Bookify.Com

1.Business Goals :

- Providing personalized book recommendations based on user preferences, reviews, and ratings.
- Recommend books by analysing sentiment from customer reviews and feedback.
- Helping businesses to make data-driven decisions.

2. Gathering Project Requirements

a) Functional Requirements:

- User authentication and profile management.
- AI-powered Book recommendation system.
- Sentiment analysis for user reviews.
- Business analytics dashboard for book performance tracking.

b) Non-Functional Requirements:

- Scalable system to handle a increasing number of user .
- Secure authentication and user's data privacy.
- Fast and efficient AI models for book recommendations.
- Simple and User-friendly interface.
- Recommend the Books accurately and trustworthy.

c) Prioritization:

- Personalized book recommendation
- Sentiment analysis of Reviews.
- User-friendly interface is important for engagement.
- Business analytics dashboard to support decision-making.

3. Expected Outcomes

a) Measurable Success Indicators :

- Improved accuracy of recommendations.
- Increased user engagement.
- Quick and more insightful sentiment analysis.
- Accurate Business Decisions.

b) Key Performance Metrics :

- For Recommendation - Classification Report , RMSE , MAE
- For Sentiment analysis – accuracy, Classification report , Confusion Matrix.

4. Stakeholder Identification

a) **Readers (Book lovers or Casual Users) :** Finds personalized books of their interests, leave reviews, tack the reading progress and explore reviews.
b) **Reviewers:** Share their rating and reviews to influence book recommendation and its popularity.
c) **System Administrators:** Manage books, platform performance, sees user interactions, and monitor system accuracy.
d) **Publishers and Authors:** Analyse book performance, Promote books.
e) **Business Owners :** Analyse top-rating and low-rating book and adjust marketing strategies accordingly.

5. Document Use Cases & Flow Diagrams

I. **Use Case Description:**

i. User Authentication & Access Control

- **Actor:** User/Admin
- **Precondition:** User or admin must have an account with login credentials.
- **Flow:**

1. User/Admin enters their login details(Username and Password).
2. Authentication System verifies credentials.

3. If valid, access is granted; if invalid, an error message is displayed.
4. Admin manages user access permissions via the Authentication System.

- **Outcome:** Secure access to the system.

ii. Personalized Book Recommendations

- **Actor:** User
- **Precondition:** User must be logged in.
- **Flow:**
  a) User browses books, leaves ratings, writes reviews, or searches for titles.
  b) System fetches relevant data from the Book Database , User & Review Database.
  c) Recommendation System generates personalized book suggestions.
  d) User receives recommendations on their interface.
- **Outcome:** User gets book recommendation of their interests.

iii. Sentiment Analysis for Reviews

- **Actor:** User
- **Precondition:** User submits a book review.
- **Flow:**
  a) User writes and submits a book review and rating.
  b) Sentiment Analysis Module fetches the review from the User & Review Database.
  c) The system analyses sentiment (positive, neutral, negative).
  d) Sentiment insights are stored and sent to the Recommendation System to better book suggestions.
- **Outcome:** The system adjusts recommendations based on user sentiments, ensuring books with positive feedback are promoted.

iv. Book , User & Review Data Management

- **Actor:** System
- **Precondition:** Data must be stored in the respective databases.
- **Flow:**
    a) Book Database stores book information.
    b) User & Review Database stores user data, their interactions, ratings, and reviews.
    c) Sentiment Analysis Module fetches review data for processing.
    d) This structured data helps in recommendation improvements.
- **Outcome:** well organized and easily accessible book and review data improve recommendation and sentiment-driven insights.

v. Admin Dashboard & Analytics

- **Actor:** Admin
- **Precondition:** Admin must have proper access rights.
- **Flow:**
    a) Admin logs into the system via Authentication System.
    b) Upon successful login , Admin gets access to Analytics Dashboard.
    c) Dashboard displays system insights (user engagement metrics, book trends, sentiment analysis report).
- Admins can use these insights to improve recommendations, adjust marketing strategies and take decisions.
- **Outcome:** The admin gains valuable data-driven insights to enhance user experience and optimize book recommendation.

II. Data-Flow diagram :