Documentation of BookRecommender

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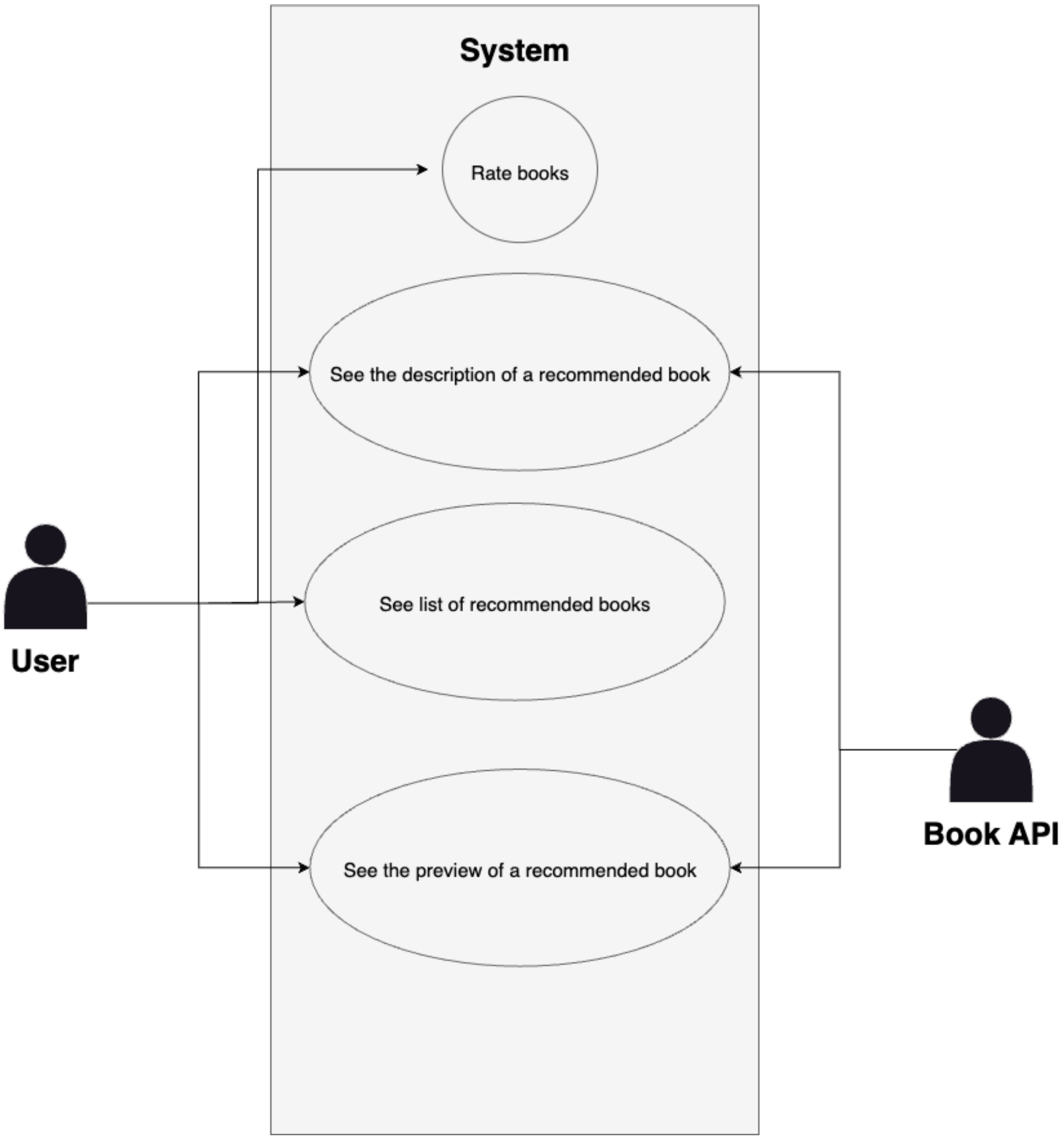
1. Description of the project

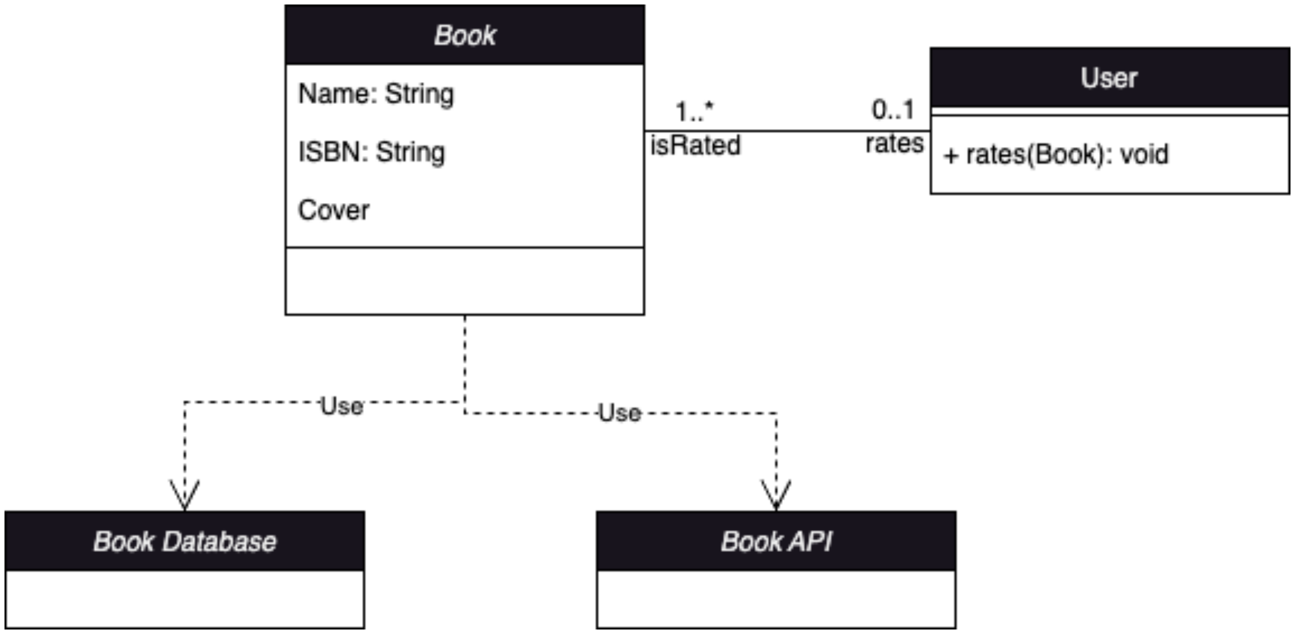
BookRecommender is an app, that helps book readers to choose their next books to read. Basically, this app has two main features:

1. Based on the user's tastes, the system will recommend other books through a trained machine learning model;
2. The user can select the recommended books to see their description and their preview, so that they can easily understand if the plot and the style of the book are among the user's tastes.

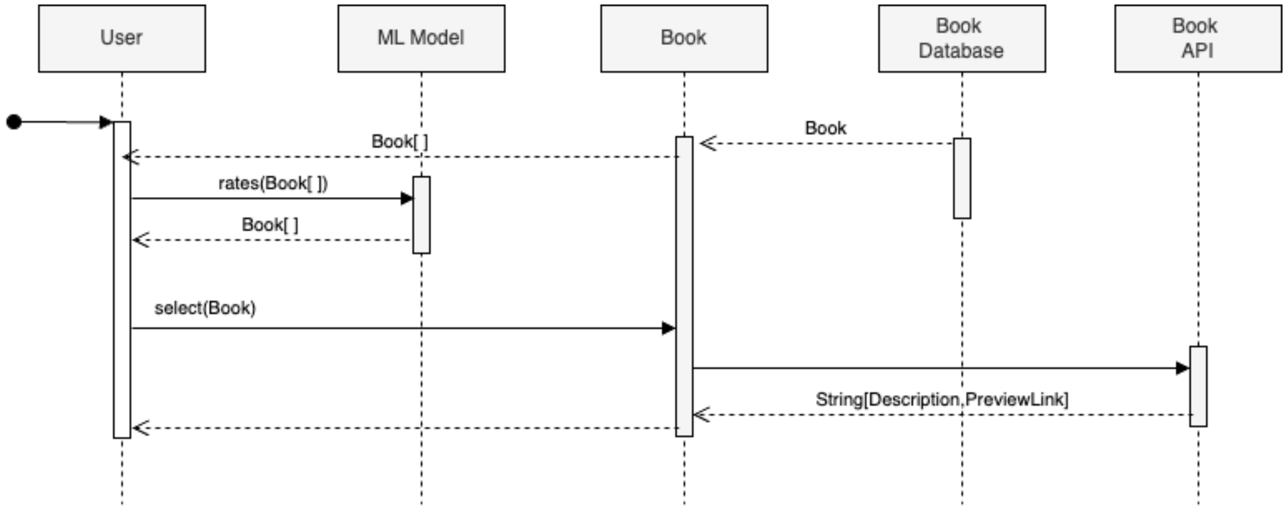
2. Use Case Diagram


System
Rate books
See the description of a recommended book
See list of recommended books
See the preview of a recommended book
User
Book API

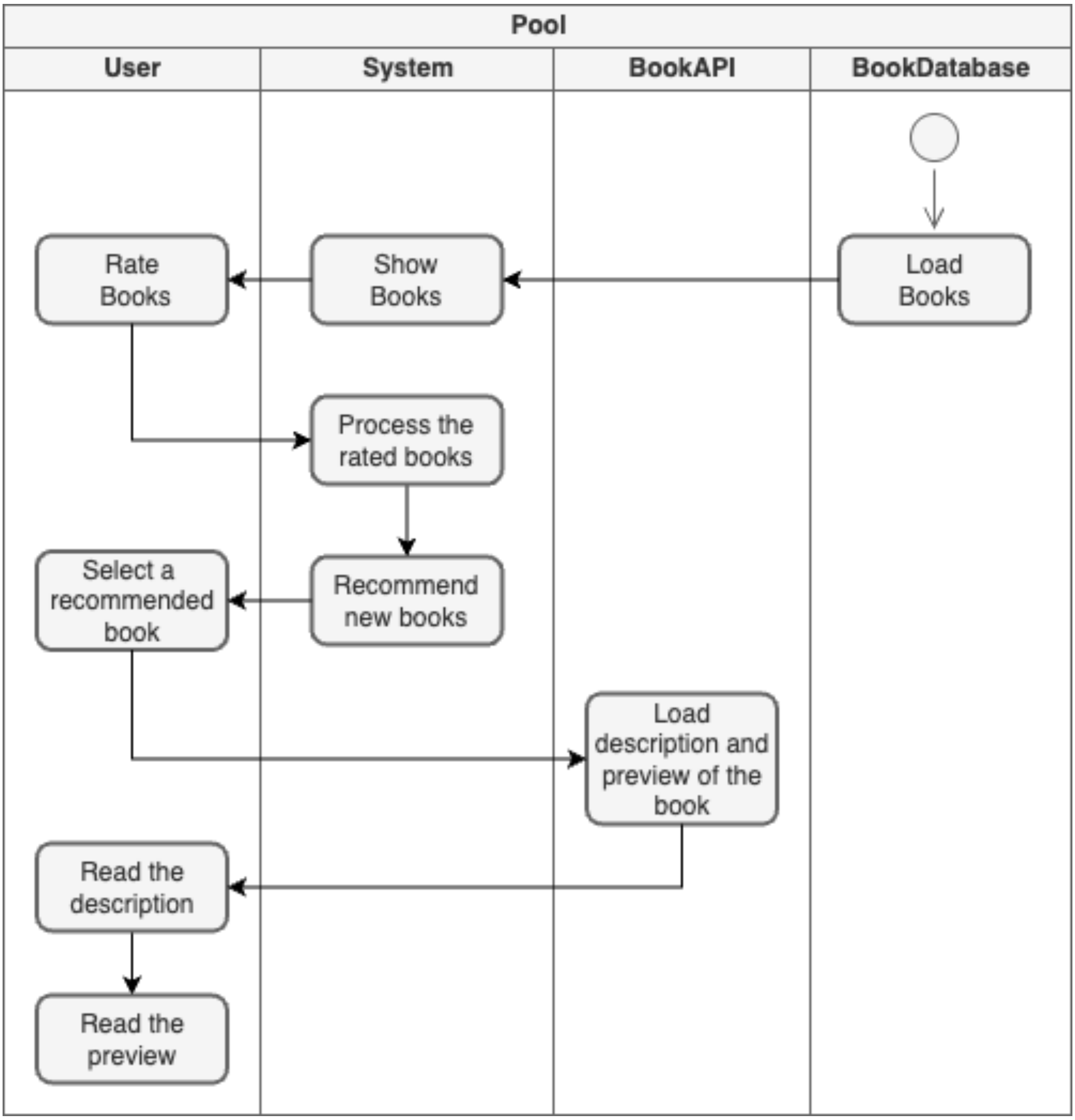
3. Analysis class diagram



4. Analysis sequence diagram



5. Activity diagram



6. Technological choices and motivations

The app is developed for **iOS** devices with **Swift** because is designed to be fast and optimized for Apple devices, offering high performance that can improve the user experience but can interoperate seamlessly with Objective-C, allowing new Swift code to be easily integrated into existing Objective-C based projects. It includes also many modern features such as closure and protocols, which simplify the writing of complex code and making it more readable.

The machine learning model is created by **CreateML**, a powerful framework of Apple that make easy the creation of a trained model. In fact, in this case, it was enough to give a small dataset (that is possible to check clicking this link) to generate and train a working recommender, based on collaborative filtering. One of the main advantages that these recommender systems have is that they are highly efficient in providing personalized content but also able to adapt to changing user preferences. Of course, to manage this machine learning model it was used another Apple's framework: **CoreML**.

To build the UI, it was used the newest Apple's framework **SwiftUI** that even though it is growing, it's already more powerful than UIKit, facilitating the creation of reusable and modular components, improving UI consistency and reducing development time and making it compatible with other Apple's devices (macOS, watchOS, tvOS).

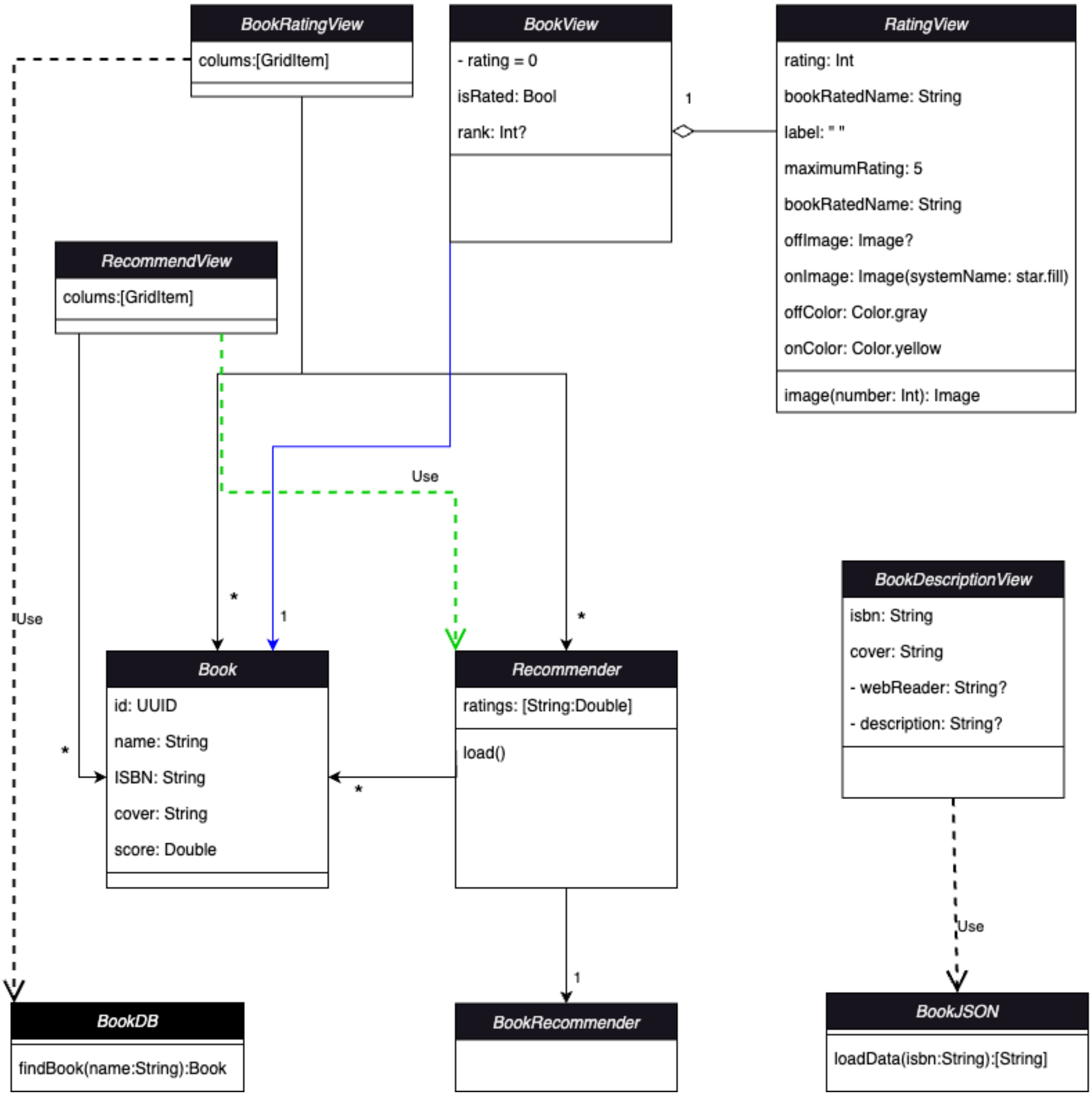
Since the dataset is small, the **database** containing the books informations (link of the cover image, ISBN, name) is local, making faster the loading of the informations.

It was used the **Google API Books** to have the description of a book and (if it's available) its preview. This API has a rich documentation and for public search it's not even necessary to request an API key.

Database and book API are **separate entities** to not overload a single entity, making faster the upload of informations.

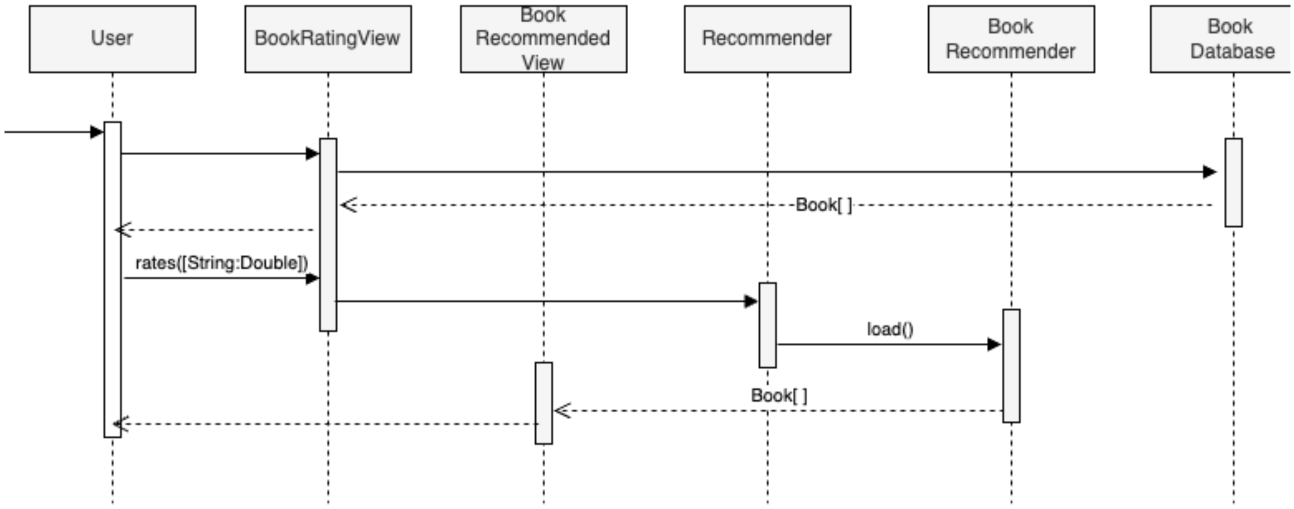
In addition, because of the way the project is designed, the database and the book API can be easily replaced by other services, facilitating **code reuse**.

7. Design class diagram

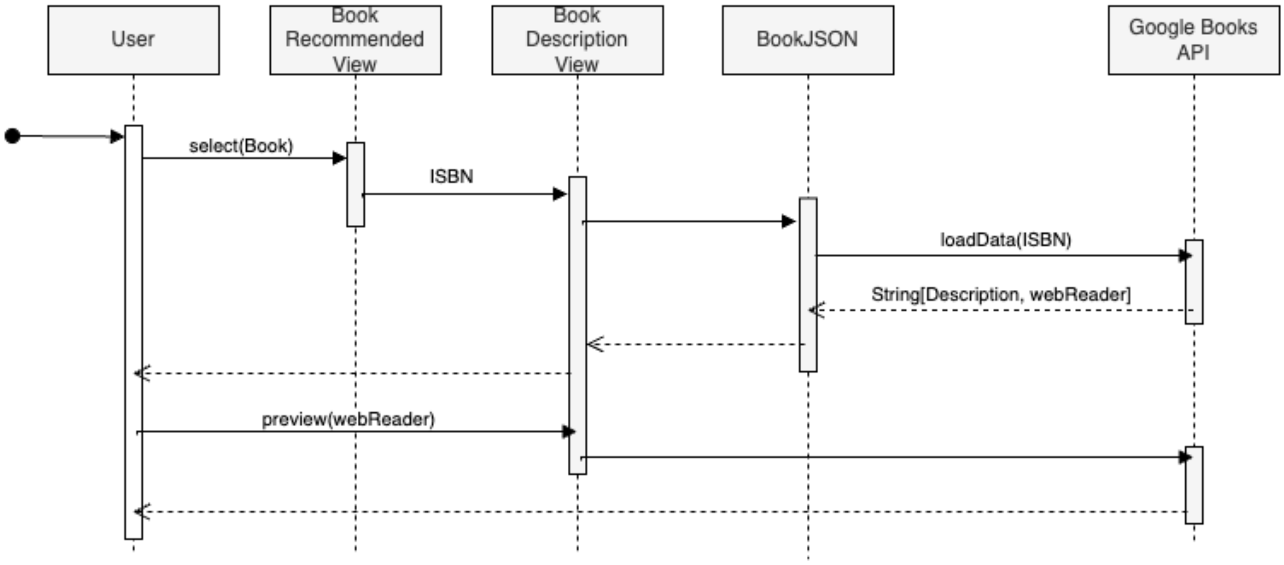


8. Design sequence diagram

8.1 Rating phase

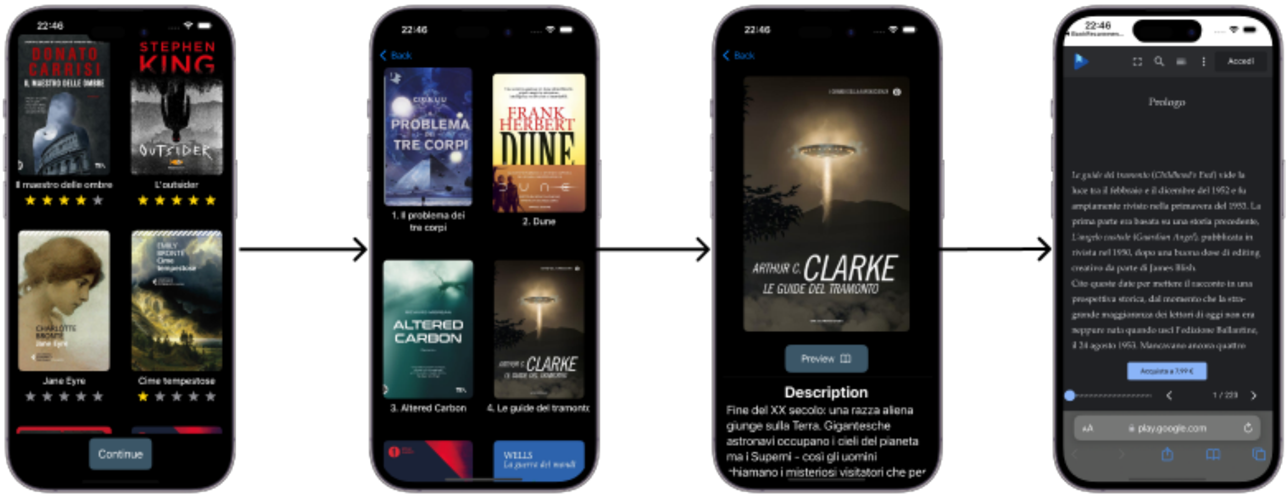


8.2 Recommendation phase



9. UI Flow

9.1 Dark Mode

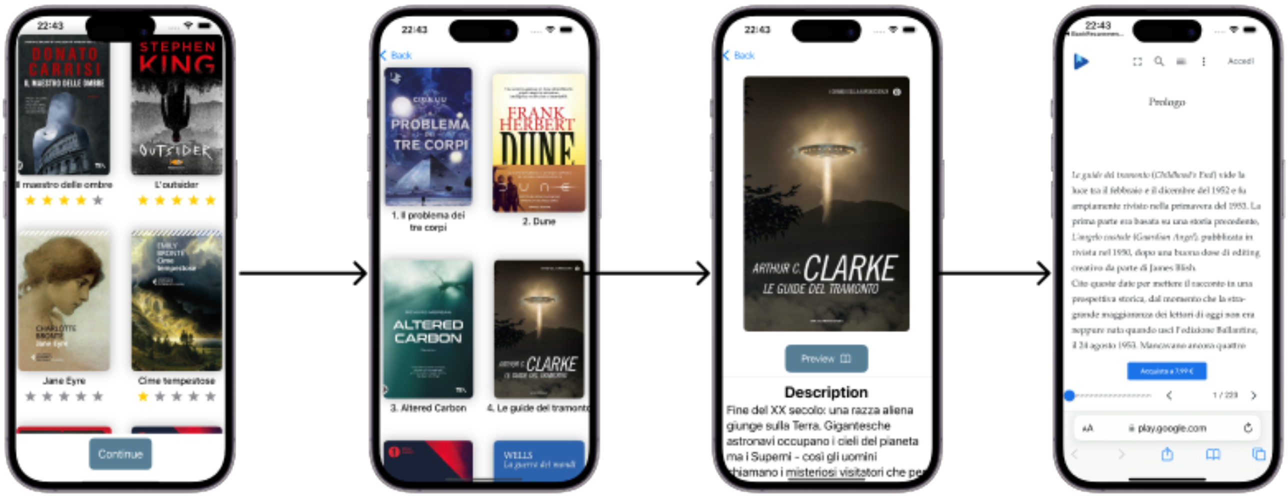


Description

Fine del XX secolo: una razza aliena giunge sulla Terra. Gigantesche astronavi occupano i cieli del pianeta ma i Superni - così gli uomini chiamano i misteriosi visitatori che per

Le guide del tramonto (Childhood's End) vide la luce tra il febbraio e il dicembre del 1952 e fu ampiamente rivisto nella primavera del 1953. La prima parte era basata su una storia precedente, L'angelo custode (Guardian Angel), pubblicata in rivista nel 1950, dopo una buona dose di editing creativo da parte di James Blish.
Cito queste date per mettere il racconto in una prospettiva storica, dal momento che la stragrande maggioranza dei lettori di oggi non era neppure nato quando uscì l'edizione Ballantine, il 24 agosto 1953. Mancavano ancora quattro

9.2 Light Mode



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