

Project Proposal

Software Name: IGottaBook

Purpose

IGottaBook is a user-friendly software designed to help readers easily find new books and get personalized recommendations. By connecting to large databases of books, IGottaBook lets users search for books by details like author, title, or ISBN, save their favorite reads, and see reviews from other readers. The tool aims to make discovering and enjoying books straightforward and accessible for everyone, from casual readers to dedicated book lovers.

Target Audience

- The target audience for **IGottaBook** includes a broad spectrum of readers ranging from avid book enthusiasts to casual readers who enjoy exploring new genres. This software is also ideal for students who need resources for academic or leisure reading, as well as book clubs seeking diverse recommendations for their group discussions. Essentially, **IGottaBook** is designed for anyone looking for a convenient and efficient way to discover books that match their reading preferences.

Functionalities and Features:

- **Search Books:** Users can search for books by title, author, ISBN, or keywords using the Google Books API.
- **Book Recommendations:** Personalized recommendations based on past searches and preferences.
- **Save Favorites:** Users can save favorite books and manage their reading lists (CRUD functionality).
- **User Reviews:** Access and contribute to a community of book reviews.
- **Reading History:** The system tracks previously viewed books and search history (CRUD operations to manage user data).
- **External Book Links:** Users can access links to purchase or borrow books from online retailers or libraries.

Potential Design Patterns

- **Factory Pattern (Creational):** This pattern will be employed to handle different types of book search queries (e.g., by author, title, genre). This allows the system to easily accommodate different types of search requests without complex conditional logic, making the search feature more flexible and scalable.
- **Singleton Pattern (Structural):** This pattern will manage the user session to ensure there is only one instance of the session manager running at any time. This is essential for handling

user data consistently, especially across different features like saving favorites or managing reading lists.

- **Observer Pattern (*Behavioral*):** This pattern will be used to notify users of updates and changes, such as new book releases or new reviews for books they have saved. It improves the user experience by providing real-time notifications without requiring manual refreshes.

Technologies

- **Programming Language:** *Python* will be used for the core development due to its simplicity and the availability of libraries for APIs, web development, and databases.
- **Web Framework:** *Flask* will serve as the backend framework. It is lightweight, making it ideal for a project of this scale. *Flask* will manage routing, user requests, and server-side processing.
- **Third-Party Services:** *Google Books API* will be used to fetch book data, such as titles, authors, and descriptions. This API provides the necessary data for the search and recommendation features of the application.
- **Cloud Database:** *Azure SQL Database* will store user-related data, including reading history, saved favorites, and preferences. *Azure SQL* is reliable, scalable, and integrates well with the available Azure credits for deployment.
- **Frontend Technologies:** *HTML*, *CSS*, and *JavaScript* will be used for building a simple and responsive user interface. These technologies will ensure the application is user-friendly and accessible across devices.
- **Hosting and Deployment:** The application will be hosted on *Microsoft Azure*. *Azure* offers cloud hosting capabilities that are well-suited for both the web application and the database, ensuring smooth operation and accessibility for users at all times.

Each of these technologies plays a crucial role in making ***IGottaBook*** functional and scalable. *Python* and *Flask* will power the backend logic, while the *Google Books API* will provide dynamic book data. *Azure SQL* will ensure that user data is stored securely, and the combination of *HTML*, *CSS*, and *JavaScript* will enable a smooth and accessible user experience.