

Mehran University of Engineering and Technology, Jamshoro

**MAD CEP**

**Book Blossoms E-Bookstore**

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**Section:** 01

**Submission Deadline:** 25-October-2024 **Submitted To:** Ms. Mariam Memon

1. **Real World Problem Identification**
   1. **Problem Statement:**

When it comes to book shopping, the traditional bookstore will usually not suffice for many consumers with needs that have become ever more diverse – craving convenience and personalization in their purchasing journey.

* 1. **Concerns**:

**Accessibility Issue:** Most of the bookstores are concentrated in certain places which is also a considerable challenge for those living at distant or less developed areas to avail wide array of books.

**Lack of Personalization:** Consumers often struggle to find books that align with their interests, leading to a generic shopping experience.

**Time Constraints**: Life gets busy—between work, family, and other commitments, finding time to browse through shelves can feel impossible. Many readers end up sticking to familiar titles instead of exploring new ones

**Poor inventory:** Bookstores may not know how to inventory properly so they get out-of-stock for popular books but still have a bunch of less well-known titles.

**Making Digital Transition:** Even as a growing number of consumers prefer digital solutions, most existing bookstores still do not effectively utilize technology to improve their shopping experience.

1. **Proposed Solution:**

**Easier Wishlist Management:** No need to write down the book titles — users can go ahead and create wish lists within the app. This allows users to keep things on their wish list and be alerted when they are available or listed at a discount.

**More Titles:** An e-bookstore, as opposed to a physical bookstore which has limited shelf space, contains more titles of eBooks. All of this combines to allow for a massive breadth and depth in the catalog, meaning readers can find works by different writers and within multiple genres available at just their fingertips.

**Community Reviews and Ratings:** Traditional bookstores typically offer staff recommendations as a form of community review. For example, in an E-Bookstore app the customers can read and write reviews that generate a community to discuss books.

**Smart Search & Filter:** It takes only a fraction of time to retrieve the exact book instead of perusing racks. The E-bookstore app makes this easy with powerful search and filter tools that allow users to find just what they want in seconds.

**Fast and Easy Checkout:**. The e-bookstore app is designed to help users finish on-line e book retail purchases which are initiated out of your webpage.

1. **Data Storage**

In my Book Blossoms application, I chose Firebase as the primary storage solution for several key reasons:

**Firebase Realtime Database** — A real-time database to perfectly sync data across all clients. I took advantage of this to ensure we always present the current book availability, which is key to a good user experience; it’s just simple better if users have access up-to-date information.

**Easy Authentication:** Firebase Authentication makes it easy to log your users in with an email/password-based credential. I then used this versatility to provide an easily approachable way for users to make their accounts mud, in turn boosting engagement and retention.

**Scalability**: Firebase grows with my application. When we have more and more users on board Book Blossoms, who continue to add books one after the other, Firebase will scale without me having to make major changes in infrastructure. This scalable nature helps the application to advance without challenges in efficiency as it gets a larger user base.

**Security Features**: Firebase provides robust security measures, including user authentication and data encryption, to protect sensitive user information and book data. I utilized these features to maintain user trust and ensure compliance with data protection regulations.

1. **APIs/Packages/Plug-ins**

**Carousel Slider (carousel\_slider: ^5.0.0)**

* **Justification**: I selected the Carousel Slider package to create a visual and interactive display of featured books, as well as promotions in the Book Blossoms app.

**FlutterRatingBar (flutter\_rating\_bar: ^4.0.1)**

* **Justification**: I use a Flutter Rating Bar package to show book ratings in star format.

**Firebase Core (firebase\_core: ^3.4.0)**

* **Justification**: I have added the Firebase package to initialize firebase in my app.

**Firebase Auth (firebase\_auth: ^5.2.0)**

* **Justification**: I used the Firebase Auth package for user authentication process via email/password.

**cloud\_firestore (cloud\_firestore: ^5.4.0)**

* **Justification**: For the real-time collection and document storage, as well as live synchronization cross all supported device types`. I choose Cloud Firestore Using this package I can efficiently deal with book data & changes of schemas which immediately appear in all devices leading to a smooth user experience.

1. **Issues and Bugs Encountered and Resolved during Development**

* During the development of the Book Blossoms application, I encountered several issues that required resolution:

**SingleChildScrollView and Expanded Conflict**: I initially tried using SingleChildScrollView with Expanded, but I discovered that this combination was not compatible. To resolve this, I had to rework my layout to ensure that scrolling functionality worked effectively without causing errors.

**Firebase Auth MinSdk Issue**: In my app when I tried to run Firebase Auth on a mobile device, minSdk errors had come. I fixed this by tweaking the build. gradle file for the correct SDK version that Firebase needed to interact with authentication.

**Firestore Data Fetching Delay:** there was some delay while fetching the data from Firestore and storing it in cloud hence I temporary error. To combat this, I added a check that would create a loading indicator until the data was successfully fetched in unity, which helped with understandable user experience during load times.

**Difficulty in Navigating Between Screens**: I had difficulty navigating between different sections of the app, especially when returning to previous pages. I improved the navigation flow by implementing a bottom navigation bar, making it easier for users to switch between different sections of the app

**Debugging Firebase Connection Errors:** I faced challenges with connection errors when trying to interact with Firestore. After some troubleshooting, I discovered that it was due to incorrect configuration settings in my Firebase project. I corrected these settings, ensuring a stable connection.

**Book Blossoms:**

**On Boarding Screen:**

A box with white text and red letters

Description automatically generated with medium confidenceA person standing next to a small building

Description automatically generatedA person standing in front of a book

Description automatically generated

**Sign Up and Sign In Screens:**

A screenshot of a login form

Description automatically generatedA screenshot of a login screen

Description automatically generated

**Home Screen and Book Detail screen**

A screenshot of a book

Description automatically generatedA screenshot of a book

Description automatically generated

**Search screens**

A group of books on a red background

Description automatically generatedA screenshot of a phone

Description automatically generatedA screenshot of a book

Description automatically generated

**WishList and Cart screen:**

A screenshot of a cell phone

Description automatically generatedA screenshot of a book

Description automatically generated