**Book Recommendation System Architecture**

**1. Overview**

The book recommendation system provides personalized book suggestions based on user preferences and ratings. It uses a combination of content-based and collaborative filtering methods to generate recommendations.

**2. High-Level Design (HLD)**

**2.1 Components**

1. **User Interface (UI)**
   * **Description**: Allows users to interact with the system for searching books, and viewing recommendations.
   * **Technologies**: HTML, CSS
2. **Recommendation Engine**
   * **Description**: Generates personalized book recommendations using content-based and collaborative filtering methods.
   * **Technologies**: Pycharm, Jupyter Notebook

**2.2 Data Flow**

1. **User Interaction**
   * Users interact with the UI to input preferences, view recommendations, and rate books.
2. **Request Handling**
   * The UI sends requests to the API layer with user data and preferences.
3. **Data Processing**
   * The API layer communicates with the recommendation engine and database to process the data and generate recommendations.
4. **Response Delivery**
   * Recommendations are returned to the UI for user display.

**3. Low-Level Design (LLD)**

**3.1 User Interface (UI)**

* **Book Search and Filter**
  + **Features**: Search by title
* **Recommendation Display**
  + **Features**: Display personalized book recommendations.

**3.2 Recommendation Engine**

* **Content-Based Filtering**
  + **Algorithm**: Cosine similarity
  + **Inputs**: Book title, author, user ratings