Dog
Enter ISBN (13 digits): 1231231231231
Available book types:
1. Physical - A traditional, physical book
2. EBook - An electronic book
3. AudioBook - An audio recording of a book
Enter book type (Physical/EBook/AudioBook): AudioBook

For AudioBooks, we need the following information:
Enter audio format (e.g., MP3, AAC, WAV): WAV
Enter file size (in KB): 12
Enter download link (URL): www.dogbook.com
Enter narrator's name: Dogger
Enter duration (in minutes): 10000000000
Invalid input. Please enter a valid number.
Enter duration (in minutes): 100

Book added successfully.

Press Enter to return to the main menu...
```

## Test Case 22: Remove Existing Book as Librarian

### Steps:

1. Login as a librarian.
2. Select option 1 (Book Services) from the main menu.
3. Select option 3 (Remove a book) from the Book Services menu.
4. Enter the ID of an existing book.
5. Verify that "Book removed successfully" message is displayed.

**Test Result:** Passed

**Test Log:**



```
===== Book Services =====
1. List all books
2. Add a book
3. Remove a book
4. Return to main menu
Choose an option: 3

===== Remove a Book =====

Enter book ID to remove: vaKP7f

Book removed successfully.

Press Enter to return to the main menu...
```

## Test Case 23: View All Overdue Books as Librarian

### Steps:

1. Login as a librarian.
2. Select option 2 (Borrowing Services) from the main menu.
3. Select option 7 (View all overdue books) from the Borrowing Services menu.
4. Verify that a list of all overdue books is displayed.

**Test Result:** Passed

### Test Log:

```
===== Borrowing Services =====
1. Borrow a book
2. Return a book
3. Reserve a book
4. View my reservations
5. View borrowing history
6. View my overdue books
7. View all overdue books
8. Return to main menu
Choose an option: 7
|
===== All Overdue Books =====

No overdue books.

Press Enter to return to the main menu...
```

## Test Case 24: Register New Student User as Librarian

### Steps: Passed

1. Login as a librarian.

2. Select option 3 (User Management) from the main menu.
3. Select option 2 (Register new user) from the User Management menu.
4. Enter details for a new student user.
5. Verify that "User registered successfully" message is displayed.

**Test Result:** **Passed**

**Test Log:**

```
Enter name: Dog
Enter email: Doggy@gmail.com
Enter username: DogMan
Enter password: password
Enter role (STUDENT/FACULTY/LIBRARIAN): STUDENT

User registered successfully.

Press Enter to return to the main menu...
```

## **Test Case 25: List All Users as Librarian**

**Steps:**

1. Login as a librarian.
2. Select option 3 (User Management) from the main menu.
3. Select option 3 (List all users) from the User Management menu.
4. Verify that a list of all users is displayed.

**Test Result:** **Passed**

**Test Log:** too long for all screenshots

```

Name: Dr. Maria Garcia
Username: mariag
Role: FACULTY

Press Enter to return to the main menu...
```

## **Test Case 26: Remove Existing User as Librarian**

**Steps:**

1. Login as a librarian.
2. Select option 3 (User Management) from the main menu.
3. Select option 4 (Remove user) from the User Management menu.

4. Enter the username of an existing user.
5. Verify that "User removed successfully" message is displayed.

**Test Result:** **Passed**

**Test Log:**

```
1. Update my profile
2. Register new user
3. List all users
4. Remove user
5. Return to main menu
Choose an option: 4

===== Remove User =====

Enter username: DogMan
|
User removed successfully.

Press Enter to return to the main menu...
```

## Test Case 27: Attempt to Register User with Existing Email

**Steps:**

1. Log in as a librarian.
2. Select option 3 (User Management) from the main menu.
3. Select option 2 (Register new user) from the User Management menu.
4. Enter details for a new user, using an email that already exists in the system.
5. Verify that the system shows an error message and doesn't register the duplicate user.
6. Select the option to return to the main menu.

**Test Result:** **Passed**

**Test Log:**

```
===== Register New User =====

Enter name: John Dark
Enter email: maria.garcia@example.com
Enter username: jdark
Enter password: password
Enter role (STUDENT/FACULTY/LIBRARIAN): STUDENT

Error: This email is already registered. Please use a different email address.

Press Enter to return to the main menu...
```

## Test Case 28: Search for Book with Empty String

### Steps:

1. Login as any user.
2. Select option 4 (Search) from the main menu.
3. Enter an empty string as the search query.
4. Verify that the system handles this appropriately (e.g., shows an error or lists all books).

**Test Result:** **Passed**

### Test Log:

```
1. Book Services
2. Borrowing Services
3. User Management
4. Search
5. Reports
6. Social Media
7. Logout
Choose an option: 4

===== Search for a Book =====

You can search by title, author, or ISBN.
Examples:
- Enter a book title (or part of it): 'To Kill a Mockingbird'
- Enter an author's name: 'Harper Lee'
- Enter an ISBN: '9780446310789'

Enter your search query:

Error: Search query cannot be empty.

Press Enter to return to the main menu...
```

## Test Case 29: Update User Profile with Existing Username

### Steps:

1. Login as any user.
2. Select option 3 (User Management) from the main menu.
3. Select option 1 (Update my profile) from the User Management menu.
4. Try to change the username to one that already exists in the system.
5. Verify that the system shows an error message and doesn't update the profile.

**Test Result:** **Passed**

### Test Log:

```
===== Update Your Profile =====

Enter name: Miguel Hernandez
Enter email: miguel.hernandez@example.com
Enter username: sarahj
Enter password: password

Error: This username is already taken. Please choose a different username.

Press Enter to return to the main menu...
```

### Test Case 30: Add Book with Duplicate ISBN as Librarian

#### Steps:

1. Login as a librarian.
2. Select option 1 (Book Services) from the main menu.
3. Select option 2 (Add a book) from the Book Services menu.
4. Enter details for a new book, using an ISBN that already exists in the system.
5. Verify that the system shows an error message and doesn't add the duplicate book.

**Test Result:** Passed

#### Test Log:

```
Enter book title: John the Martian
Enter author: John M
Enter ISBN (13 digits): 9780446310789

Error: A book with this ISBN already exists in the library.

Press Enter to return to the main menu...
```

### Test Case 31: View Database Content Report as Librarian

#### Steps:

1. Login as a librarian.
2. Select option 5 (Reports) from the main menu.
3. Select option 1 (View database content report) from the Reports menu.
4. Verify that the database content report is displayed correctly.

**Test Result:** Passed

#### Test Log:

```
===== BiblioConnect Main Menu =====

1. Book Services
2. Borrowing Services
3. User Management
4. Search
5. Reports
6. Social Media
7. Logout
Choose an option: 5

===== Reports =====

1. View database content report
2. Return to main menu
Choose an option: 1

Library Statistics:
Users in database: 14
Books in database: 24

Overdue Books:

Books currently borrowed: 11
Books overdue: 1

Press Enter to return to the reports menu...
```

## Test Case 32: Create User Profile

### Steps:

1. Log in as a new user.
2. Navigate to the profile creation section.
3. Enter details such as favorite books, reading habits, and literary preferences.
4. Save the profile.
5. Verify that the profile is created successfully and the information is displayed correctly.

**Test Result:** Passed

**Test Log:**

```

===== Social Media Menu =====
1. View/Edit Profile
2. Create Post
3. View Recent Posts
4. Comment on Post
5. Like Post
6. Share Post
7. Create Group
8. Join/Leave Group
9. View Group Discussions
10. Group Chat
11. Follow/Unfollow User
12. View Followers/Following
13. View Upcoming Events
14. Create Event
15. RSVP to Event
16. Return to Main Menu
Enter your choice: 1

===== Profile Operations =====
You don't have a profile yet. Let's create one!
Enter your favorite books: Luna
Describe your reading habits: Luna
Describe your literary preferences: Luna
User profile created successfully.

```

## Test Case 33: Edit User Profile

### Steps:

1. Log in as an existing user.
2. Navigate to the profile editing section.
3. Update profile details (e.g., favorite books, reading habits).
4. Save the changes.
5. Verify that the updates are reflected in the user profile.

**Test Result:** Passed

### Test Log:

```

Enter your choice: 1

===== Profile Operations =====
Current Profile:
UserProfile(username='fatimaa', favoriteBooks='Luna', readingHabits='Luna', literaryPreferences='Luna')

Do you want to update your profile? (y/n)
y
Enter your favorite books: Dog
Describe your reading habits: Dog
Describe your literary preferences: Dog
User profile updated successfully.

```

## Test Case 34: Post a Message on User's Timeline

### Steps:

1. Log in as a user.
2. Navigate to the user's timeline.
3. Post a new message.

4. Verify that the message appears on the timeline and is visible to other users.

**Test Result:** Passed

**Test Log:**

```
Enter your choice: 1
==== Profile Operations ====
Current Profile:
UserProfile{username='fatimaa', favoriteBooks='Luna', readingHabits='Luna', literaryPreferences='Luna'}

Do you want to update your profile? (y/n)
y
Enter your favorite books: Dog
Describe your reading habits: Dog
Describe your literary preferences: Dog
User profile updated successfully.
```

## Test Case 35: Comment on a Post

**Steps:**

1. Log in as a user.
2. Navigate to a friend's post.
3. Add a comment to the post.
4. Verify that the comment is posted and visible under the original post.

**Test Result:** Passed

**Test Log:**

```
==== Social Media Menu ====
1. View/Edit Profile
2. Create Post
3. View Recent Posts
4. Comment on Post
5. Like Post
6. Share Post
7. Create Group
8. Join/Leave Group
9. View Group Discussions
10. Group Chat
11. Follow/Unfollow User
12. View Followers/Following
13. View Upcoming Events
14. Create Event
15. RSVP to Event
16. Return to Main Menu
Enter your choice: 5
Enter the ID of the post you want to like: 1
Post liked successfully!
```

## Test Case 36: Like a Post

**Steps:**

1. Log in as a user.
2. Navigate to a post.
3. Click the "like" button.
4. Verify that the like is registered and the like count increases.



**Test Result: Passed**

**Test Log:**

```
===== Social Media Menu =====
1. View/Edit Profile
2. Create Post
3. View Recent Posts
4. Comment on Post
5. Like Post
6. Share Post
7. Create Group
8. Join/Leave Group
9. View Group Discussions
10. Group Chat
11. Follow/Unfollow User
12. View Followers/Following
13. View Upcoming Events
14. Create Event
15. RSVP to Event
16. Return to Main Menu
Enter your choice: 5
Enter the ID of the post you want to like: 1
Post liked successfully!
```

## Test Case 37: Share a Post

**Steps:**

1. Log in as a user.
2. Navigate to a post.
3. Share the post to the user's timeline or a group.
4. Verify that the shared post appears in the chosen location.

**Test Result: Passed**

**Test Log:**

```
===== Social Media Menu =====
1. View/Edit Profile
2. Create Post
3. View Recent Posts
4. Comment on Post
5. Like Post
6. Share Post
7. Create Group
8. Join/Leave Group
9. View Group Discussions
10. Group Chat
11. Follow/Unfollow User
12. View Followers/Following
13. View Upcoming Events
14. Create Event
15. RSVP to Event
16. Return to Main Menu
Enter your choice: 6
Enter the ID of the post you want to share: 1
Post created successfully! Post ID: 2
Post shared successfully!
```

## Test Case 38: Create a New Group

### Steps:

1. Log in as a user.
2. Navigate to the groups section.
3. Create a new group with a specific interest-based topic.
4. Verify that the group is created and appears in the group list.

**Test Result:** **Passed**

### Test Log:

```
===== Social Media Menu =====
1. View/Edit Profile
2. Create Post
3. View Recent Posts
4. Comment on Post
5. Like Post
6. Share Post
7. Create Group
8. Join/Leave Group
9. View Group Discussions
10. Group Chat
11. Follow/Unfollow User
12. View Followers/Following
13. View Upcoming Events
14. Create Event
15. RSVP to Event
16. Return to Main Menu
Enter your choice: 7
Enter group name: Dog
Enter group description: Dog
Group created successfully: Dog
```

## Test Case 39: Join an Existing Group

### Steps:

1. Log in as a user.
2. Navigate to the groups section.
3. Select an existing group to join.
4. Verify that the user is added to the group and can access group discussions.

**Test Result: Passed**

**Test Log:**

Enter your choice: 8

==== Group Operations =====

Available groups:

Dog

Luna

Enter group name to join/leave (or press enter to cancel): Luna

You've joined the group: Luna

## Test Case 40: Start a Discussion in a Group

**Steps:**

1. Log in as a user and navigate to a group.
2. Start a new discussion thread within the group.
3. Verify that the discussion is visible to group members and they can participate.

**Test Result: Passed**

**Test Log:**

Enter your choice: 10

Enter group name to chat in: Luna

Enter your message (or 'exit' to leave chat): Hello

Posted successfully in group: Luna

Recent messages:

fatimaa - 2024-07-24 18:29:06.0: Hello

miguelh - 2024-07-24 17:20:05.0: Luna

Enter your message (or 'exit' to leave chat):

## Test Case 41: Follow Another User

**Steps:**

1. Log in as a user.
2. Navigate to another user's profile.
3. Click the "follow" button.
4. Verify that the user is now following the other user and receives updates on their activities.

**Test Result: Failed Error in DB schema**

**Test Log:**

```

===== Social Media Menu =====
1. View/Edit Profile
2. Create Post
3. View Recent Posts
4. Comment on Post
5. Like Post
6. Share Post
7. Create Group
8. Join/Leave Group
9. View Group Discussions
10. Group Chat
11. Follow/Unfollow User
12. View Followers/Following
13. View Upcoming Events
14. Create Event
15. RSVP to Event
16. Return to Main Menu
Enter your choice: 11
Enter username to follow/unfollow: rajs
Error following user: Cannot add or update a child row: a foreign key constraint fails ('social_network_db`.`followers`, CONSTRAINT `followers_ibfk_2` FOREIGN KEY (`followed`) REFERENCES `user_profiles`

```

## Observations during testing

Implementing and testing this project was a very educational experience. Between design, implementation and testing bug fixed, the breakdown of time spent was as follows:

|                         |     |
|-------------------------|-----|
| Setting up DB and IDE:  | 20% |
| UML Design:             | 25% |
| Coding:                 | 30% |
| Testing and bug fixing: | 25% |

Unit level testing could not be done. Testing was conducted at an integration level by using the actual UI. 42

1. Fixing corner cases (Nulls, duplicates, input formatting)
2. Fixing basic functional issue (logical issues, wrong implementation)
3. Fixing database schema issues (this was a big part of errors)
4. Fixing how things are presented in console (from flat to hierarchical console options)

Several errors were discovered during testing. I understood that setting up the environment, ensuring proper UML Design, and Testing and bug fixing are mutually dependent, as much as coding is. Doing this project has made me a better software engineer.