

An Najah National University



Faculty of Engineering & Technology
Computer Engineering Department

Software Graduation Project

ReadShare!

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Abstract

ReadShare Society is a vital project designed to create a dynamic platform where book enthusiasts can connect, exchange, and engage in meaningful discussions about literature. In an era dominated by digital media, fostering a community that promotes book sharing and appreciation is crucial for preserving the culture of reading and intellectual discourse.

Key features of the platform include comprehensive user profiles, seamless book exchange functionalities, and robust community engagement tools such as chat, posts, and reviews. Additionally, users can sell their unwanted physical books and read books in PDF format, enhancing the platform's utility and accessibility. The primary objectives are to:

- Create a vibrant and inclusive platform for book lovers to connect and exchange books.
- Facilitating easy access to a wide range of literature in both physical and electronic formats.
- Promoting community participation and discussion.
- Promoting a culture of reading through recommendations.
- Providing a seamless user experience through intuitive design and functionality.

The development process involves initial research and planning to understand user needs and market dynamics, followed by the design and development of user interfaces and backend systems. Rigorous testing and iteration are conducted to ensure functionality and usability, incorporating continuous feedback from beta testing phases. Deployment and ongoing maintenance are essential for sustaining a high-quality user experience.

While there are similar applications available, ReadShare Society distinguishes itself through its comprehensive feature set, including personalized recommendations, community engagement tools tailored to the Arab Islamic environment, and the ability to sell physical books and read books in PDF format. This unique combination of features and emphasis on community-building sets ReadShare Society apart from other book-sharing platforms.

Chapter 1

Introduction

1.1 Background

In today's digital age, where social media and streaming services dominate leisure time, the culture of reading books is facing significant challenges. Despite the wealth of information and entertainment available online, the traditional experience of reading and exchanging books remains invaluable. However, finding like-minded individuals to discuss and share books with can be difficult, especially in regions where digital solutions for book enthusiasts are limited.

1.2 Problem Statement

In today's digital landscape, book enthusiasts, particularly within the Arab-Muslim community, face significant challenges in finding dedicated platforms that foster robust community engagement and support both physical and digital book exchanges. Existing solutions often lack personalized content and fail to cater to cultural preferences, limiting users' ability to engage meaningfully in discussions and share their reading experiences. Moreover, the accessibility of diverse literature in formats like PDF remains inadequate, further hindering the exploration and exchange of books.

1.3 Objectives

ReadShare aims to address a number of significant issues that book lovers, especially those in the Arab Islamic community, confront. The website seeks to establish a welcoming space where people who are enthusiastic about reading can interact, trade books, and have thought-provoking conversations.

ReadShare aims to remove current obstacles to book sharing and reading by improving accessibility to a wide variety of books in both physical and digital media. Its primary goal is to promote community involvement by providing users with strong chat, posting, and review capabilities that enable meaningful interactions. Additionally, by providing rewards and recommendations based on cultural quirks and personal preferences, the site hopes to foster a thriving reading culture.

With an emphasis on user-friendliness, ReadShare is dedicated to creating an interface that is simple to use and guarantees a smooth experience for every user. With these

projects, ReadShare hopes to improve and preserve the reading culture while also making it more approachable and interesting for those both inside and outside of the Arab Islamic community.

1.4 Importance

Our project, ReadShare, holds significant value in facilitating book exchanges and fostering stimulating dialogues within the Arab-Muslim community. By providing curated information that aligns with users' interests and cultural backgrounds, ReadShare promotes a culture of reading through personalized recommendations and rewards. Encouraging both online and offline book exchanges enhances accessibility to a diverse range of books, encouraging readers to explore and discover new literature. This approach not only enriches individual reading experiences but also contributes to the broader goal of cultivating a thriving reading culture.

Chapter 2

Literature Review

Book-lovers' social networking sites, like LibraryThing and Goodreads, demonstrate how digital communities can improve reading by fostering conversation and social interaction. Nevertheless, these platforms frequently lack elements designed for certain populations' cultural contexts, such as the Arab-Muslim community. [6] [5]

While digital libraries like Project Gutenberg offer access to electronic literature, book exchange sites like BookMooch and PaperBackSwap enable the trading of physical books [3] [7]. These platforms are useful, but they usually lack culturally relevant content or community participation tools.

Studies show that active community participation, facilitated by tools like chat rooms and forums, improves user happiness and engagement [2][4]. Personalized and culturally appropriate content is necessary, as reading preferences among Arab-Muslims are impacted by cultural and religious values [1].

Current platforms sometimes fall short when it comes to fusing community interaction with culturally-specific digital and physical book exchanges. In order to close this gap, ReadShare has developed a thorough, culturally aware platform that facilitates both kinds of book exchanges and encourages a thriving reading community.

Chapter 3

Methodology

This chapter describes our platform’s development process, emphasizing the languages and frameworks that were used along with the particular techniques that were employed to create the website and mobile application.

3.1 Tools and Technologies

3.1.1 Languages

- JavaScript: Used for back-end and front-end development, providing consistent programming throughout the platform.
- Dart: Used in conjunction with Flutter to create the mobile application, making use of Flutter’s cross-platform development features.

3.1.2 Frameworks and Libraries

- Node.js: Selected as the back-end server to provide server-side JavaScript scripting, guaranteeing effective management of requests and data.
- Express.js: Developed as a Node.js web application framework, it makes it easier to create reliable APIs that drive the features of our platform.
- Flutter: Developed as an open-source UI software development kit, it makes it possible to create mobile applications that are both aesthetically pleasing and effective.

3.1.3 Development Tools

- Visual Studio Code: Because of its vast plugin ecosystem and developer-friendly features, it has been chosen as the main code editor.
- Git: Used as the version control system to facilitate collaborative development and manage changes to the source code.
- Firebase: Integrated into our project to take use of its cloud storage and real-time database features, guaranteeing safe and efficient data storage.

- Postman: Used as an API testing instrument to verify and troubleshoot our back-end services, guaranteeing reliable API operation.

3.2 Database

MongoDB was selected due to its scalability and capacity to handle complicated data structures. It effectively handles a variety of data formats, satisfying the ever-changing requirements of ReadShare’s user interactions. The integration of Firebase improved chat functionality and image storage while adding cloud storage and real-time database functions. By ensuring reliable data management and quick user interactions, MongoDB and Firebase work together to improve the ReadShare user experience.

Our database includes three primary tables:

3.2.1 Users Tabel

Stores user information such as user name, email address, password, date of birth, gender, mobile phone number, location, books, books he liked, and followed users.

PIPELINE OUTPUT

Sample of 5 documents

OUTPUT OPTIONS ▾

```

_id: ObjectId('6636b8408fa2658c2902eba5')
name : "saleh"
email : "test111@test.com"
birthday : 1995-07-17T00:00:00.000+00:00
password : "$2b$10$T.G2erQ8Jne/qRoHWqDtjOkdULVkrwQeUm5SW5cXkhSSP9RG...
created : 2024-05-04T22:35:44.148+00:00
id : "18119dc2-2e7d-4b5c-938c-b5bb2ff5a051"
__v : 25
▶ books : Array (14)
▶ likedBooks : Array (4)
▶ followedUsers : Array (2)
imageUrl : "https://firebasestorage.googleapis.com/v0/b/book-app-1356e.appspot.com..."
deviceToken : "dws1gk6rR5iVSkCNf0ls7R:APA91bGzy9kc2CD7030oEmX4tzvDM...
▶ chattedUsers : Array (4)
booksCount : 6
followersCount : 2
followingCount : 2
postCount : 7
▶ location : Object
gender : "Male"
mobileNumber : "0595020912"

```

Figure 3.1: User Table

3.2.2 Books Tabel

It contains details about the books available on the platform, including titles, authors, Types (physical or digital), book price, cover page, book owner, reviews, rating, requests for the book, likes, and status. This table facilitates the process of exchanging and indexing books.



Figure 3.2: Book Table

3.2.3 Posts Tabel

Records posts made by users, including likes, comments, photo posts, description, and creation date.



Figure 3.3: Posts Table

3.2.4 Room Tabel

Records user discussion room information, including who created it, members, zoom link, topic, and date created.

```
_id: ObjectId('667b6539066193a734c6e391')
creator : ObjectId('6636b8408fa2658c2902eba5')
▼ participants : Array (4)
  0: ObjectId('6636b8408fa2658c2902eba5')
  1: ObjectId('6664da05230c2ea078358089')
  2: ObjectId('66789575670f791addd48595')
  3: ObjectId('664fd91dd533543dd7bbfa4e')
zoomLink : "https://us05web.zoom.us/j/88266208925?pwd=Jh8HAM9BjvCFkT9YMsmFvQfzSkvj..."
topic : "كتاب رسائل من القرآن"
createdAt : 2024-06-26T00:47:53.598+00:00
__v : 0
```

Figure 3.4: Room Tabel

3.3 System Features Implementation

3.3.1 Mobile Application

This section explains the development of the mobile platform and key features, showing screenshots of how everything works.

Welcome page:

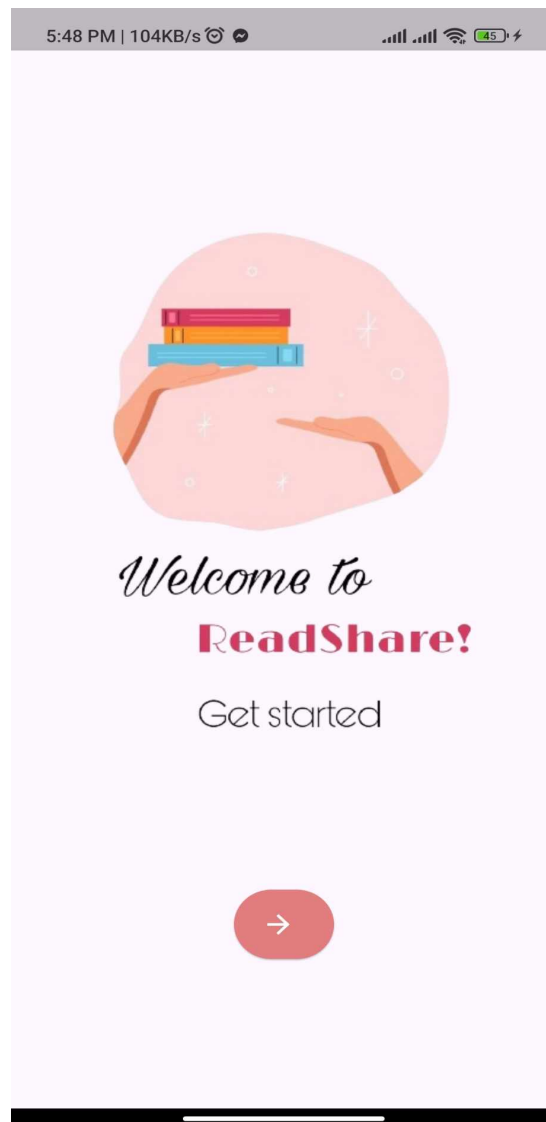


Figure 3.5: Welcome Page

Log In page:

This screen enables users already registered in the application to enter their data (email and password) to access their accounts.

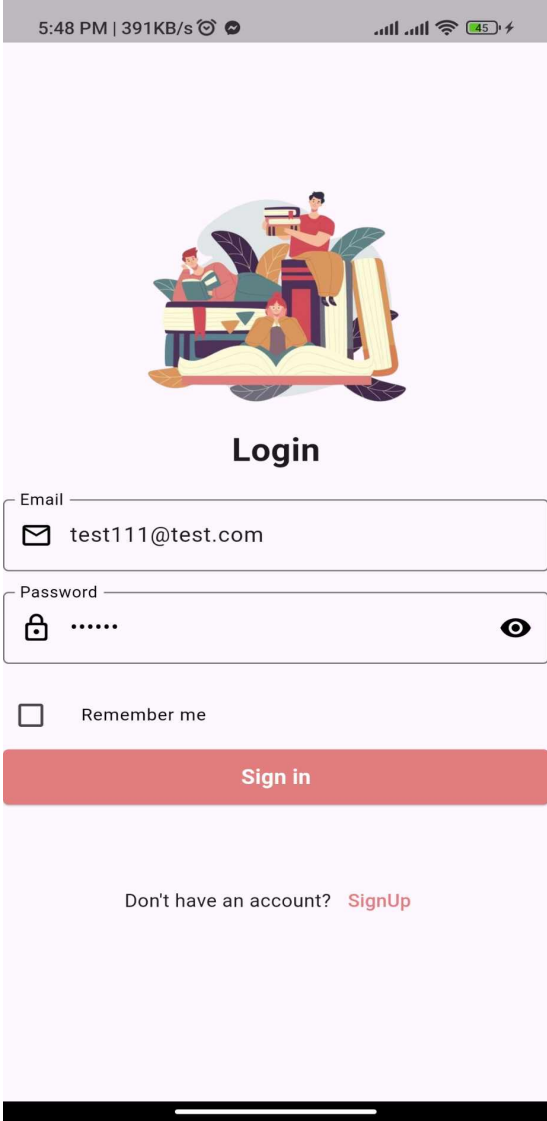
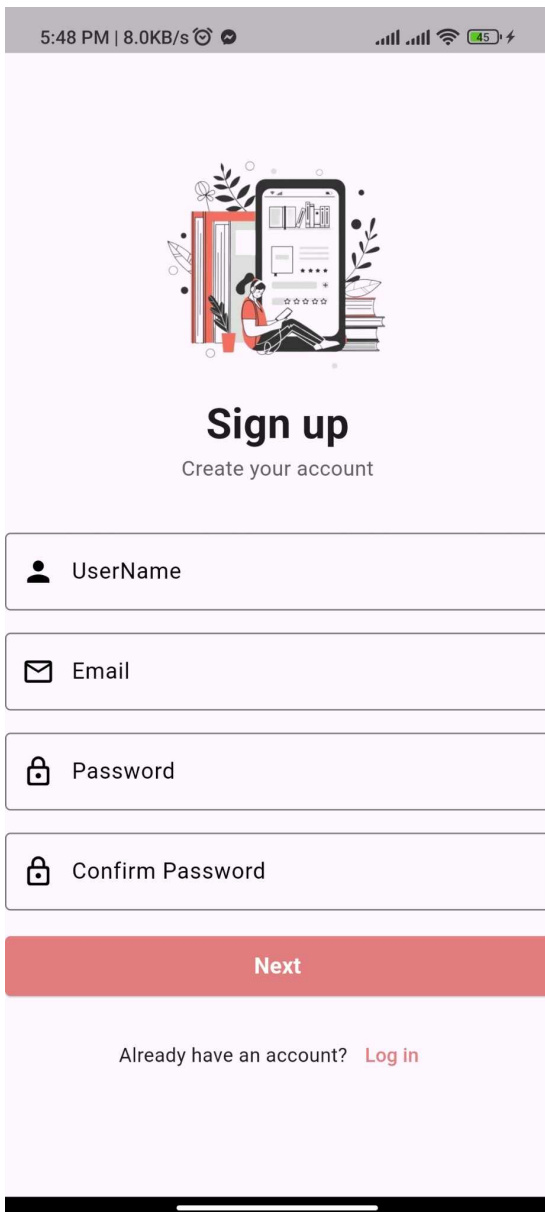


Figure 3.6: Log In page

Sign up page:

On choosing the “Sign up ” option, users are directed to an intuitive interface where they can register with basic information such as username, email, password, password confirmation, date of birth, and additional data as shown in Figure 3.6. The page relies on Firebase authentication and to ensure seamless security continuity, our user data is encrypted.



5:48 PM | 8.0KB/s

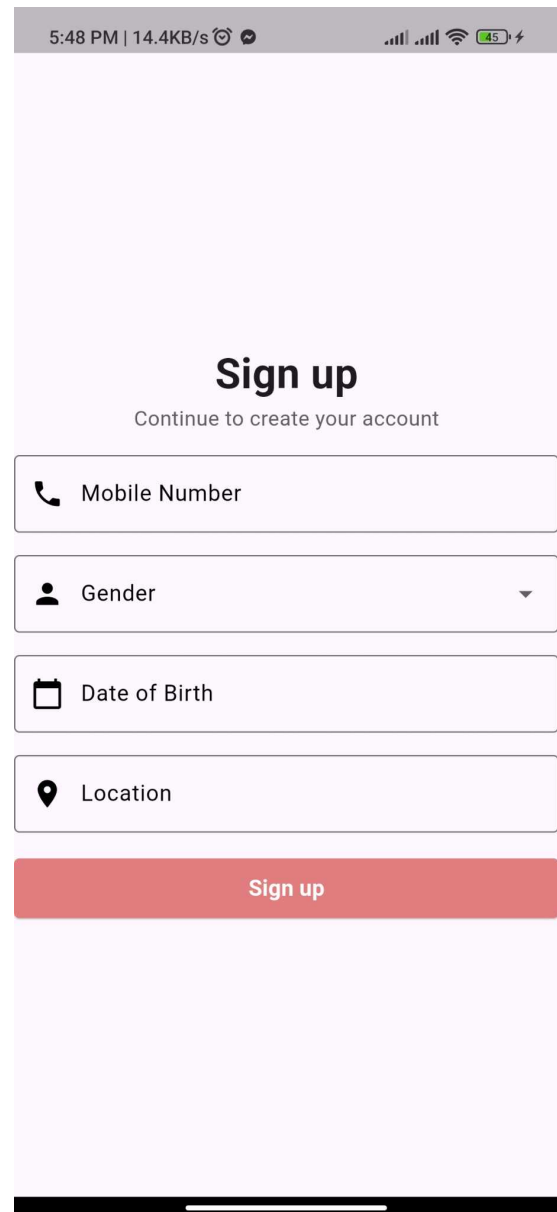
5:48 PM | 14.4KB/s

Sign up
Create your account

Next

Already have an account? [Log in](#)

(a) Sign up page



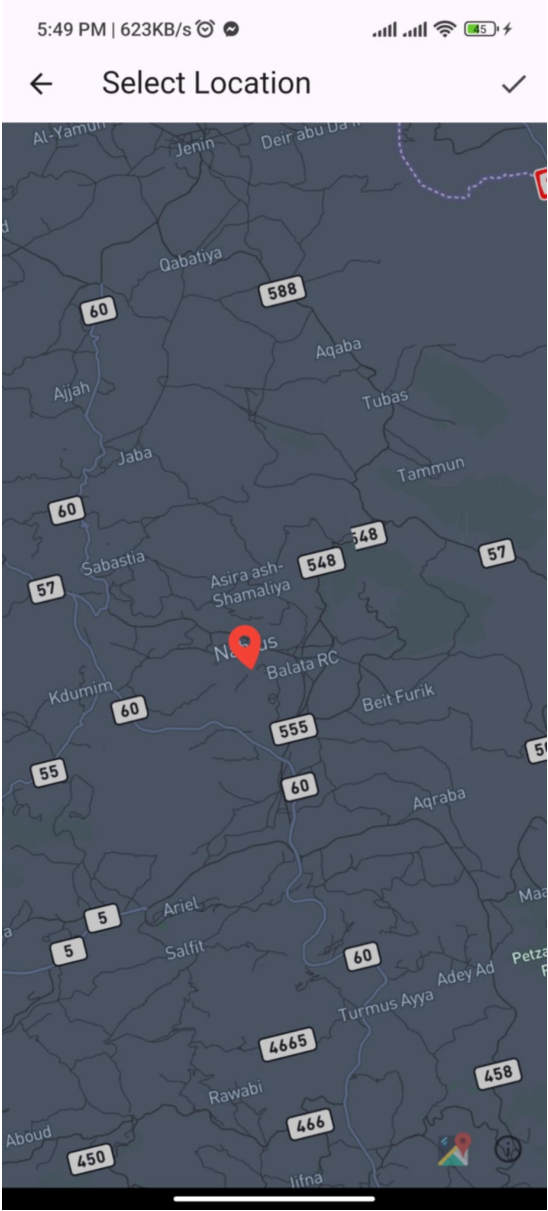
Sign up
Continue to create your account

Sign up

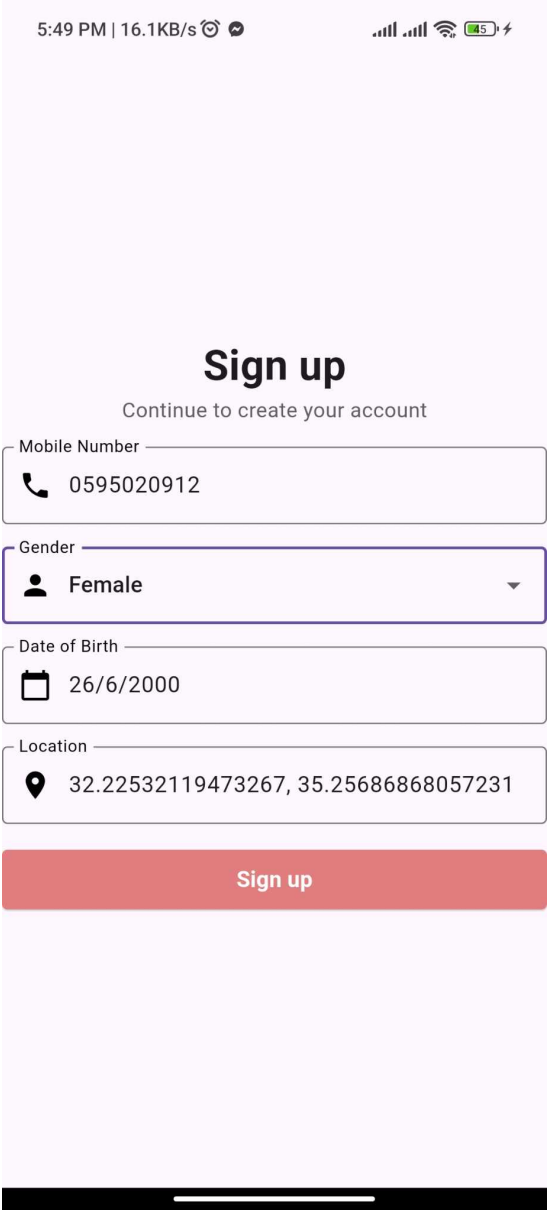
(b) Second Sign up page

Figure 3.7: Two sign up pages displayed side by side

A unique feature of the registration page is the availability of location information, as this information is captured through an interactive map integrated into the application as shown in Figure 3.7. Users can pinpoint their exact location, which helps improve user experience in collaboration with geo-tailored services.



(a) Select Location In sign up page



(b) After Select Location

Figure 3.8: Select location

Home page:

The home page in the mobile app is the main hub where users can easily create posts and upload photos. The page also contains a section that displays all the posts made by users who are your friends or not, allowing you to comment on and like them.

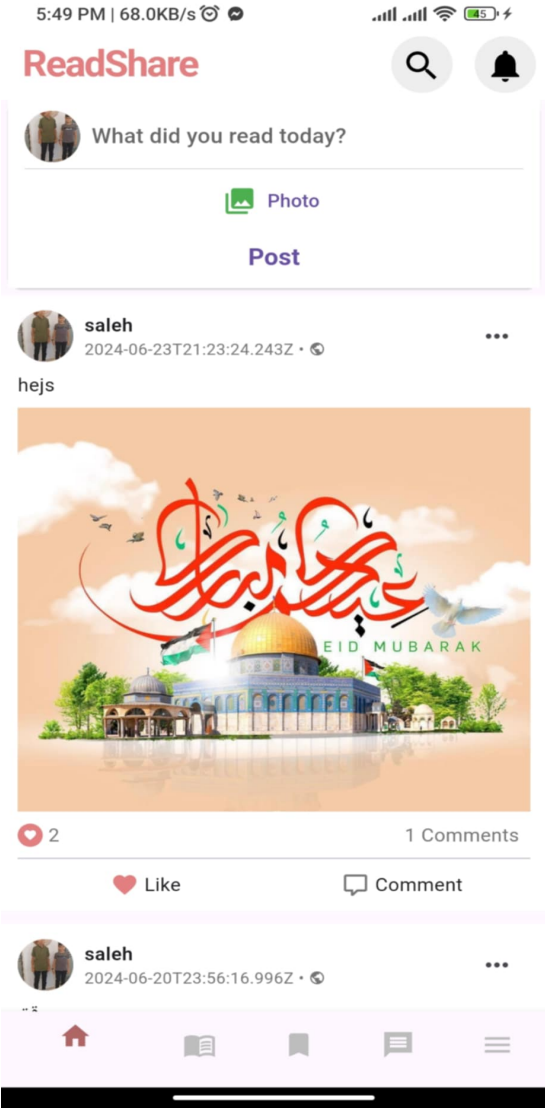


Figure 3.9: Home page

You can publish text only, an image only, or text and an image together.



Figure 3.10: Upload an image

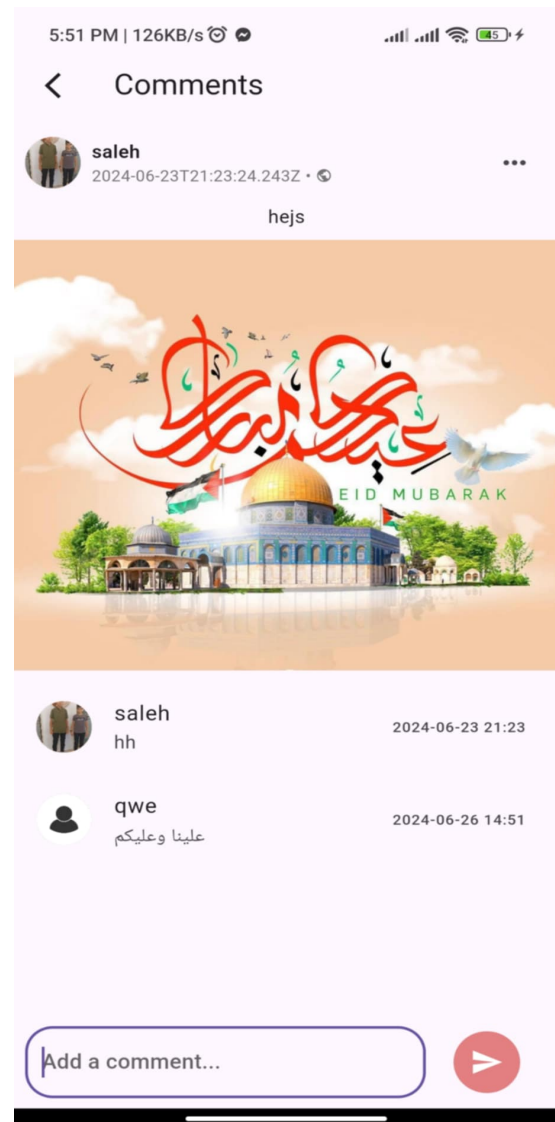


Figure 3.11: Comments page

Book page:

On the book page, users can explore a variety of books available on the platform. The book page includes dedicated tabs that categorize books according to their format – paper or PDF. This allows users to easily switch between different types of books based on their reading preferences.



Figure 3.12: Book page

Search feature:

The search feature is one of the essential features of the ReadShare application, as it allows users to quickly and easily find books, posts, and other users on the platform.



Figure 3.13: Search for a book

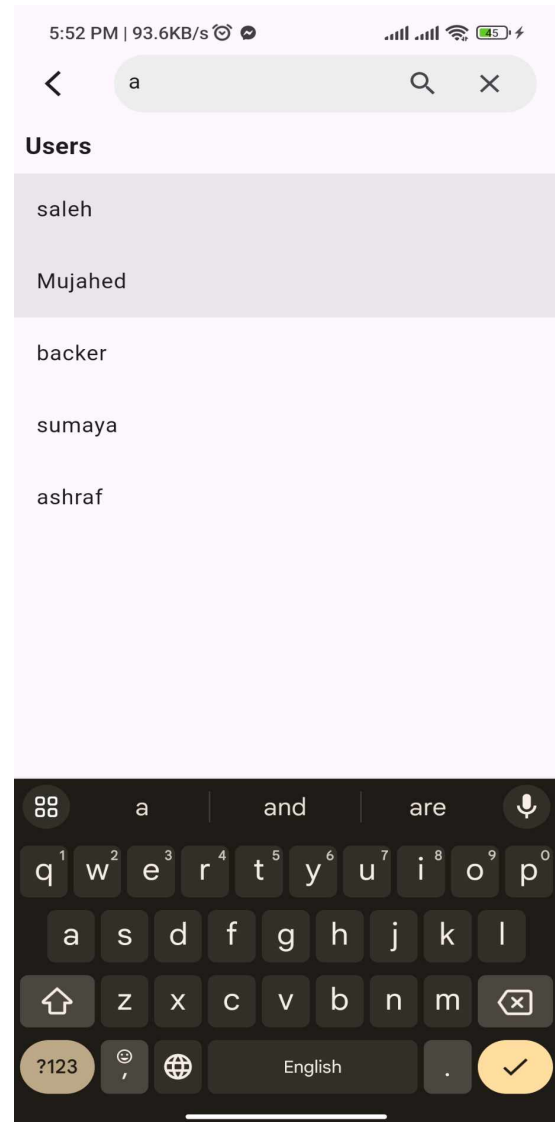


Figure 3.14: Search for a user

Book details page:

When you click on the book image on the books page, the details of the book are displayed, including the title, author, genre, owner, and publication date.

This interface allows users to view book covers, rate the book, and add a review. You can also see other people's ratings and reviews about the book.

When you click on the owner's name, you will be taken to the owner's profile page

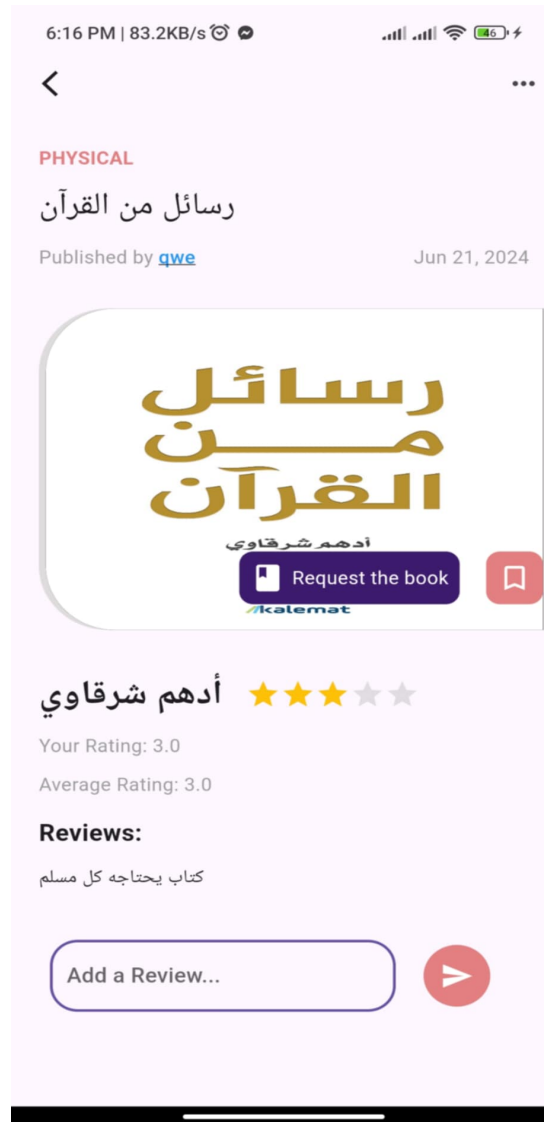
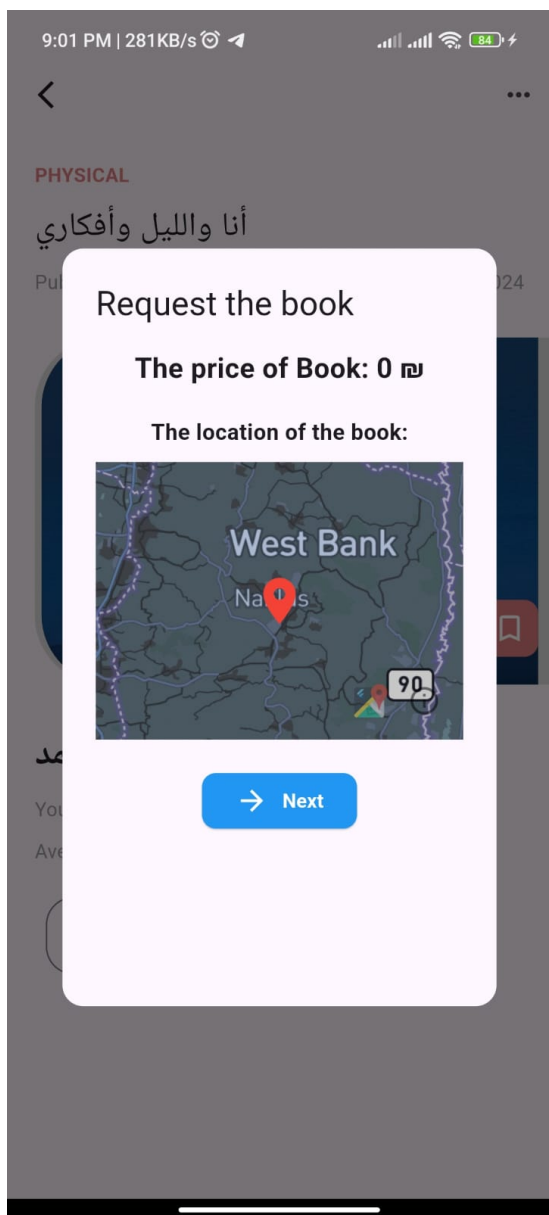


Figure 3.15: Book details page

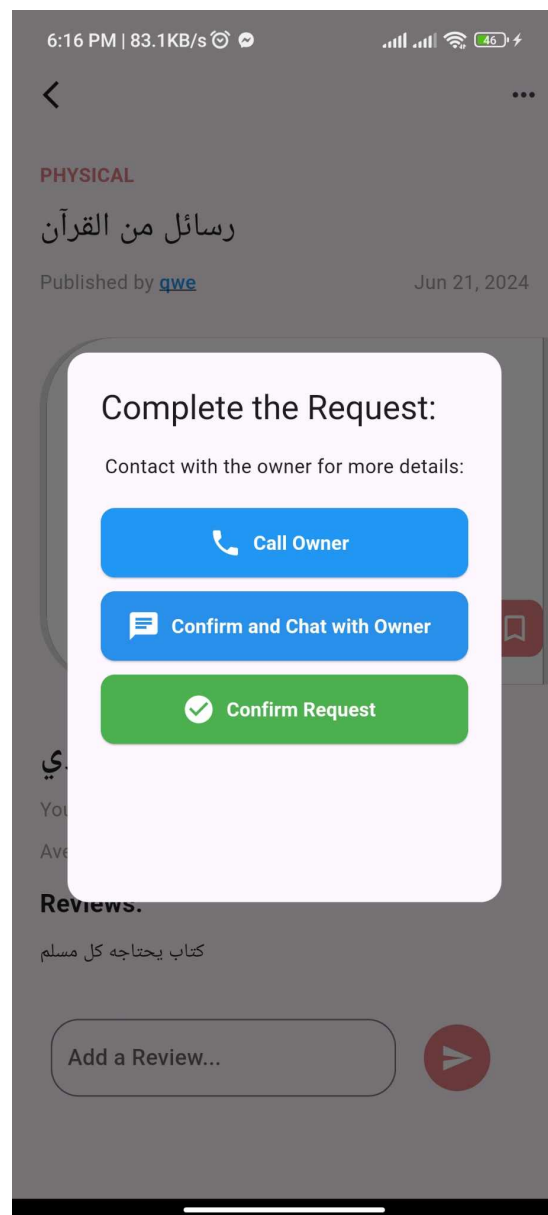
Request Book Feature:

For physical books, the book page includes a "Request The Book" button prominently displayed on the cover image. When a user clicks this button, a book request box appears, providing essential details such as the price of the book and the owner's location on the map.

Users can then proceed to confirm their order by selecting one of three options:



(a) Request The Book



(b) Complete The Request

Figure 3.16: Request The Book Boxes displayed side by side

1. Call Owner: This option directs the user to their phone's dialer with the owner's phone number displayed, allowing them to make a call directly.

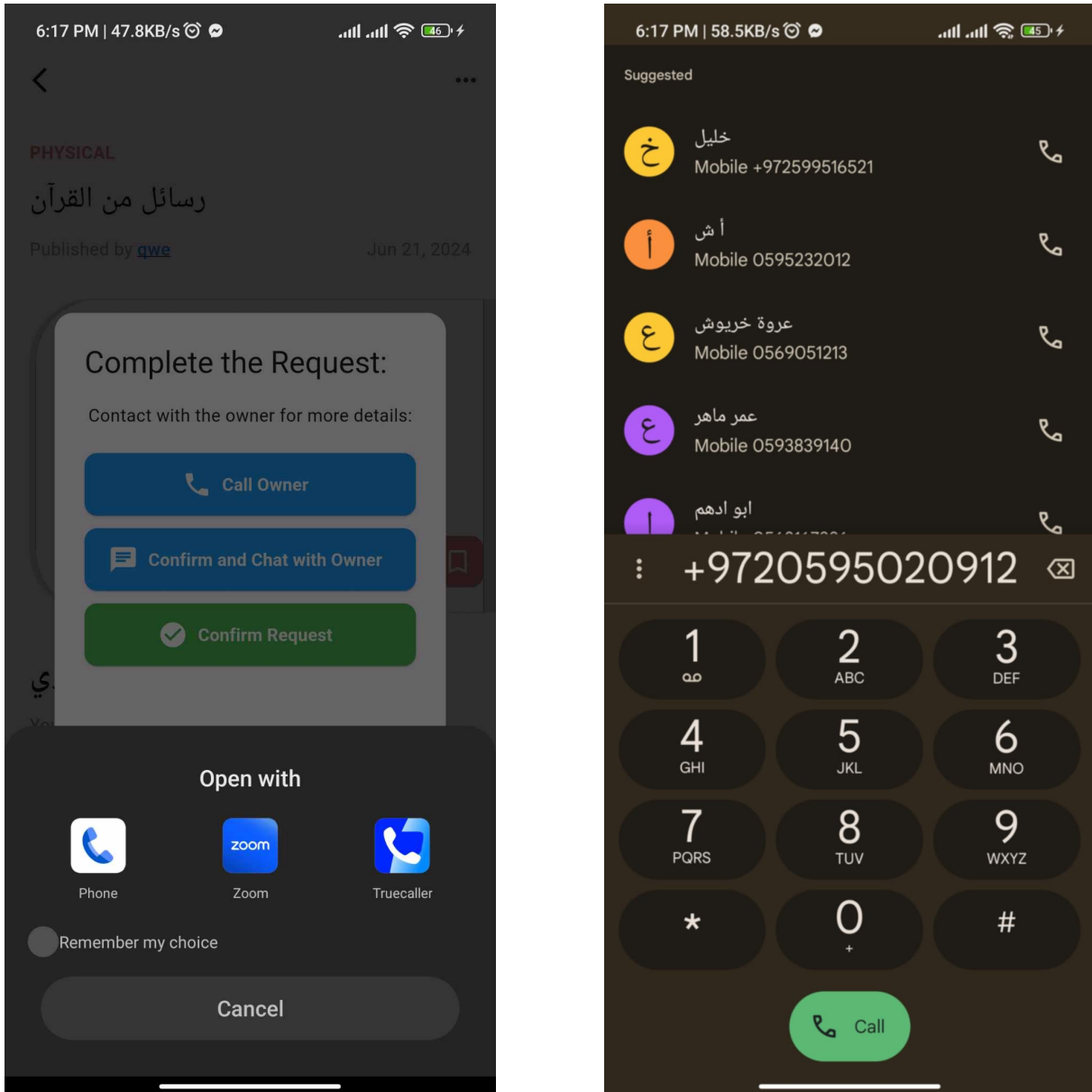


Figure 3.17: Call Owner option

2. Confirm and Chat with the Owner: This option sends a predefined message to the owner within the app, indicating the user's interest in requesting the book.

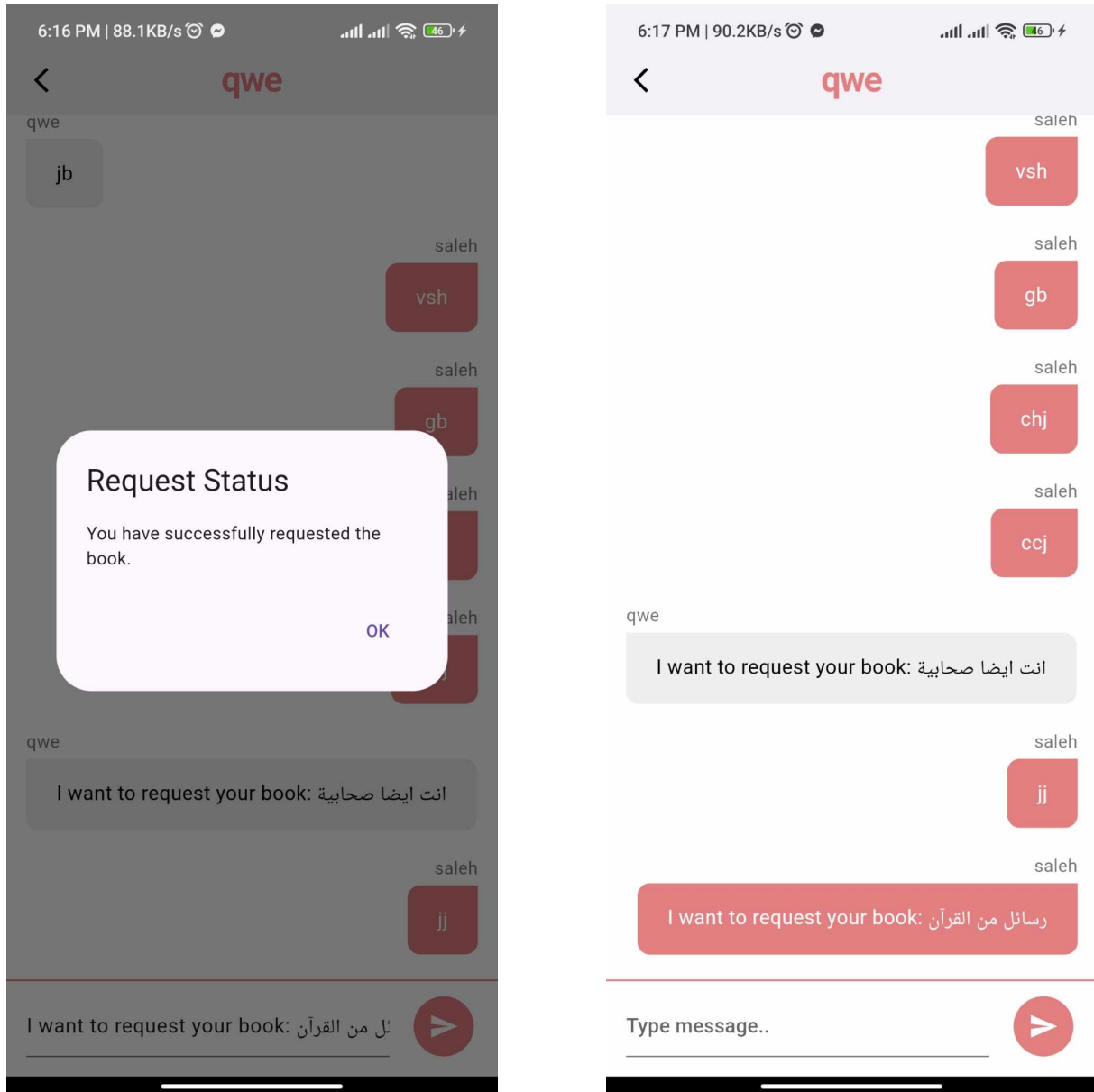


Figure 3.18: Chat with the Owner option

3. Confirm the Order Without Contacting the Owner: This option sends the request electronically to the owner, who then has the right to accept or reject the request. All requests made by the user will appear in the "My Requests" page within the app, enabling the user.

PDF Book Reading Feature:

For PDF books, instead of the “Request Book” button, there is a “Read Book” button, which enables users to read the book electronically within the application. The page that the user accesses is saved so that he can continue reading later. The read books are also added to the “Continue Reading” page to enable the user to refer to them whenever he wants.

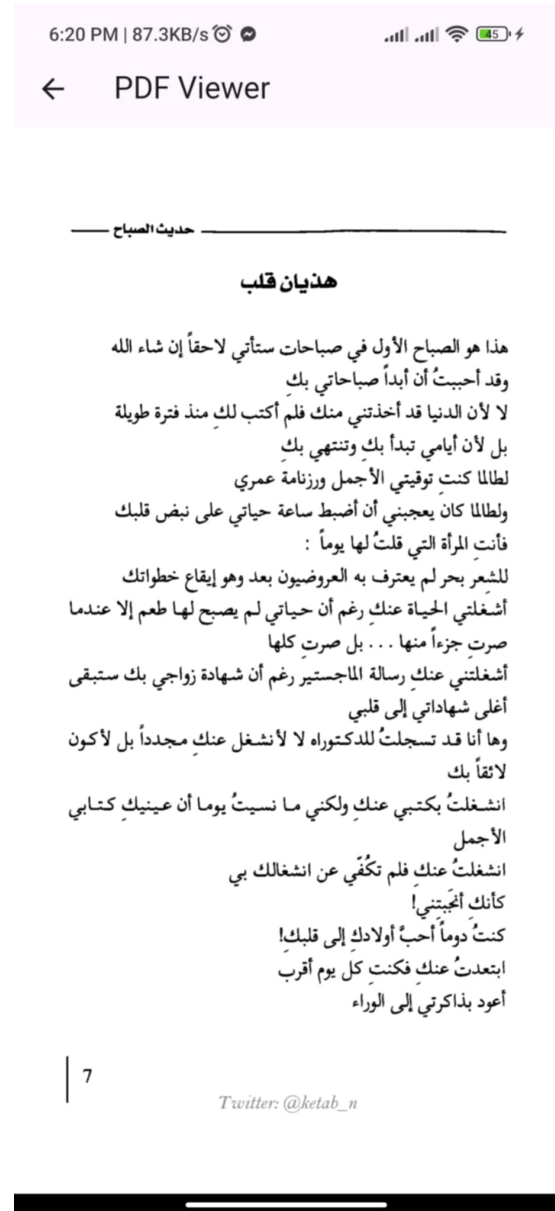


Figure 3.19: PDF Book Reading Feature

Book preference feature:

The book cover has a “Save” button that enables users to save the book on the “Favorite books” page, whether the book is in physical or PDF format. This feature allows users to save books they want to read later or keep them in their personal library within the app.

Favorite books page:

The Favorite Books page allows users to view all the books they have saved, whether they are paper books or in PDF format. Books are displayed in thumbnail form with basic details such as title and author, making it easier for users to quickly identify books.

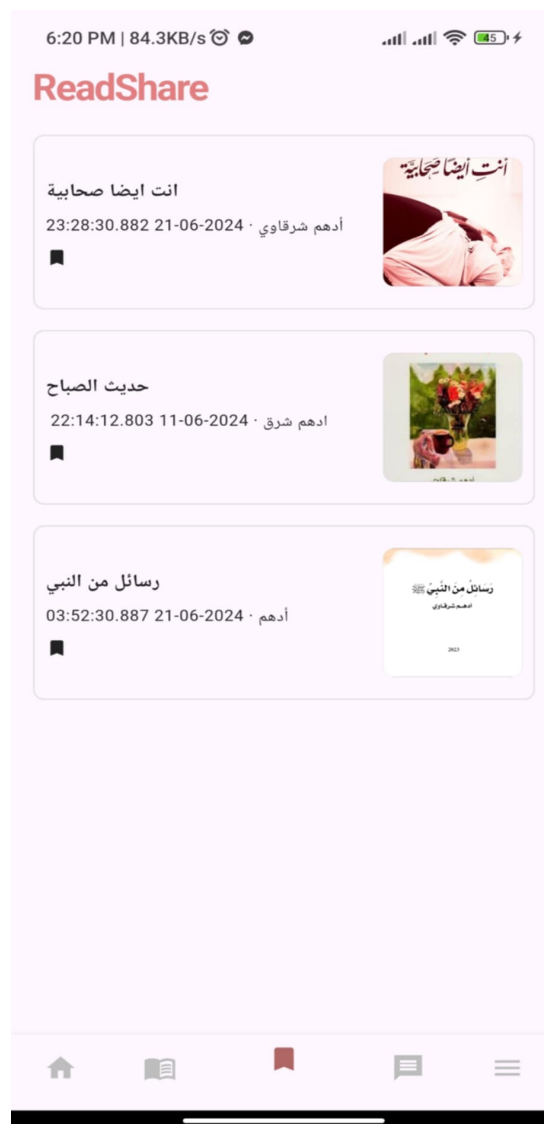


Figure 3.20: Favorite Books Page

Chat Page:

The chat page is an important part of the user experience in the ReadShare app, as it provides a way for users to communicate and interact. This page allows users to chat with each other, whether it's to discuss books, arrange a book exchange, or interact in general.

The Chat page displays a list of all the user's current conversations. Each conversation is clearly displayed with the other user's name and photo.

Users can easily start a new conversation with any other user on the platform. By searching for users by their name and start chatting with them with one click.

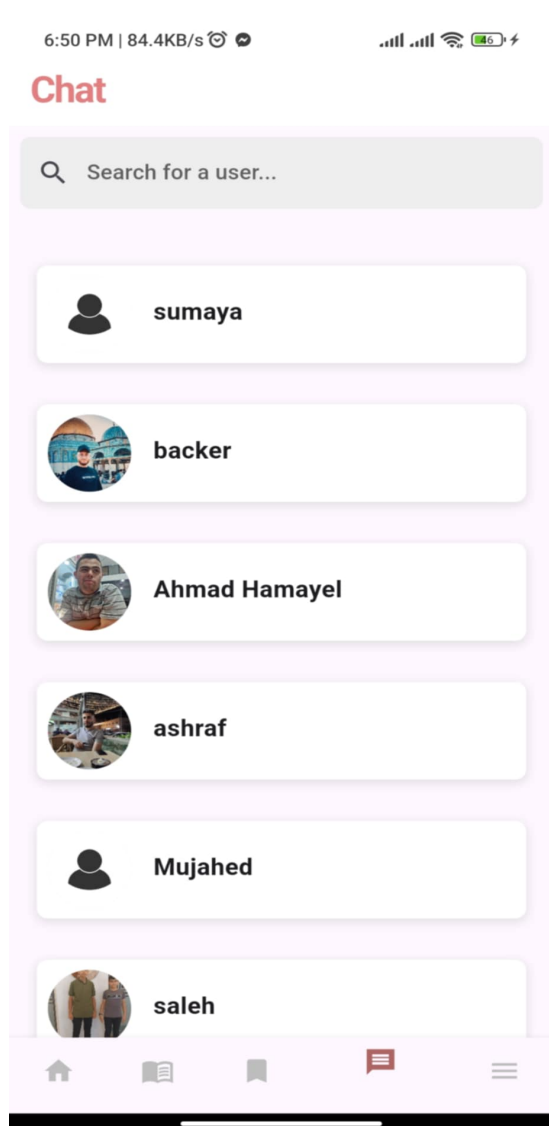


Figure 3.21: Chat page

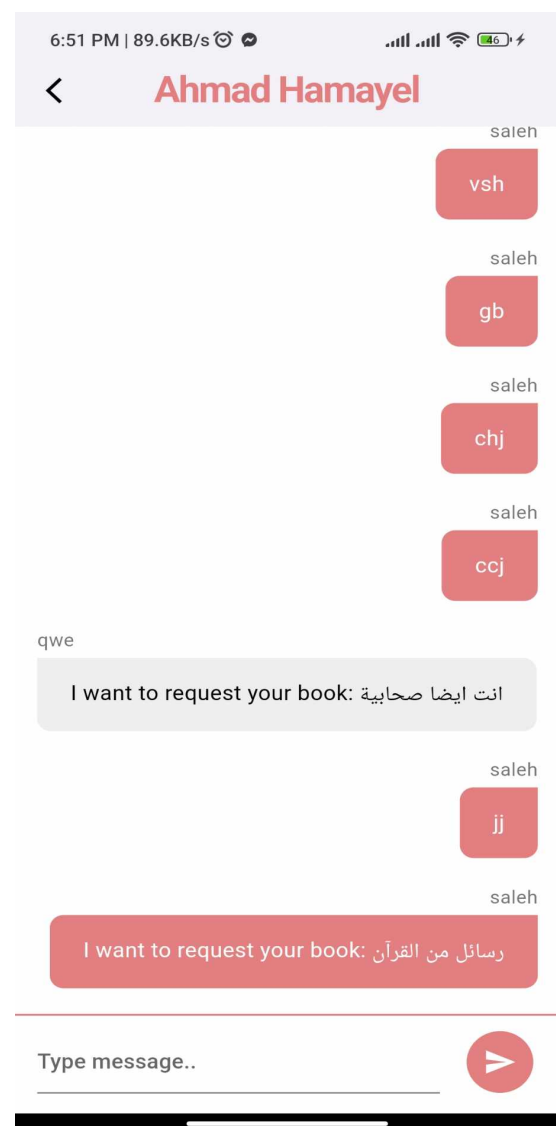


Figure 3.22: Chat with user Page

Menu Page:

The menu page consists of a side menu containing shortcuts to the main application in the application.

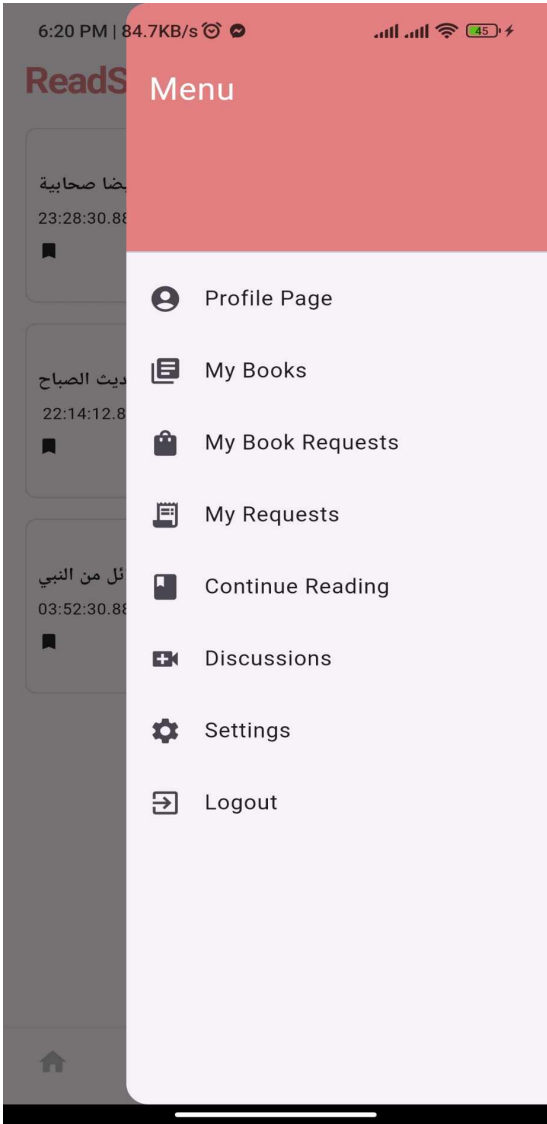


Figure 3.23: Menu Page

Abbreviations:

- Profile Page: Move him to his profile page. The profile picture can be changed. It also displays the posts he published, their number, the number of people he follows, and the number of people who follow him

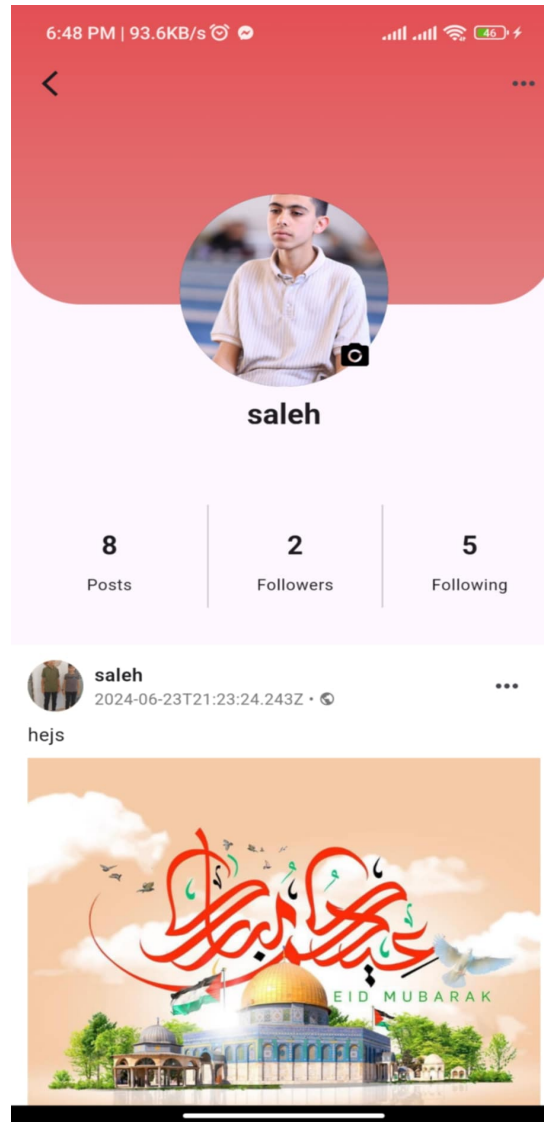


Figure 3.24: Profile Page

- My Books: Takes the user to his own books page so he can view his own books and add new books.

When you click on Add a Book, a box appears to request basic information, such as the cover image, title, description, author, and the type of book, whether paper or PDF.

In the case of choosing a PDF, a link to the PDF is required, but in the case of a physical one, the price of the book is required



Figure 3.25: My Book page

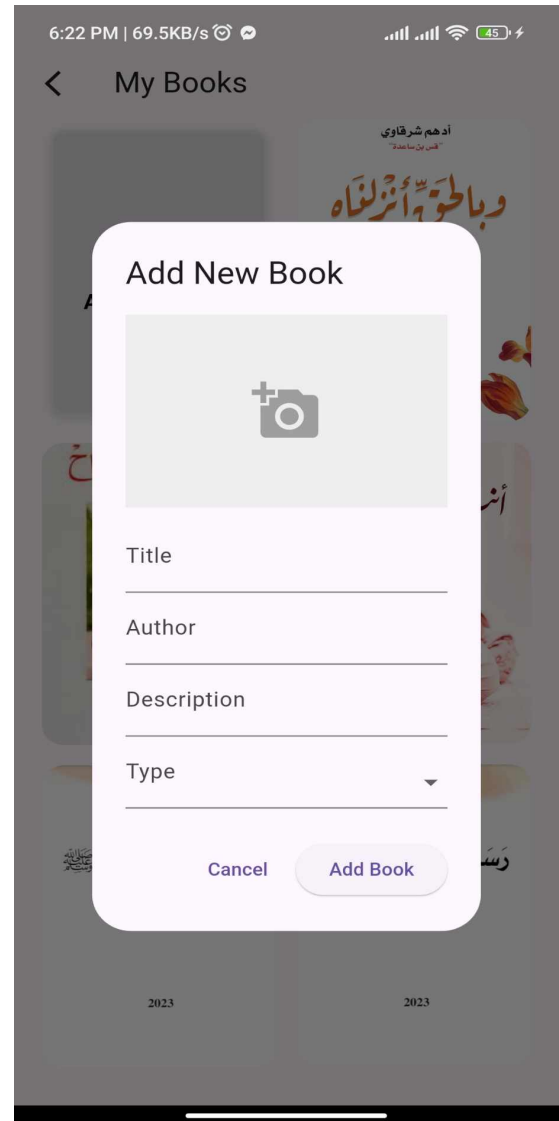


Figure 3.26: Add New Book

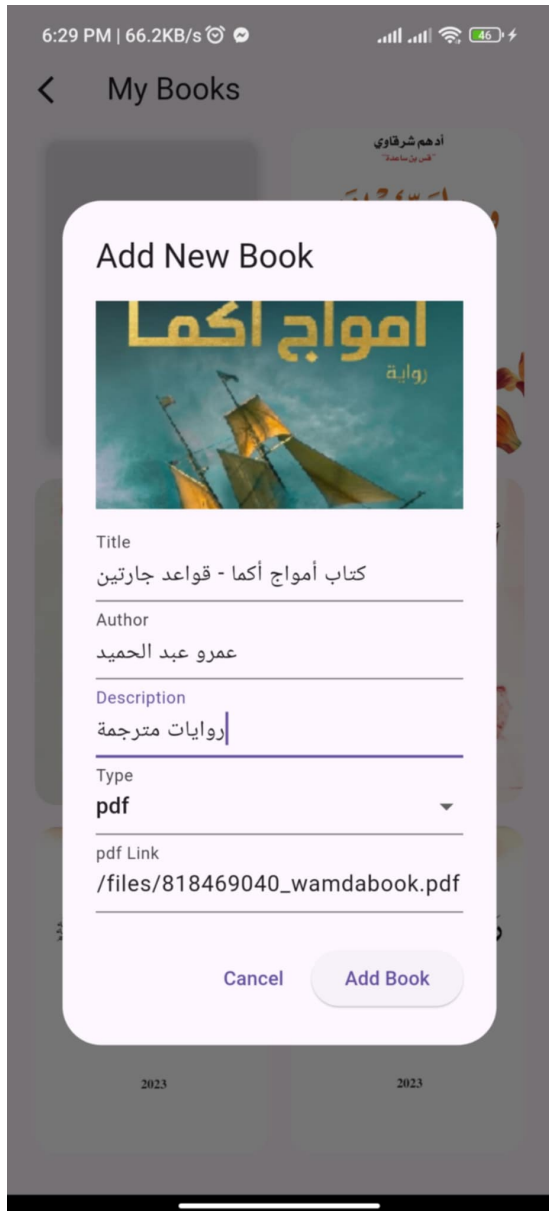


Figure 3.27: Add new book of type PDF

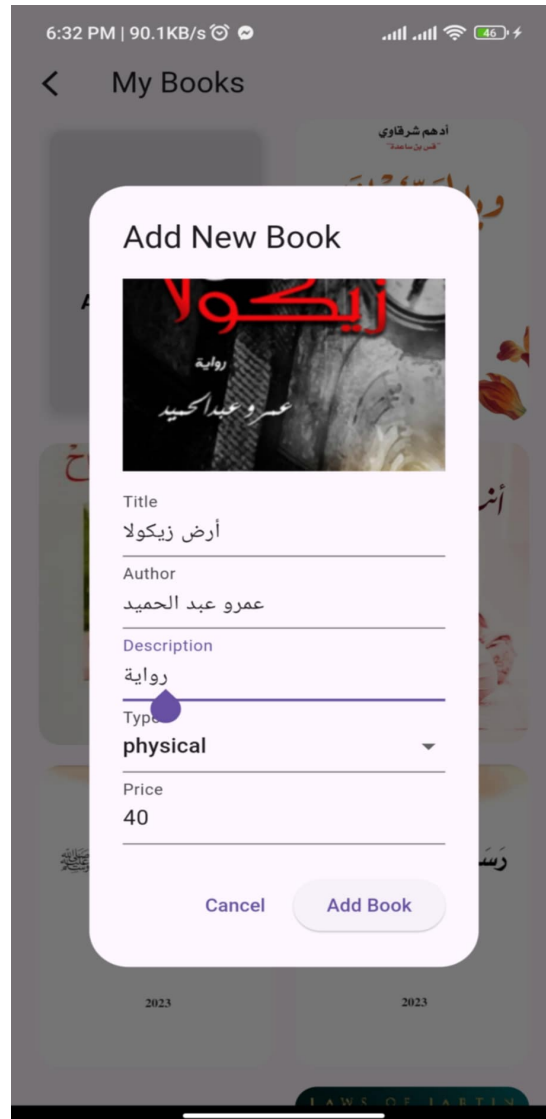


Figure 3.28: Add new book of type Physic

- My Book Requests: Users can follow the orders they have received for paper books from other users. The request can be accepted or rejected

There is also an icon for communicating with the user, either by voice call or via messages

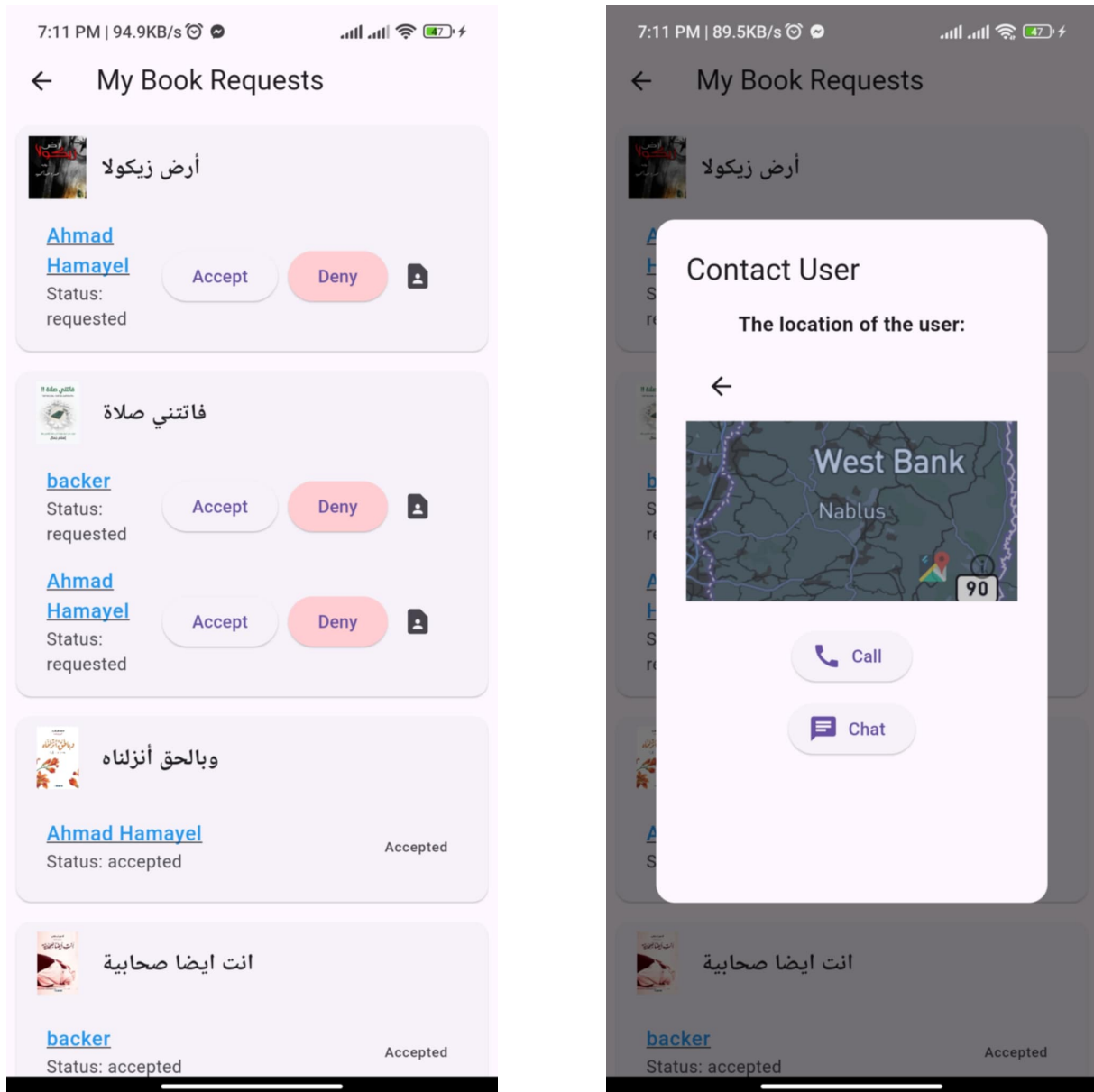


Figure 3.29: My Book Requests Page

- My Requests: A link to the Book Requests page where users can keep track of their current and past orders. This page displays the status of the order with a message icon to send a message to the owner or a call icon to contact them.

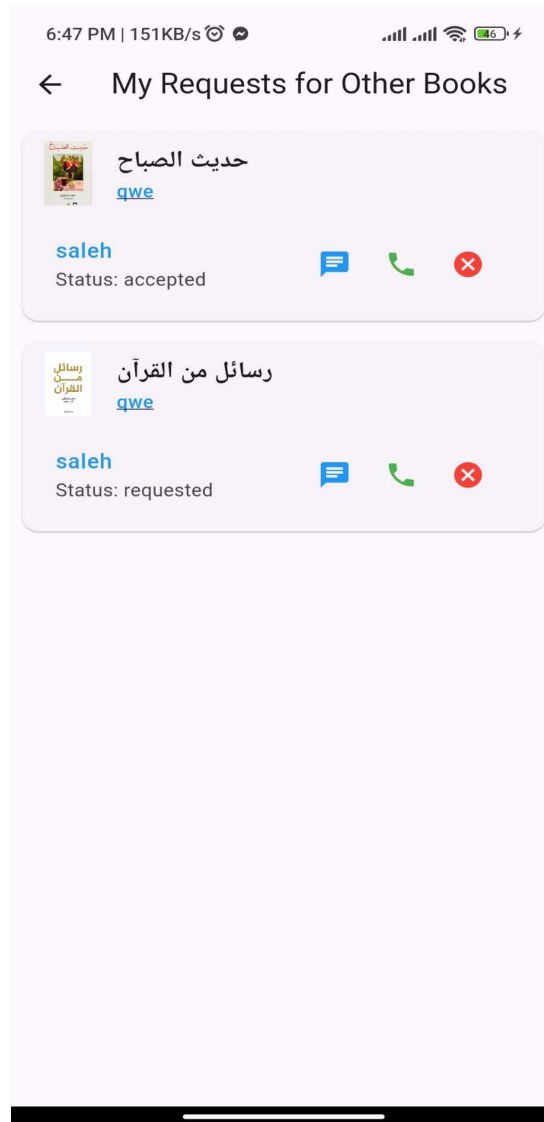


Figure 3.30: My Requests

- Continue Reading: A link to the Continue Reading page where users can continue reading e-books they started previously, with the ability to save the page they left off on.

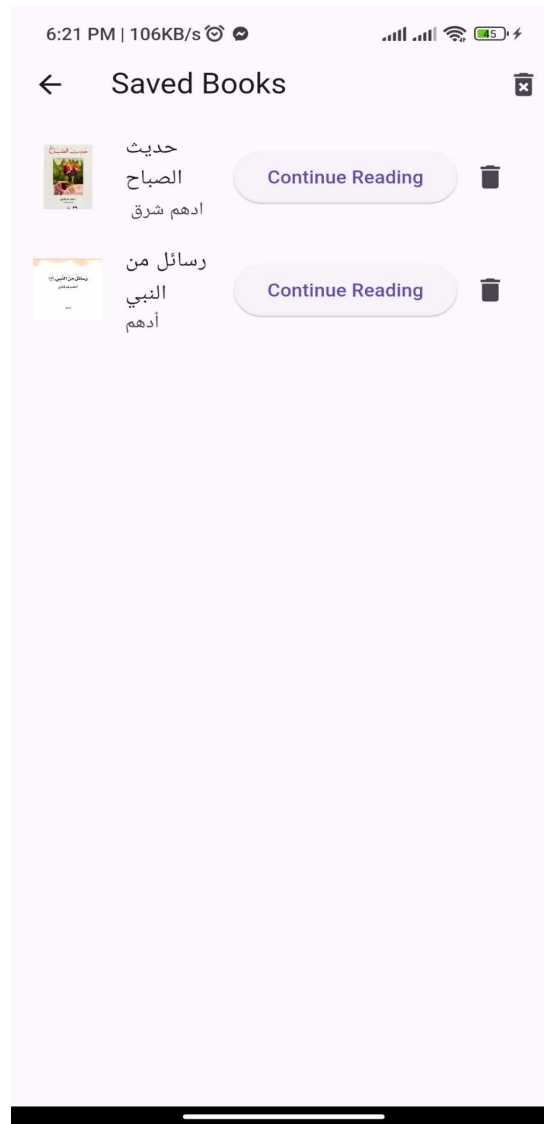


Figure 3.31: Continue Reading

- Discussion: A link to the discussion page where users can create a discussion room about books through Zoom. The creator can place a Zoom link in the designated place and show a list of friends for users to choose to join the discussion and choose the discussion topic. When you click on “Create Room”, a notification is sent to members that the discussion has begun, and once they click on the “Join” button, they enter the meeting.

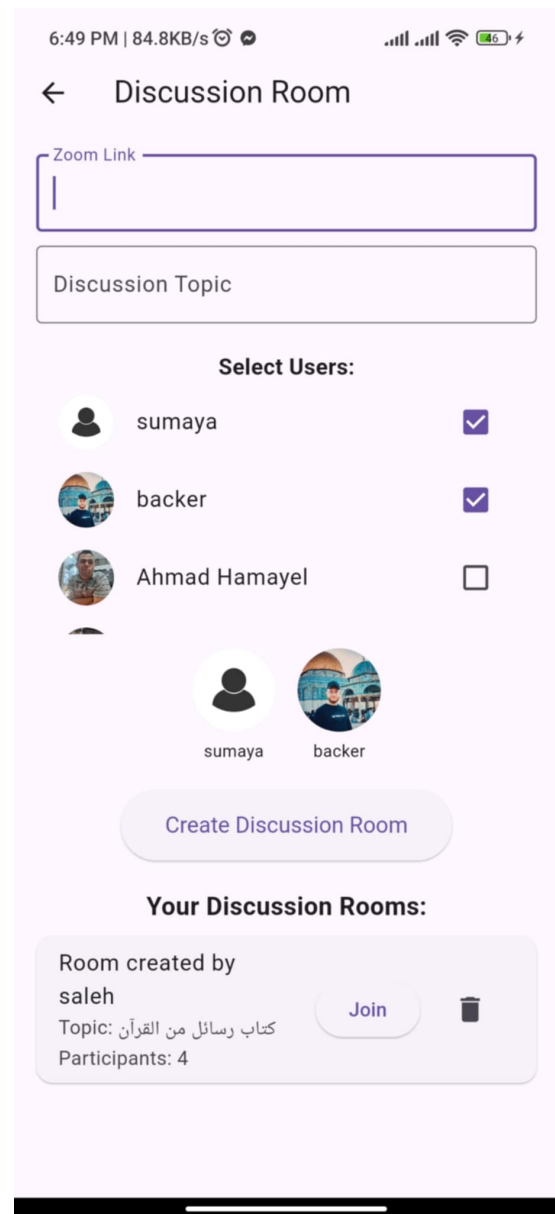
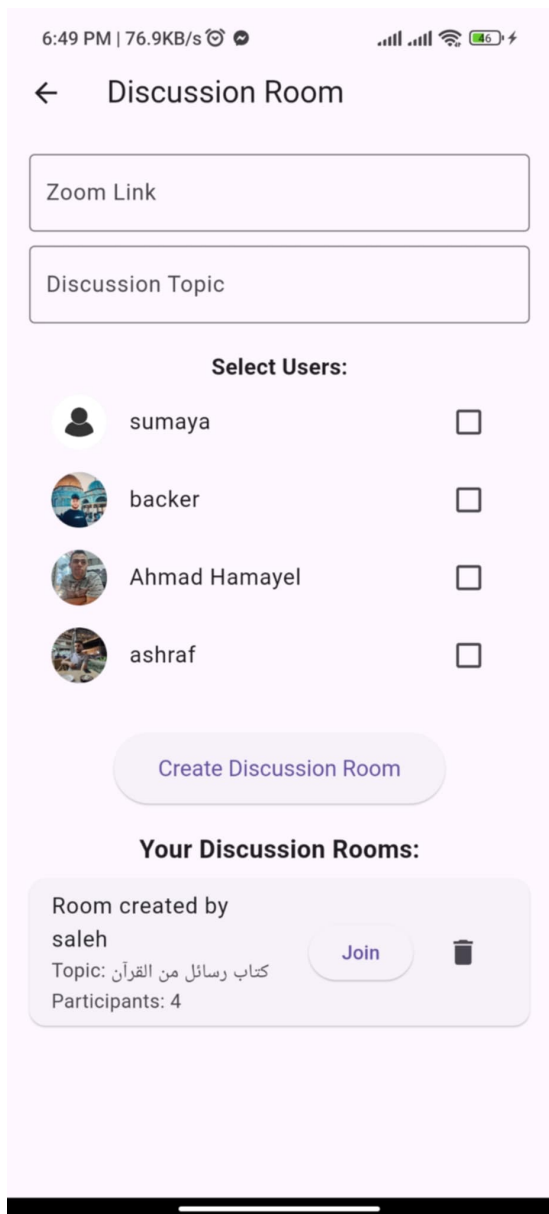


Figure 3.32: Discussion Room

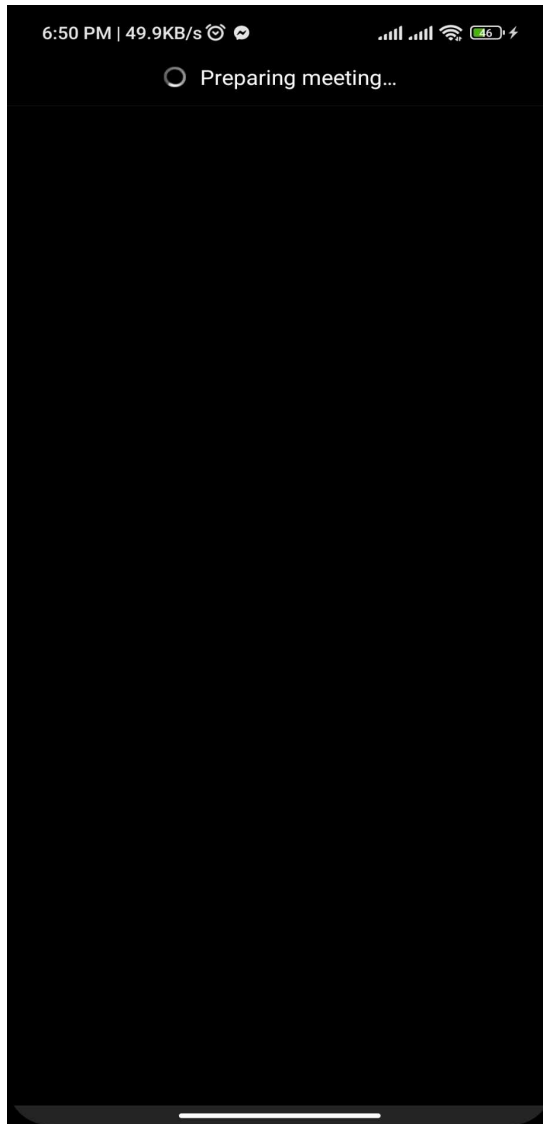


Figure 3.33: Zoom Meeting

- Log Out: Option to log out of the account securely.

User Profile Page:

The profile page displays basic information about the user such as: The user name as it appears in the application, the personal photo, the number of posts he has published, the number of people who follow him, and the number of people he follows. You can follow him through the follow button And communicate with him through the message button

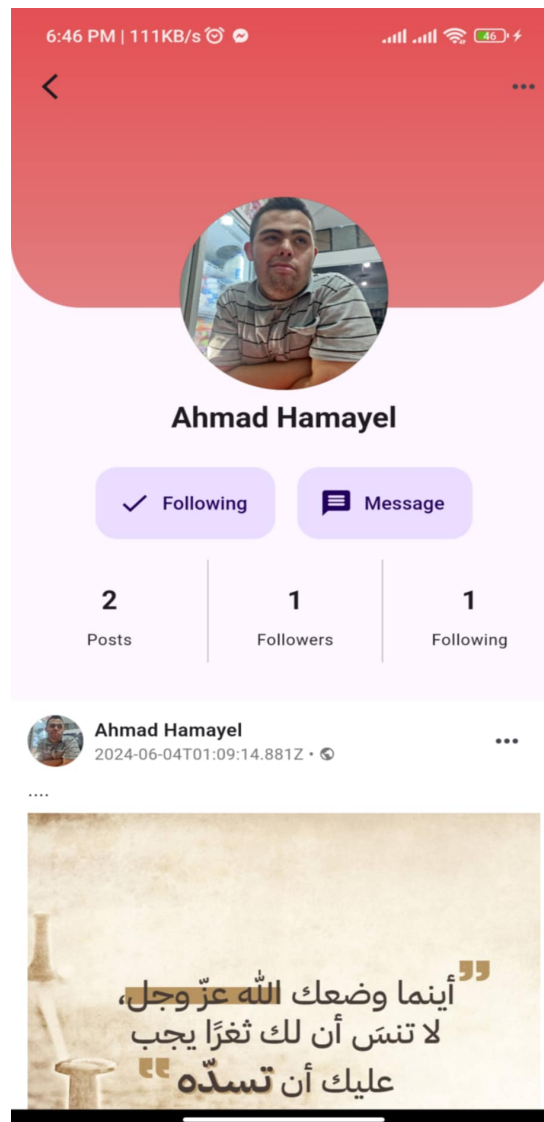


Figure 3.34: User Profile Page

3.3.2 Web Application:

This section explains the development of the Web platform.

Log In Page:

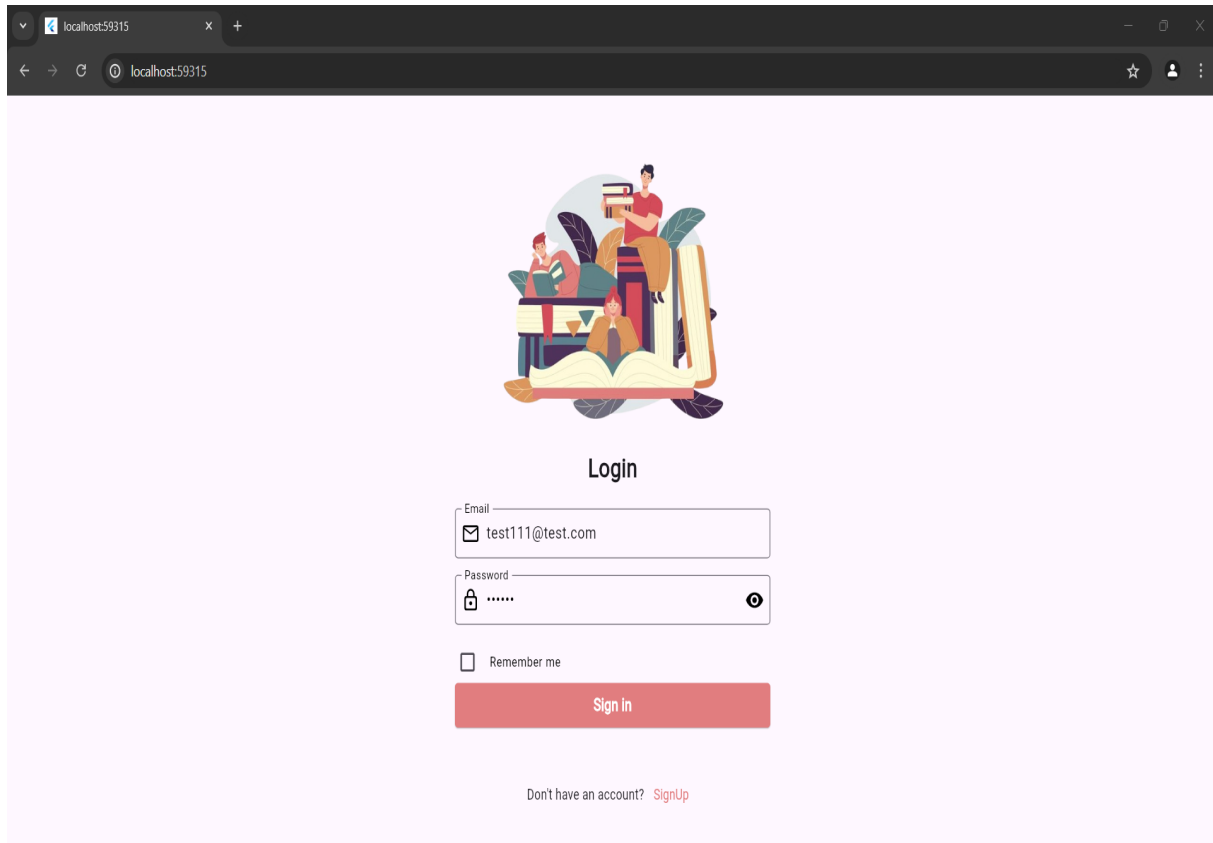


Figure 3.35: Log In Page in web

Sign Up Page:

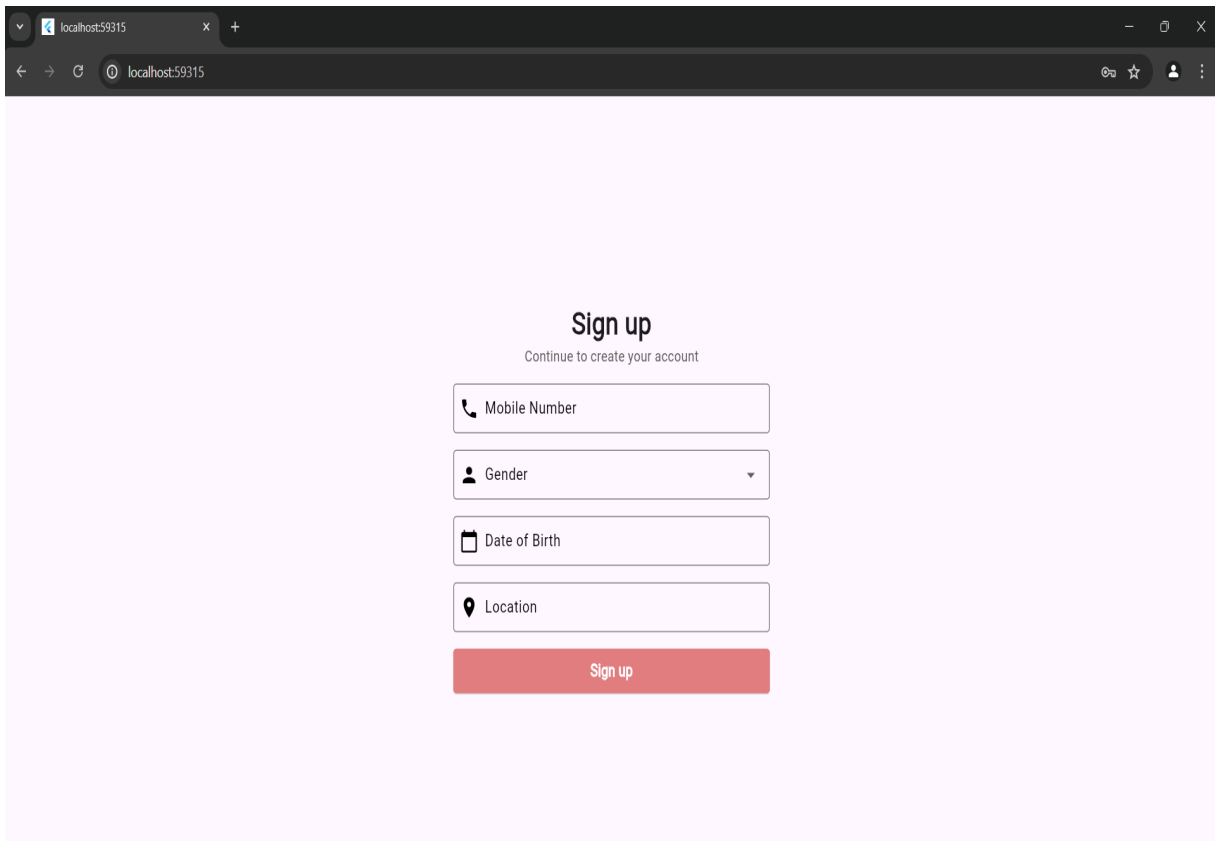
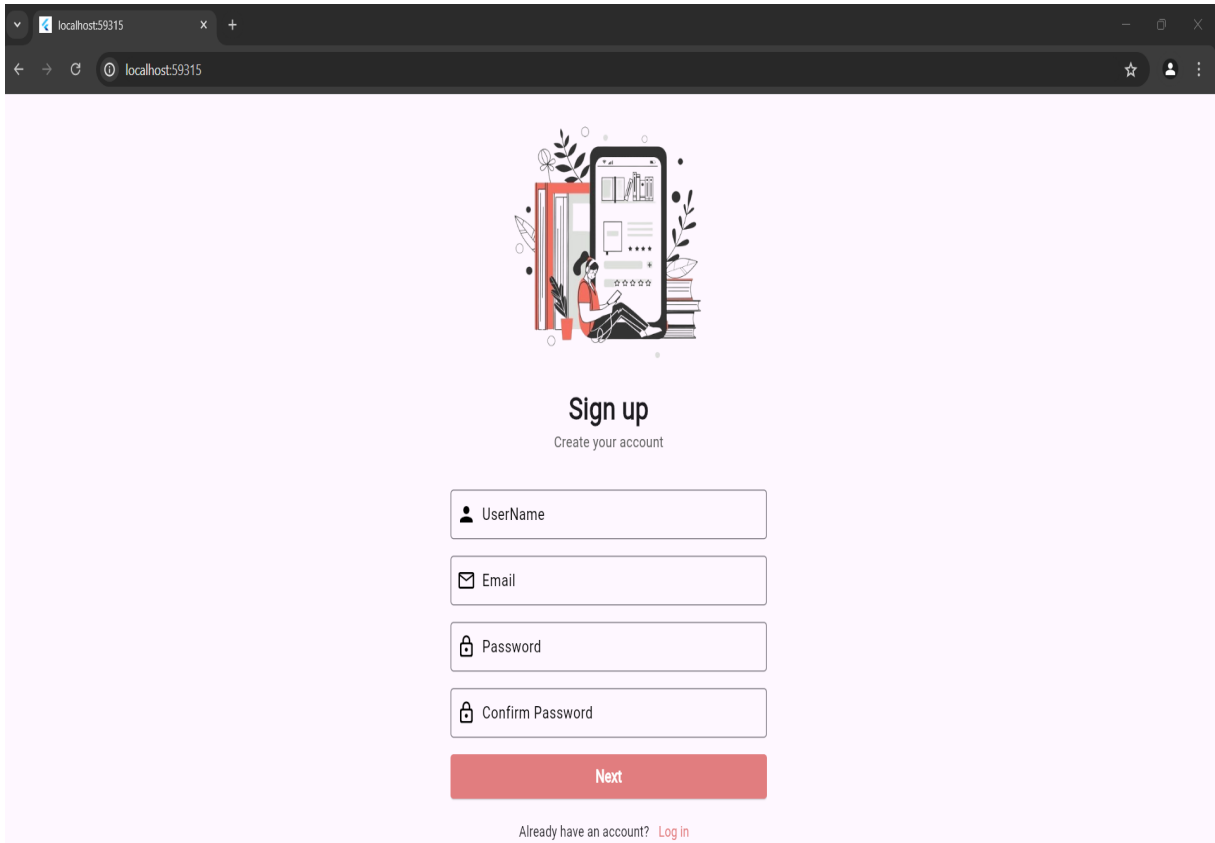


Figure 3.36: Sign Up Page in web

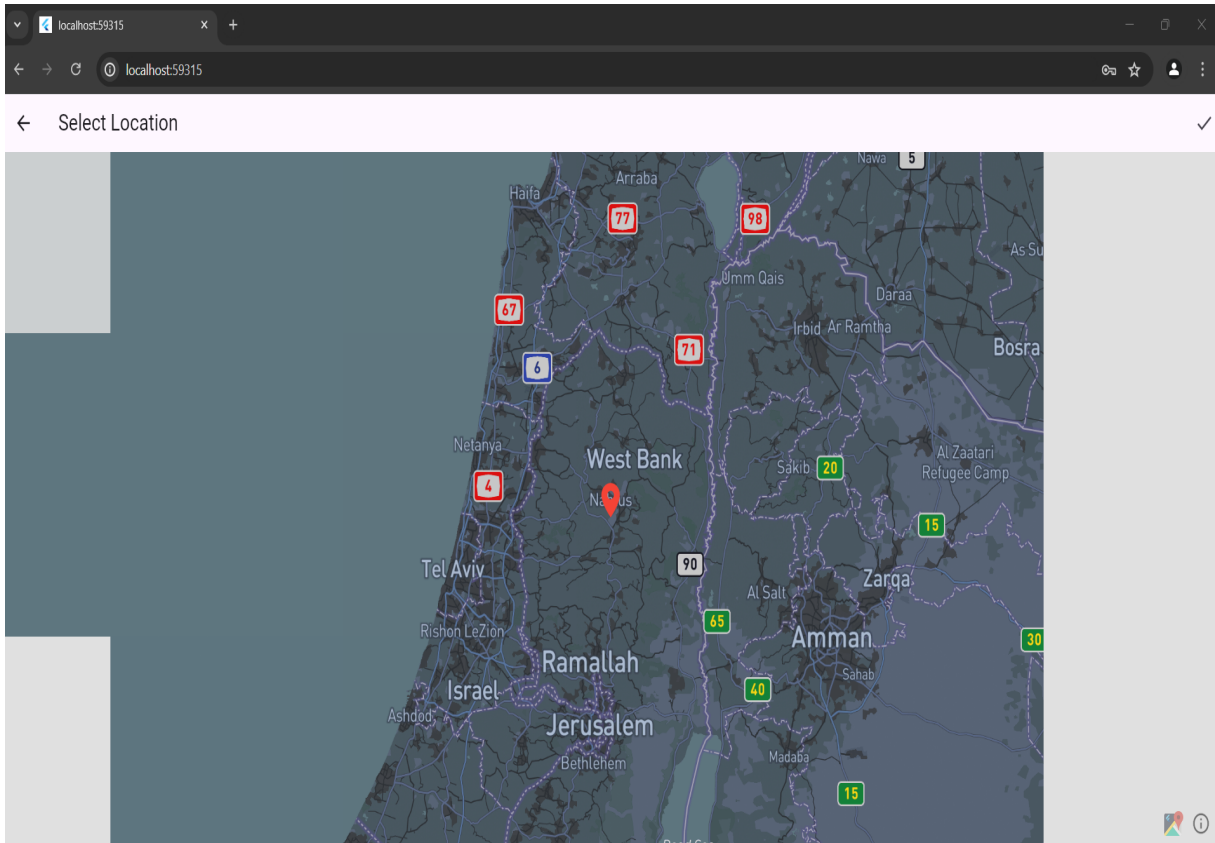


Figure 3.37: Select location in web

Home page:

It is similar to the home page in the mobile application, but the main difference is that the menu page appears on the far right of the screen instead of being in the Nav bar as shown in the picture.

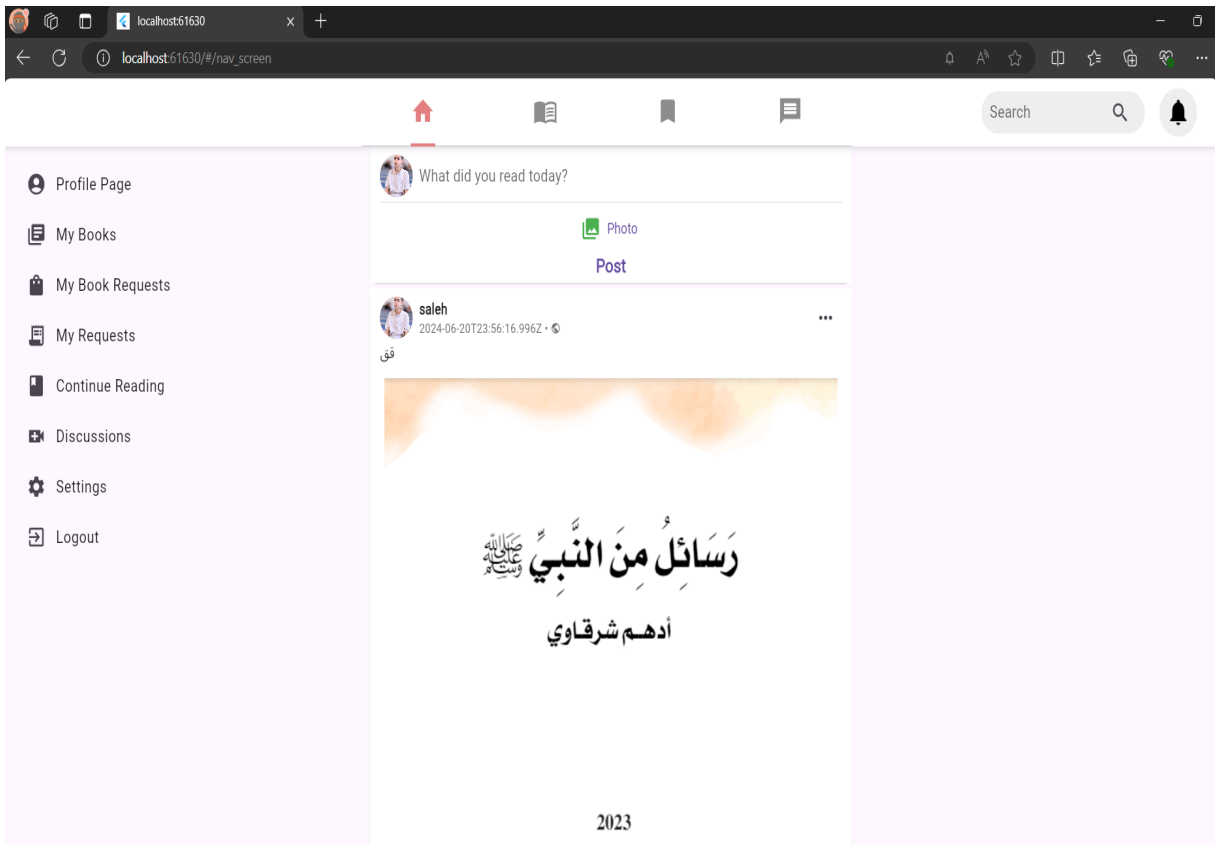


Figure 3.38: Home page in web

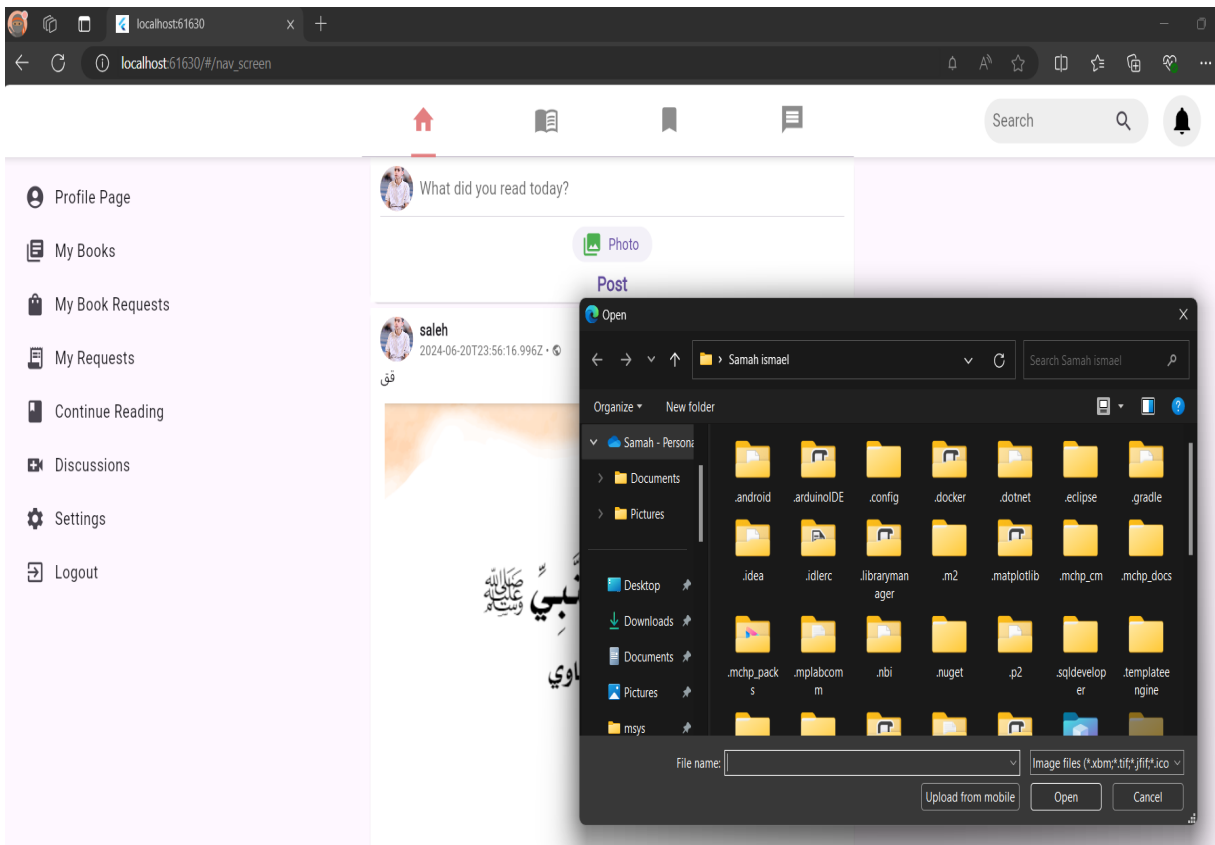


Figure 3.39: Upload an image in web

Book page:

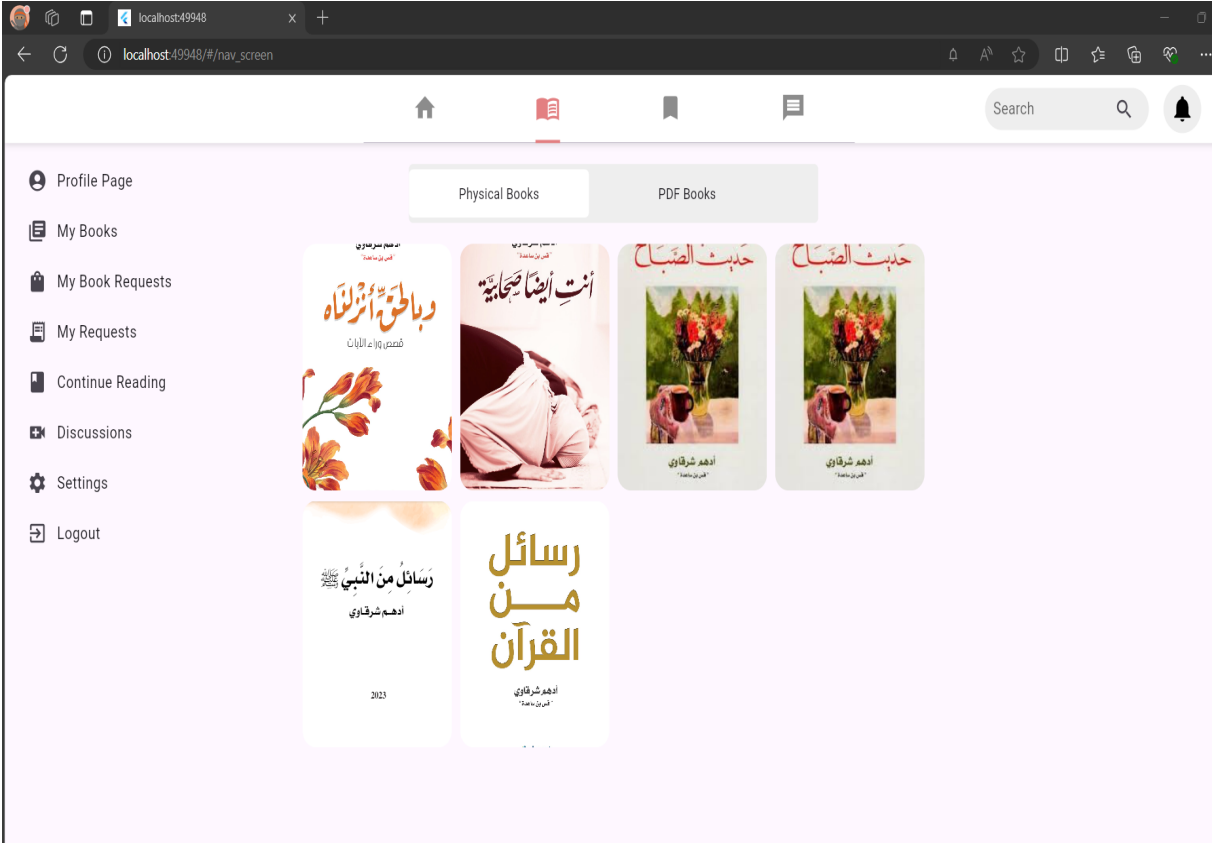


Figure 3.40: Book page in web

Favorite books page:

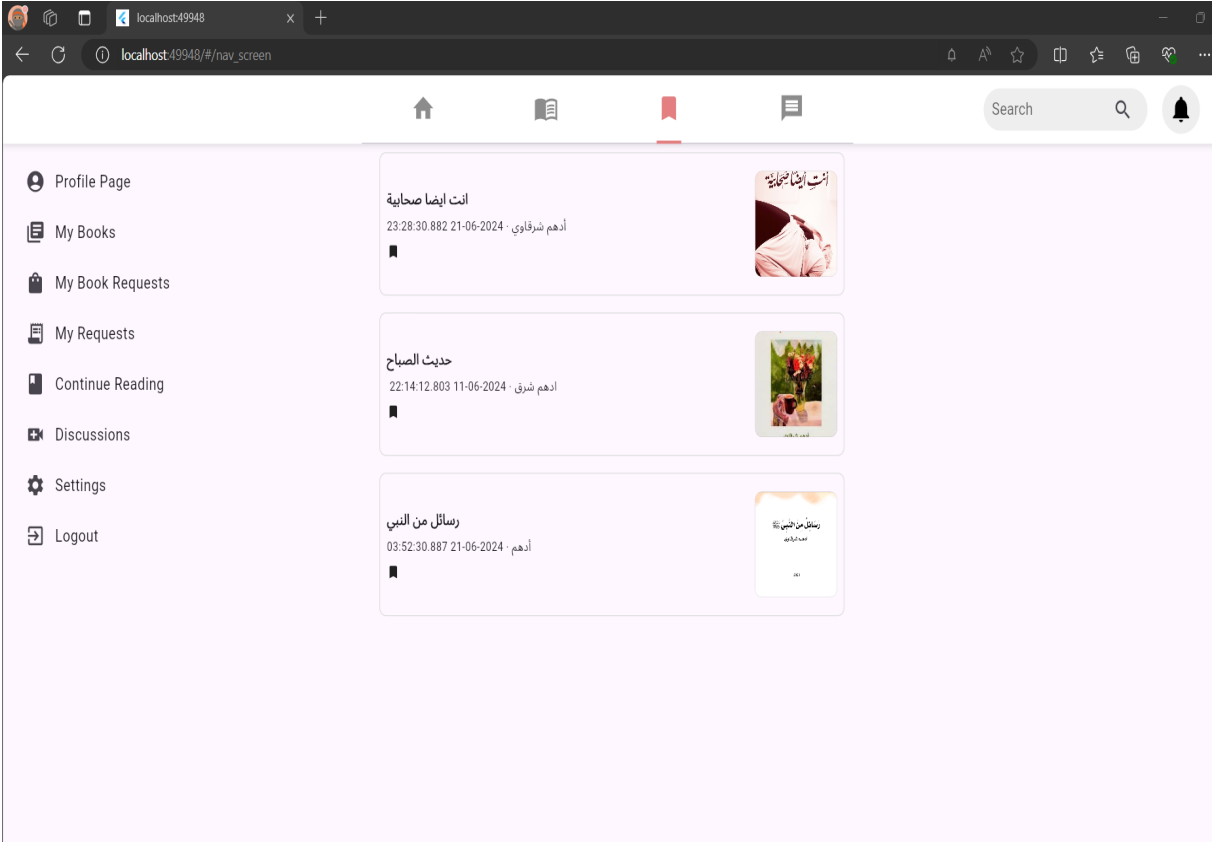


Figure 3.41: Favorite books page in web

Chat page:

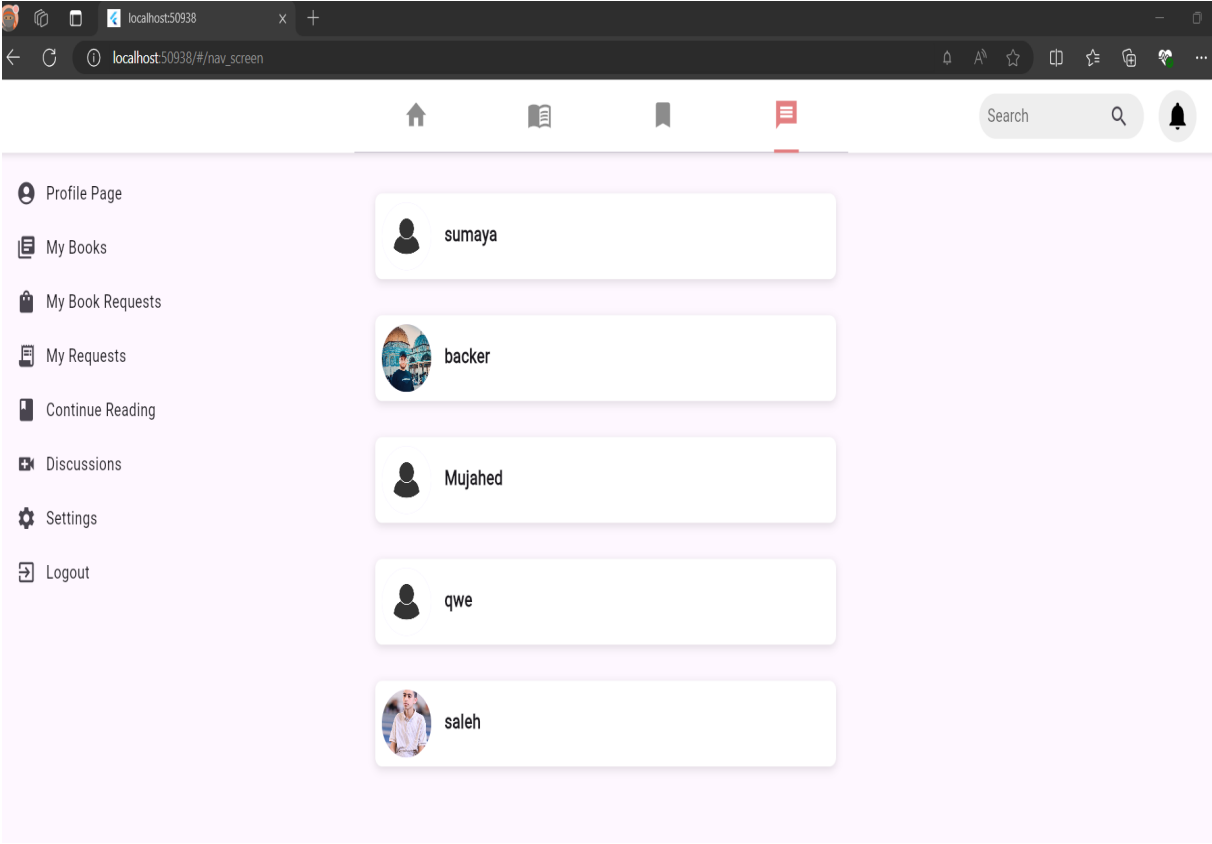


Figure 3.42: Chat page in web

Chapter 4

Results and Discussion

The ReadShare application has effectively achieved its intended goals, delivering a high level of efficiency and a user-friendly experience, as illustrated by the visuals showcased earlier. Our primary audience, book enthusiasts looking for a dynamic platform to exchange and discuss literature, directed our efforts toward crafting a design that is simple, intuitive, and visually clear, ensuring accessibility for all users.

However, the development process encountered several technical and practical challenges. From a technical perspective, integrating real-time functionalities using Firebase for chat and image storage presented complexities. The need for frequent updates and the evolution of software versions sometimes clashed with our existing infrastructure. Additionally, establishing a robust and logical database system using MongoDB for efficient data retrieval and storage posed considerable challenges during the app development journey.

Despite facing these obstacles, the application was effectively developed in alignment with our vision, delivering gratifying results. Users now have access to a broad spectrum of book-related services, with the flexibility to expand and tailor them to suit their needs. The platform enables users to create and manage profiles, exchange physical books, read digital books in PDF format, and engage in community discussions through robust tools for chatting, posting, and commenting.

The feedback from our users has been overwhelmingly positive, particularly appreciating the platform's ease of use, comprehensive features, and the ability to connect with fellow book enthusiasts. Some users suggested additional features, such as personalized book recommendations and enhanced community engagement tools, which are being considered for future updates.

In essence, the ReadShare platform has succeeded in fostering a vibrant reading culture and meaningful relationships among book lovers within the Arab-Muslim community and beyond. By bridging the gaps in existing book exchange platforms and emphasizing a culturally sensitive approach, ReadShare has laid a strong foundation for promoting reading and intellectual discourse. Continuous feedback and iterative improvements will further enhance the platform's impact and reach, ensuring its sustainability and relevance in the future.

Chapter 5

Conclusion and Recommendation

5.1 Conclusion

The development and implementation of the ReadShare platform have successfully addressed the identified market gaps. By providing a comprehensive, user-friendly platform for book exchanges and community engagement, ReadShare has laid the foundation for a thriving reading culture. Continuous feedback and iterative improvements will further enhance the platform's impact and reach.

5.2 Future Work

Future Work To further enhance the ReadShare platform, several key developments are planned. One major area of focus is the implementation of a personalized book recommendation system. This feature will utilize user data to suggest books tailored to individual reading preferences, thereby enriching the user experience and promoting greater engagement with the platform.

Additionally, plans are underway to introduce a book forum. This forum will serve as a dedicated space for users to discuss various literary topics, share insights, and participate in thematic discussions. It will provide a structured environment for deeper intellectual engagement and foster a stronger sense of community among users.

By incorporating these features, ReadShare aims to continue evolving and meeting the needs of its users, ensuring the platform remains a vital resource for book lovers and a catalyst for promoting a thriving reading culture.

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