Low Level Design (LLD)

Intelligence book suggester Web APP

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Contents

Abstract

In today's information-rich world, the task of discovering new and captivating books can be overwhelming. To address this challenge, we present the "Intelligent Book Suggester," a web application designed to revolutionize the way readers explore literary works. This project harnesses the power of popularity-based ratings and advanced collaborative filtering techniques to offer tailored book recommendations that align with individual reading preferences.

The system begins by sourcing data from a comprehensive dataset containing books and user ratings. Books are ranked based on a popularity-driven rating system, considering only those with ratings from a substantial number of users. This ensures that recommended titles hold genuine value for users seeking valuable literary experiences.

The heart of the Intelligent Book Suggester lies in its implementation of advanced collaborative filtering techniques. By analyzing user interactions, the system identifies intricate patterns and similarities among readers with comparable preferences. Through this approach, the system unveils hidden connections and unveils books that resonate with users' unique tastes.

The outcome is a personalized recommendation system that caters to the diverse reading preferences of users. The Intelligent Book Suggester streamlines the process of discovering new books, offering users a curated selection of titles that are highly likely to captivate their interest. This not only enhances the reading experience but also encourages users to delve into new literary horizons

1 Introduction

1.1 Why this Low-Level Design Document?

The purpose of this document is to present a detailed description of the Deep EHR System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system and will be proposed to the higher management for its approval.

1.2 Scope

The scope of the "Intelligent Book Suggester" project is to design and develop a cutting-edge web application that revolutionizes the way users discover and engage with books. This encompasses a comprehensive approach, including the integration of diverse book data, the implementation of advanced collaborative filtering techniques, and the creation of user profiles to capture individual preferences. The project aims to deliver highly accurate and personalized book recommendations, fuelled by real-time updates and adaptations to changing user tastes. Additionally, the project emphasizes user experience through error handling, responsive design, and compatibility across various devices and browsers. The platform's scope also encompasses performance optimization to ensure efficient resource utilization and rapid response times. By prioritizing security and privacy measures, the project ensures the protection of user data. Ultimately, the "Intelligent Book Suggester" project strives to create an immersive and tailored reading experience that enhances users' literary journeys.

1.3 Constraints

We will only be selecting a few of the books details

1.4 Risks

Document specific risks that have been identified or that should be considered.

1.5 Out of Scope

Delineate specific activities, capabilities, and items that are out of scope for the project.

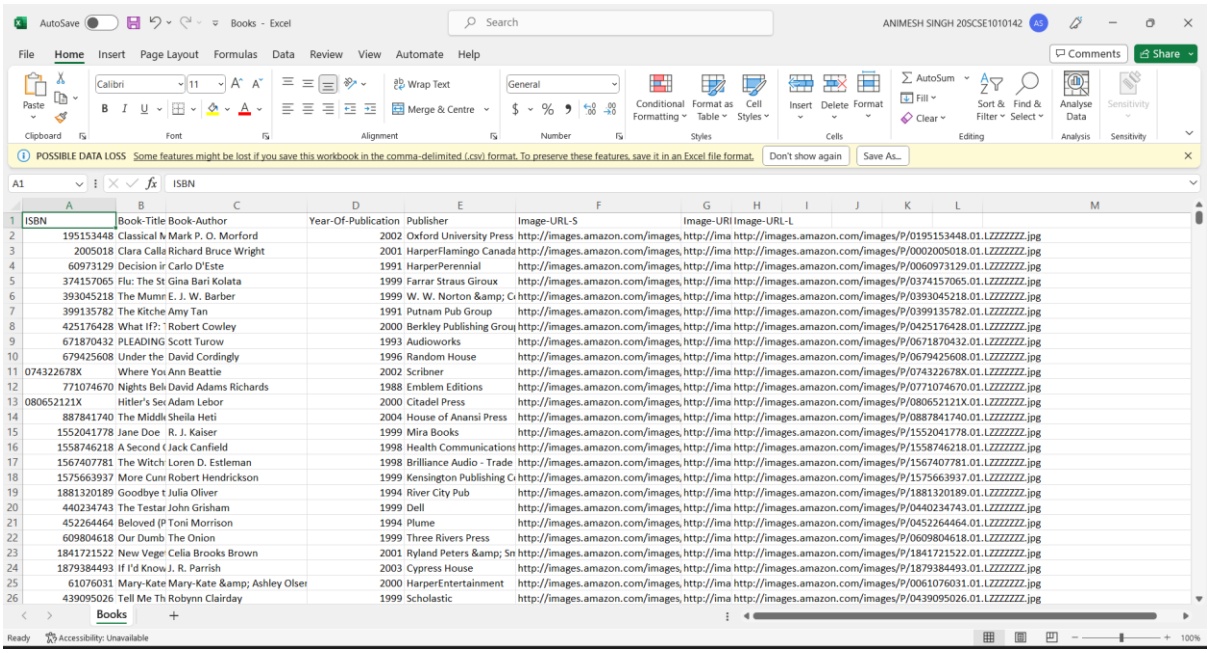
2 Technical specifications

2.1 Dataset

Disease	Finalized	Source
BoooksDATASET	yes	local

2.1.1 dataset overview

Books:



2.2 Predicting Books

Data Collection and Analysis:

- Gather diverse book data including titles, authors, genres, and ratings.
- Analyze data for trends and user preferences.

Popularity-Based Ratings:

- Calculate book popularity based on ratings and thresholds.
- Assign higher weight to popular books.

Collaborative Filtering:

- Determine user similarities from interactions and preferences.

- Recommend books favored by similar users.

Content-Based Integration:

- Analyze book attributes like genres and authors.
- Merge content-based and collaborative suggestions.

Error Handling and User Experience:

- Validate inputs, offer descriptive error messages.
- Ensure responsive UI, visual indicators for errors.
- Application Compatibility:

2.3 Logging

Logging User Interactions: The system could log events such as user logins, searches, book clicks, ratings, and reviews.

Capturing Preferences: Event logs could record the genres, authors, or specific books a user interacts with most frequently, helping build user profiles and preferences.

Recommendation System Activities:

Recording Recommendations: The system could log details of each recommendation made to a user, including the recommended book's attributes and the reasoning behind the suggestion.

Real-Time Updates: Event logs could track when recommendations are updated in real time based on user actions, reflecting changes in preferences.

User Feedback and Adaptation:

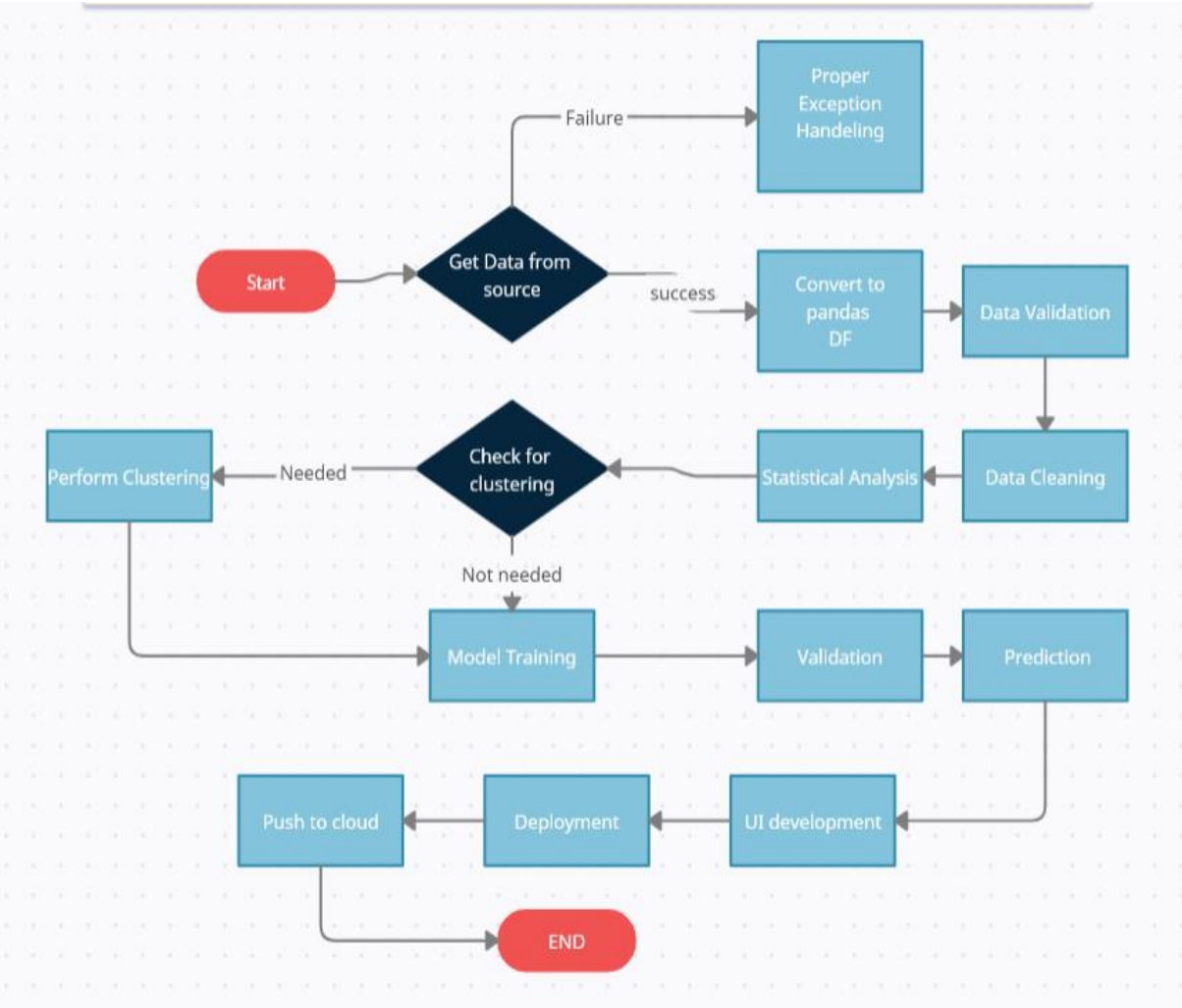
3 Technology stack

Front End	HTML/CSS/JS/React
Backend	Python ,streamlit
Deployment	Streamlit share

4 Proposed Solution

The "Intelligent Book Suggester" proposes a sophisticated solution to the problem of inefficient book discovery. By leveraging popularity-based ratings and advanced collaborative filtering techniques, the system offers a personalized and efficient approach to recommending books. The popularity-based ratings ensure that only books with a significant user base are considered, guaranteeing relevance. Collaborative filtering analyzes user interactions to uncover subtle patterns, enabling the system to match users with books based on shared preferences. This innovative approach transforms book recommendations into a seamless, tailored experience, simplifying the process of finding books that captivate and inspire readers.

6 Model training/validation workflow



Test cases

Test case	Steps to perform test case	Module	Pass/Fail