



Project Title: Book Shelf

*A Flutter-Based Mobile Application to
Manage and Track Books*

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1. Abstract

The *Book Shelf* mobile application is a Flutter-based project developed to simplify personal book management for readers and students. It enables users to search for books, add them to favorites, mark them as read or unread, and organize them into personalized collections. The app offers an intuitive interface, efficient data handling, and smooth navigation across all features. The project emphasizes modern design principles, responsiveness, and user-centric functionality, aiming to enhance the digital reading experience.

2. Introduction

In today's digital world, readers often struggle to keep track of the books they have read or plan to read. Managing physical reading lists or scattered notes can be inconvenient and inefficient. The *Book Shelf* application addresses this challenge by providing a centralized, user-friendly digital platform where users can search, organize, and manage their personal book libraries.

Built using **Flutter**—a cross-platform framework by Google—and **Dart**, the app delivers a consistent, visually appealing experience across Android and iOS devices. The project's development also reinforces essential programming concepts such as state management, widget design, data persistence, and responsive UI implementation.

3. Objectives

The main objectives of this project are:

- To design and develop a mobile application for organizing and tracking books.
- To implement book search, favorite, and reading status management features.

- To create a clean, intuitive, and responsive UI using Flutter widgets.
 - To practice team-based software development and project documentation.
 - To apply theoretical knowledge from software engineering principles in a real-world mobile app context.
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4. System Requirements

Hardware Requirements

- Android smartphone or emulator
- Minimum 1 GB RAM
- 200 MB free storage space
- Stable internet connection (for API-based search, if implemented)

Software Requirements

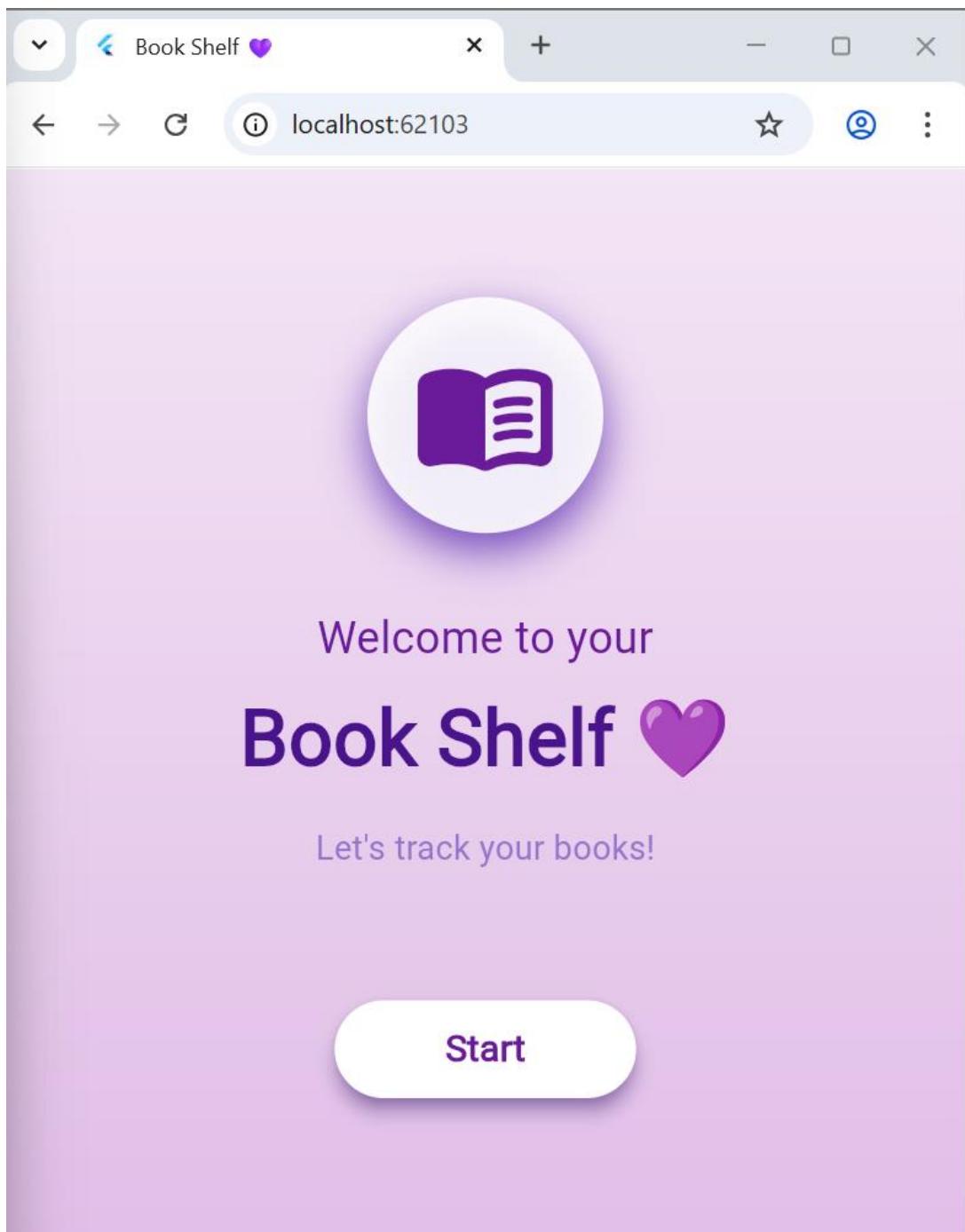
- Flutter SDK (latest stable version)
 - Dart Programming Language
 - Android Studio or Visual Studio Code
 - Git (for version control)
 - Emulator or real Android device for testing
-

5. System Design

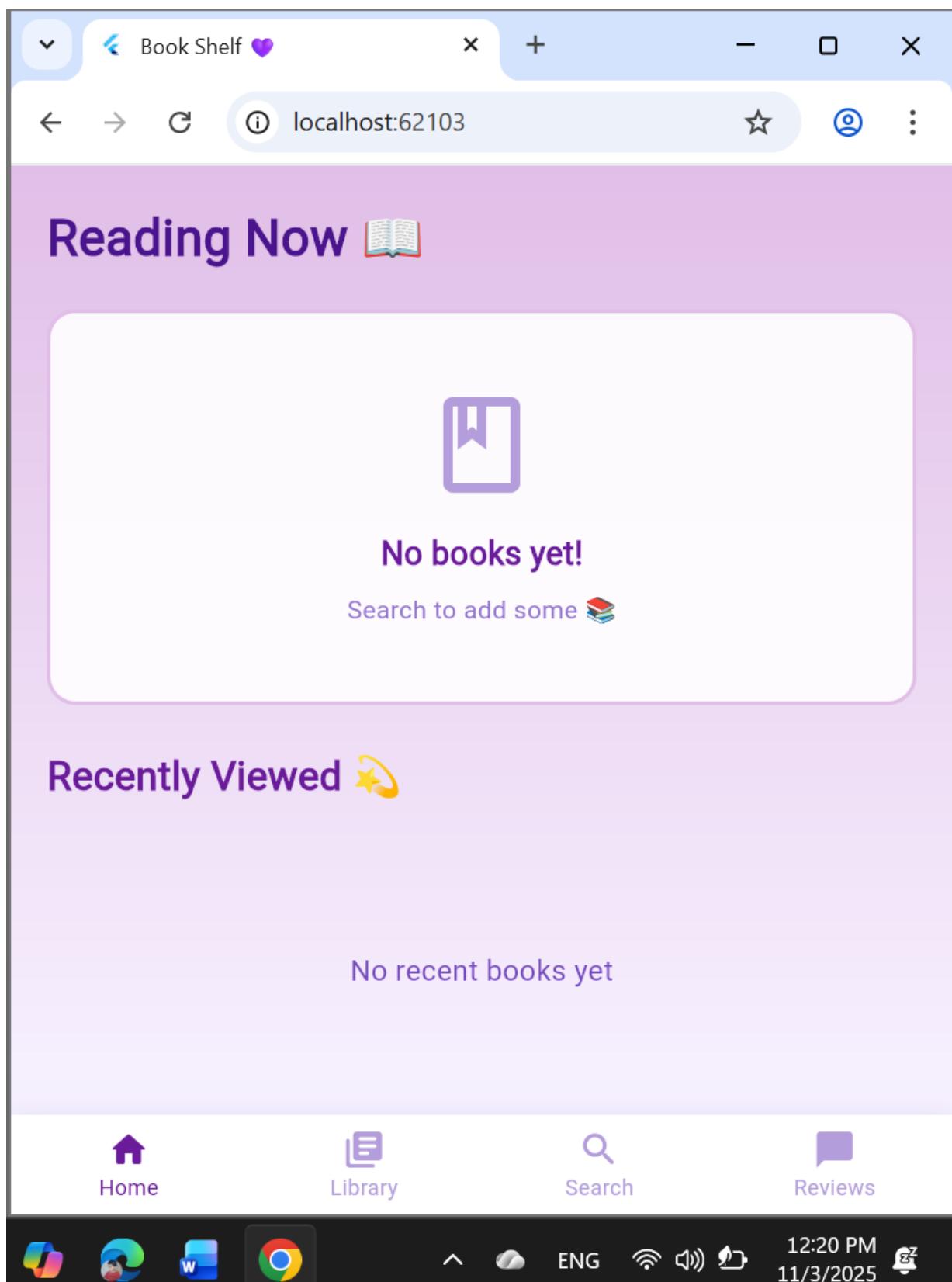
The *Book Shelf* system is designed to provide a simple yet powerful architecture that supports all core functionalities efficiently.

Designed with Flutter's Material Design components for a consistent look and feel. Key screens include:

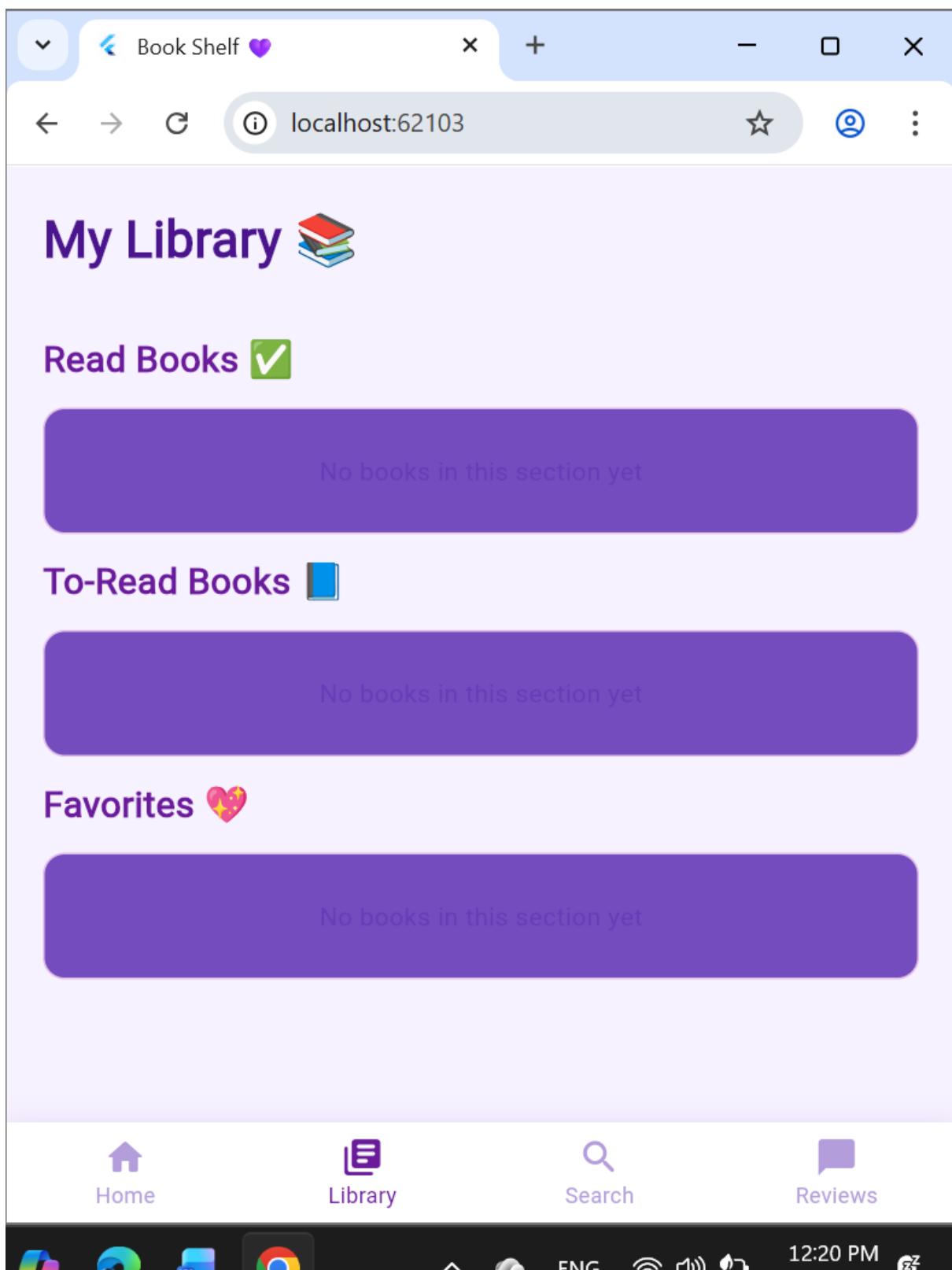
- **Welcome Screen**



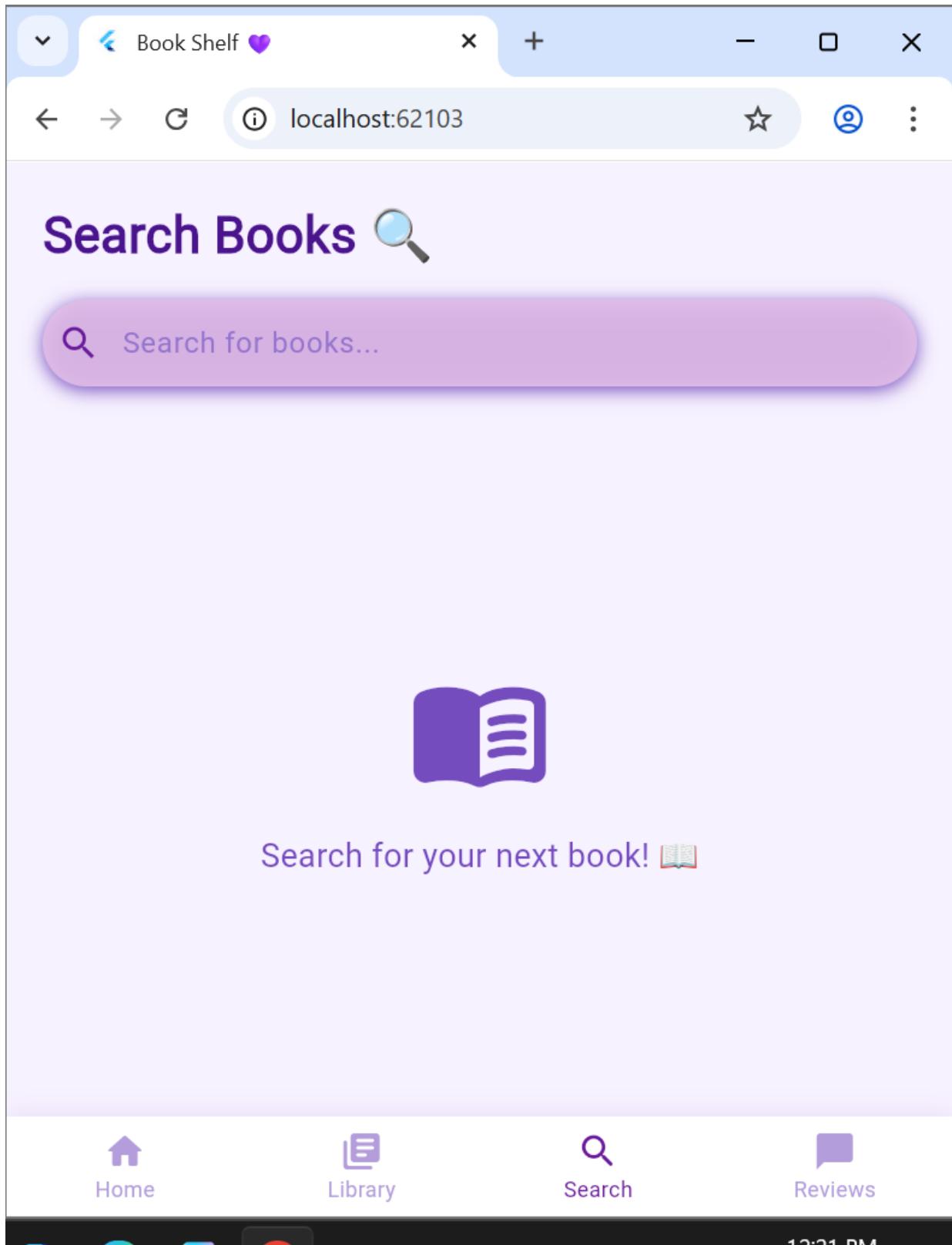
- Home Screen (Currently Reading & Recently Viewed)



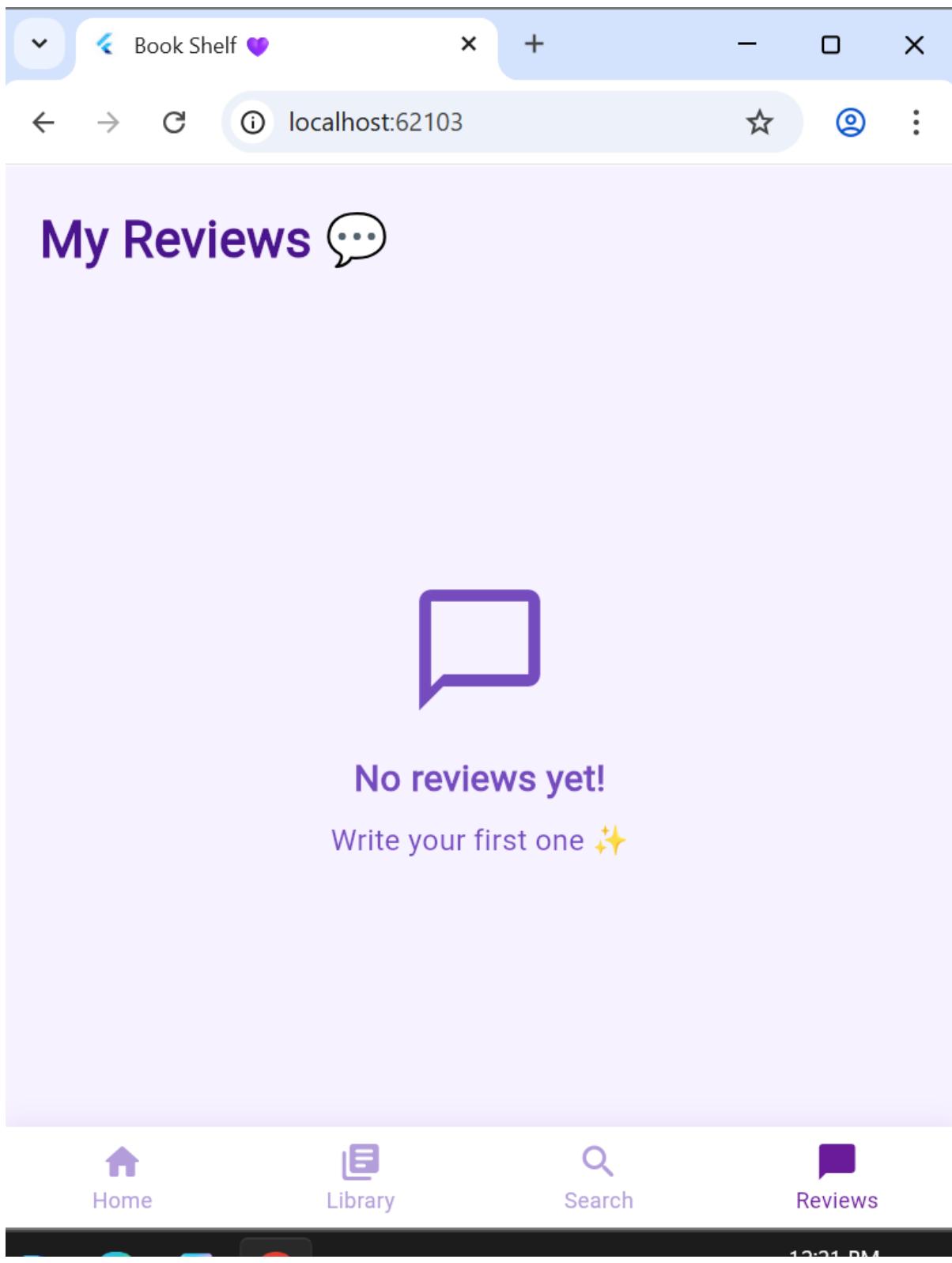
- Library Screen (Reading lists)



- **Search Screen (search and add to lists)**



- **Review Screen (See Reviewed books)**



6. Functionality

Verified that all core features (search, favorites, reviews, etc.) work as intended.

- **Searching Books**

The screenshot shows a web browser window with the following details:

- Header:** A light blue header bar with a dropdown arrow, a 'Book Shelf' icon with a heart, and standard window control buttons (x, +, -, □, ×).
- Address Bar:** Shows 'localhost:62103'.
- Search Bar:** A purple rounded rectangle containing a magnifying glass icon, the text 'crime and punishment', and a close button (X).
- Search Results:** Three book entries listed in a grid:
 - Crime and Punishment** by Fyodor Dostoyevsky, Constance Garnett. The thumbnail is a purple book cover icon.
 - Crime and Punishment (Unabridged Garnett Translation)** by Fyodor Dostoyevsky. The thumbnail is a purple book cover icon.
 - Crime and Punishment by Fyodor Dostoevsky (Illustrated)** by Fyodor Dostoevsky. The thumbnail is a purple book cover icon.
- Footer:** A navigation bar with icons for Home (house), Library (bookshelf), Search (magnifying glass), and Reviews (speech bubble).

- Adding to lists (Read, To Read, Favourites, Reviews)

The screenshot shows a web browser window titled "Book Shelf" with a heart icon. The address bar displays "localhost:62103". The main content area is titled "Search Books" with a magnifying glass icon. A search bar contains the query "crime and punishment". Below the search bar, three book results are listed in cards:

- Crime and Punishment** by Fyodor Dostoyevsky, Constantine H. Meskell (Translator). The card includes a purple book icon. A context menu is open over this item, listing:
 - Mark as Read (with a checked green checkmark)
 - Add to To-Read (with a blue bookmark icon)
 - Add to Favorites (with a red heart icon)
 - Write a Review (with a pencil and document icon)
- Crime and Punishment (Translation)** by Fyodor Dostoyevsky. The card includes a purple book icon.
- Crime and Punishment by Fyodor Dostoevsky (Illustrated)** by Fyodor Dostoevsky. The card includes a purple book icon. To the right of the title is a vertical ellipsis (...).

At the bottom of the page are navigation links: Home (house icon), Library (bookshelf icon), Search (magnifying glass icon), and Reviews (speech bubble icon).

Book Shelf ❤️

localhost:62103

Search Books 🔎

crime and punishment

Crime and Punishment
Fyodor Dostoyevsky, Constance Garnett
To-Read

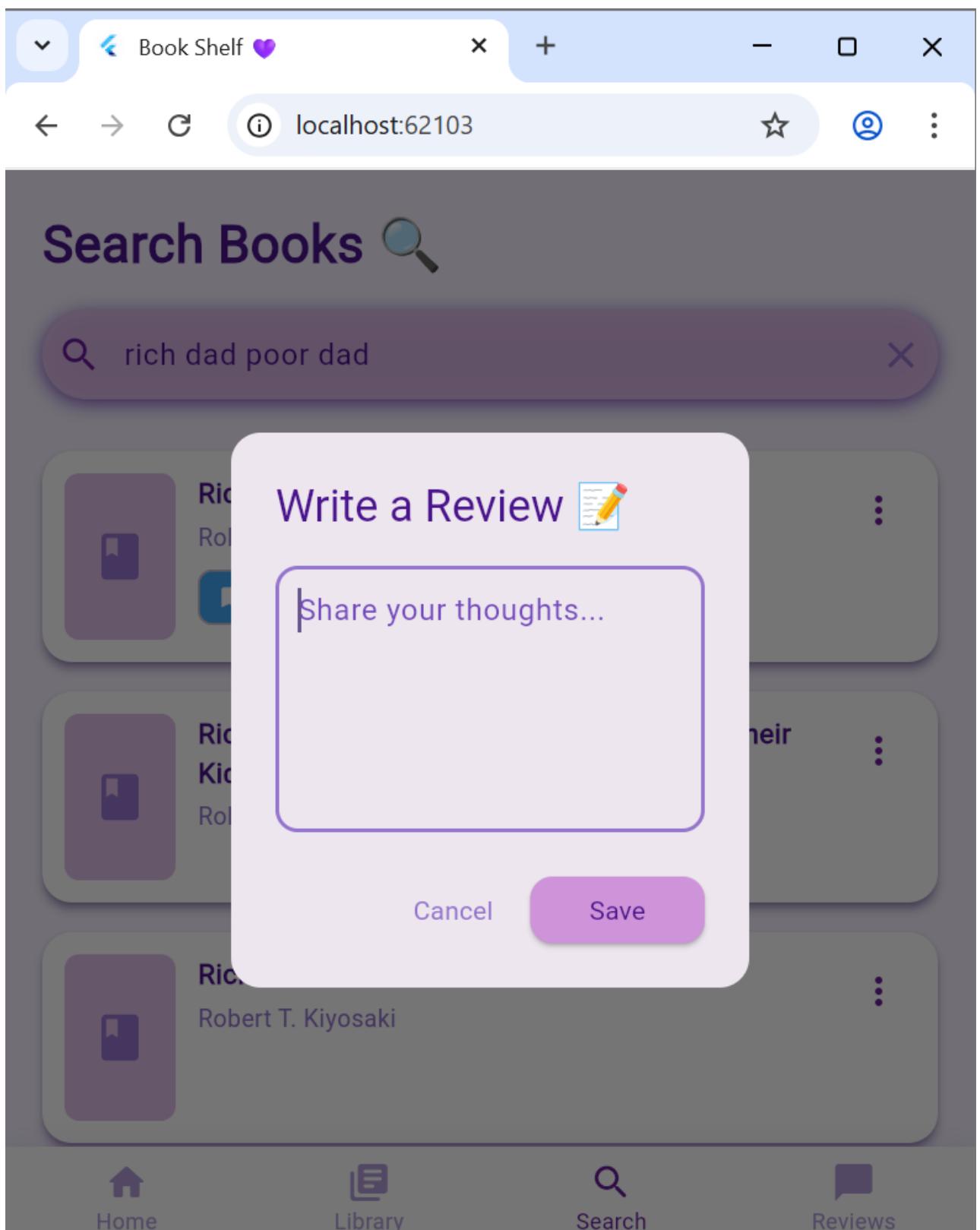
Crime and Punishment (Unabridged Garnett Translation)
Fyodor Dostoyevsky
Favorite

Crime and Punishment by Fyodor Dostoevsky (Illustrated)
Fyodor Dostoevsky

Marked as Read! ✓

Home Library Search Reviews

- Writing Review (Review Screen after adding reviews)



Book Shelf ❤️

localhost:62103

My Reviews

Rich Dad Poor Dad
Robert T. Kiyosaki, Sharon L. Lechter

inpirational. love it. learned alot.

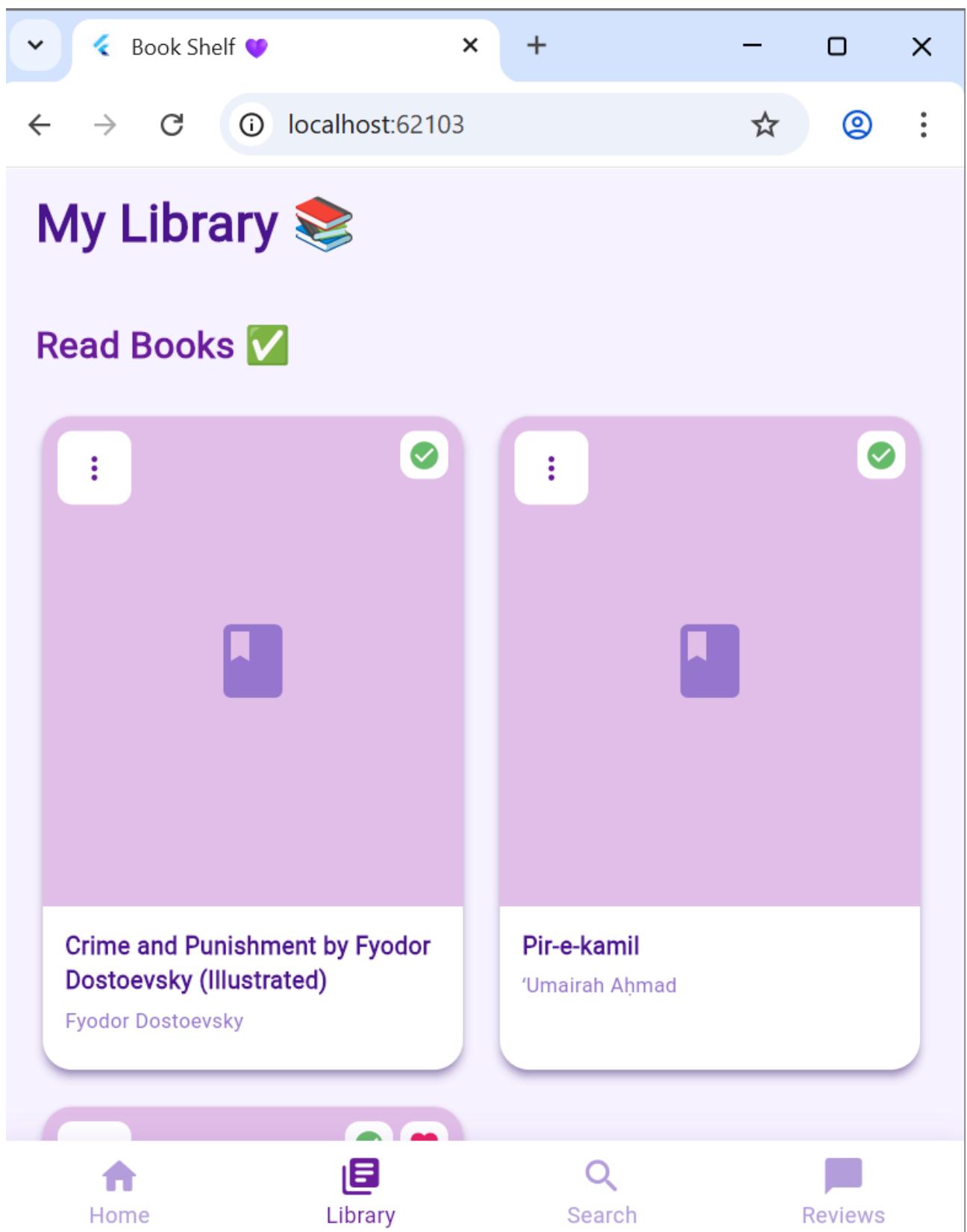
Omniscient Reader's Viewpoint (novel), Vol. 1
singNsong

mind blowing. this was just too good.

Solo Leveling: Rise of the Shadow Monarch – Season 1
Sadistic Gamerz

Home Library Search Reviews

- Library screen after adding books



- Removing a Book

The screenshot shows a web browser window with the title "Book Shelf ❤️". The address bar displays "localhost:62103". The main content area is titled "Favorites ❤️". On the left, a sidebar lists actions: "Mark as Read", "Add to To-Read", "Remove from Favorites" (selected), "Write a Review", and "Remove Book". On the right, a card for "Crime and Punishment (Unabridged Garnett Translation)" by Fyodor Dostoyevsky is shown, along with a card for "Little Red Riding Hood" by Alan Dundes. At the bottom, there are navigation icons for Home, Library, Search, and Reviews.

Favorites ❤️

- Mark as Read
- Add to To-Read
- Remove from Favorites
- Write a Review
- Remove Book

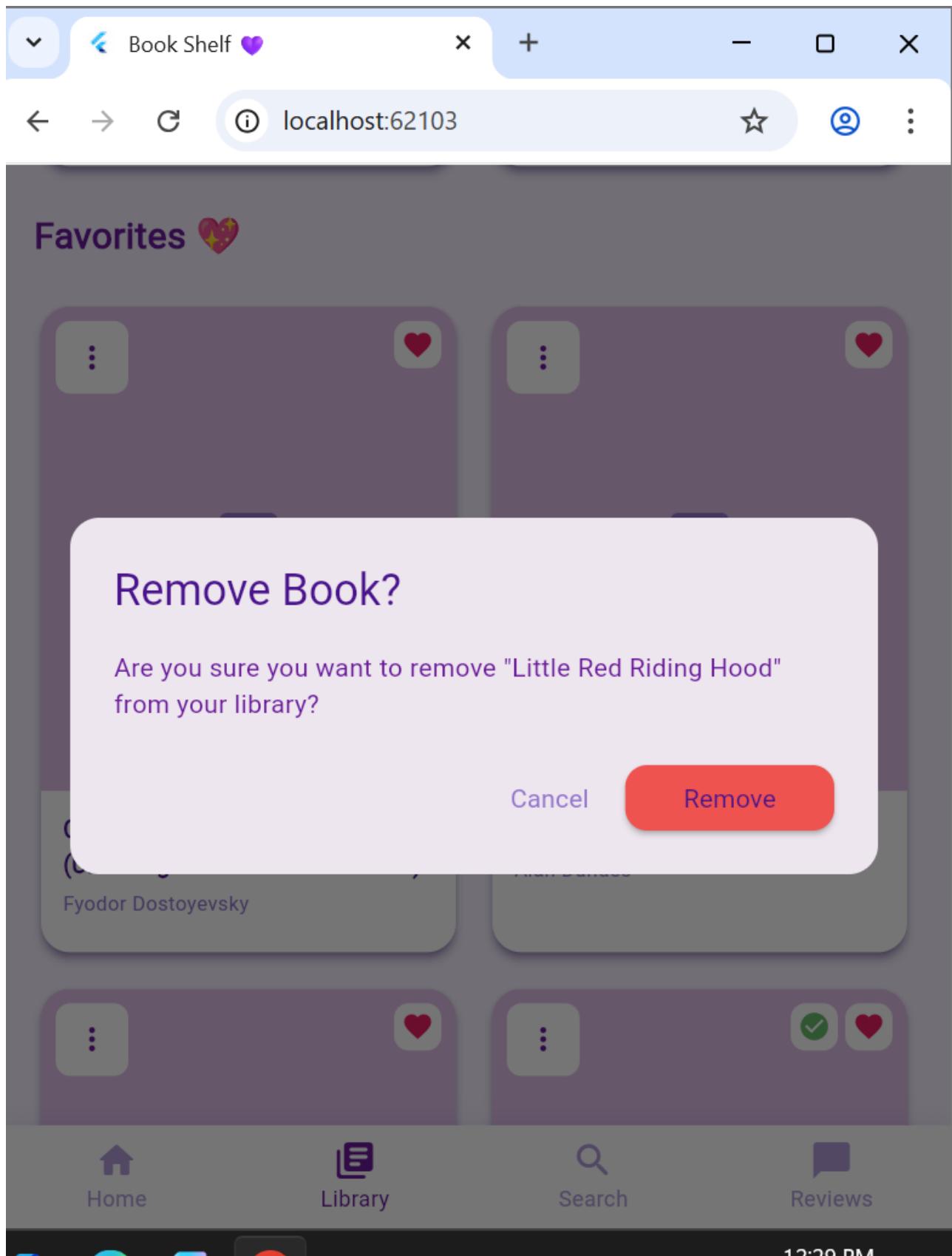
Crime and Punishment
(Unabridged Garnett Translation)

Fyodor Dostoyevsky

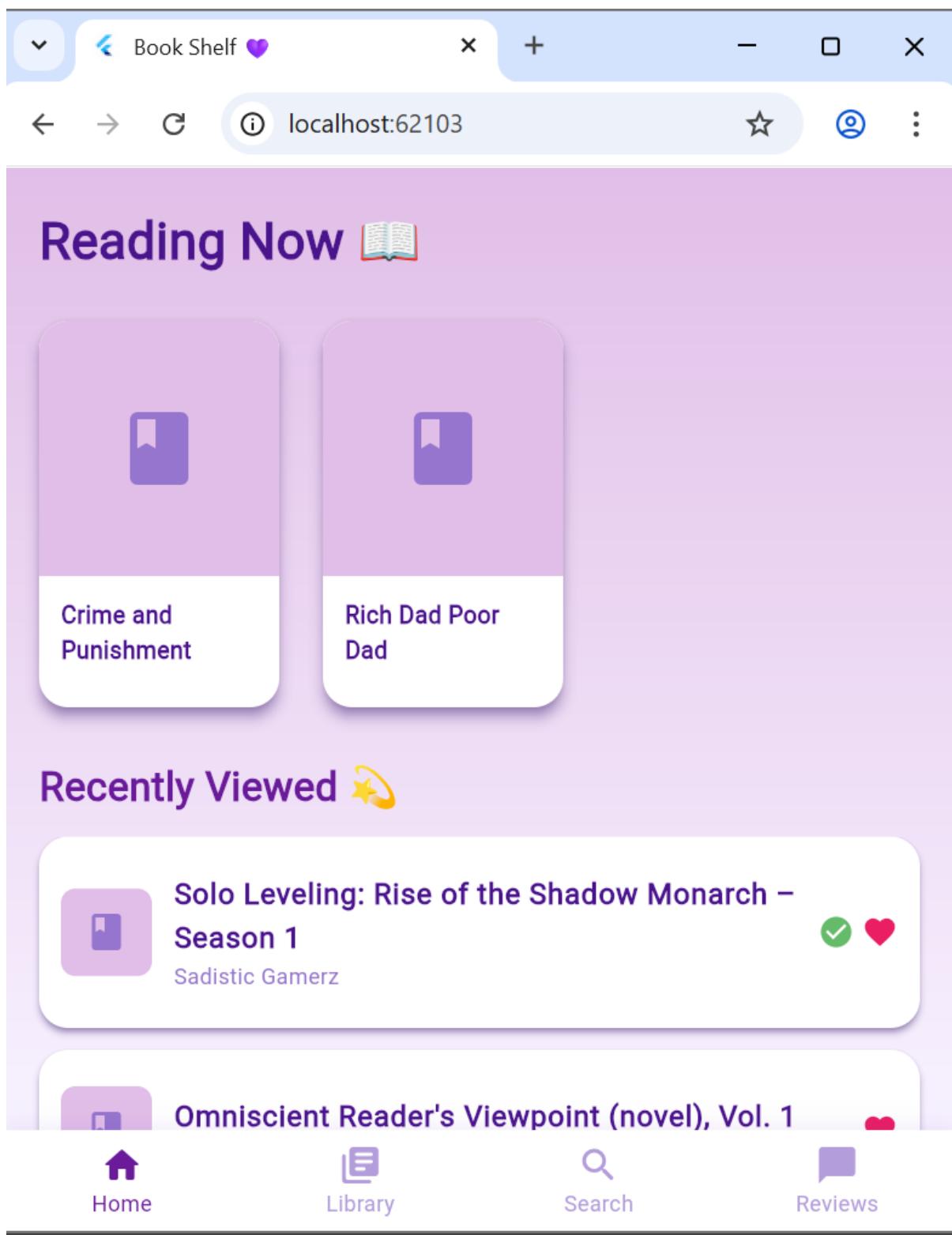
Little Red Riding Hood

Alan Dundes

Home Library Search Reviews



- Home screen after using the app



7. Results & Discussion

The final version of *Book Shelf* performs efficiently and provides a smooth user experience. Users can easily navigate through the app, manage their books, and track their reading status without performance delays.

The design maintains a minimal, visually appealing theme that highlights readability and ease of use.

8. Conclusion

The *Book Shelf* app successfully achieves its goal of simplifying personal book management through an intuitive mobile platform. It combines functional design with responsive performance, showcasing the potential of Flutter in cross-platform development.

The project provided valuable hands-on experience in mobile UI design, state management, and teamwork. It also strengthened understanding of software development life cycles and documentation standards.

9. Future Scope

Future improvements can include:

- Data storage and Cloud storage synchronization using Firebase.
 - User authentication and personalized book recommendations.
 - Dark mode and theme customization options.
 - Advanced analytics to track reading trends and progress.
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10. References

- Flutter Documentation: <https://flutter.dev/docs>
- Dart Language: <https://dart.dev>
- SQLite for Flutter: <https://pub.dev/packages/sqlite>
- Google Books API: <https://developers.google.com/books>