IMPLEMENTATION OF ONLINE BOOK RECOMMENDATION SYSTEM

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Abstract—Book Recommendation Systems has seen progress rapidly because of the world-wide-web and the advancements that have come with it. Librarians have several new ways to get the readers demands. Wide categories and genres of books with several authors pining about the same topics in Educational field. Expression of opinion of different people on socio-political and economic reforms in the form of books has created a large source-pile of information that readers have to sift through. Existing systems utilize good ways to retrieve information. However, current recommendation systems do not exploit all the functionalities available efficiently. The lack of a feedback mechanism also affects the ‘sentiment’ of the products, as well as the users. Reviews and opinions can be used to efficiently to understand products better. Large number of reviews that are already available in the vast Internet are of great interest. The use of e-books have also vastly increased and can be downloaded almost instantly. Our recommendation system makes use of three different techniques namely- Collaborative Filtering, Content Filtering, and Association Rule Mining. It also has an added functionality of keyword analysis. Our system was tested and showed no errors and the output obtained was as expected.

Keywords—Book Recommendation System, Content based Filtering, Collaborative Filtering, Recommender Systems, Keyword based filtering

I. INTRODUCTION

There has been a vast increase in the number of book-selling websites available in the internet. Books recommended by these websites do not suit the likes of the users. Heaps of information are fed to the buyers. Sometimes, this information proves to be irrelevant and have no connection whatsoever to the patterns obtained for buyers. Our system enhances the use of existing techniques that are collaborative-filtering, content-filtering and association rule mining along with the added functionality of Keyword Filtering. Section 1 gives a brief understanding of Content Filtering, Collaborative filtering and Keyword based filtering. Section 2 gives a brief understanding of modules that have been used in the implementation of book recommendation system along with the screenshots of the implemented system. Section 3 gives a brief conclusion to the paper.

Before the design of the system is discussed, the concepts behind this recommendation system are briefly described in this section. Content-based filtering, called as cognitive filtering, recommends items based on comparisons between the content of items and user profiles. The content of items are represented as a set of descriptors or terms, typically the words that occur in a document. The user profile is represented with the same terms and built up by analyzing the content of items which have been seen by the user. Content-based filtering could be confused with information retrieval, but it differs from it in the manner in which the user's interest is represented. A content-based filtering system selects items based on the correlation between the content of the items and the user's preferences.

Collaborative Filtering, also called as Social Filtering, filters information by using the recommendations of people who are closely associated to each other. People who agree to evaluation of specific items in the past are likely to have the same opinion. Recommendation of friends who have similar interests is more applicable to a user, than recommendations from others. Clustering
techniques work by identifying these groups of users. Once clusters are created, the opinions of these people are predicted by averaging these individual opinions.

The Keyword Filtering add-on gives the ability to control, import, control and store only feed items or posts that contain specific keywords in either title or their content or some specific categories and tags. The keywords which are entered by the administrator of book selling website is a critical source for keywords in a book. This can be used to provide recommendation rather than mining entire book for keywords as in content based filtering.

II. DESIGN MODULES

A. Login Module - Login module is the common module that serves for both administrator and member of book selling website, in this module the user can login to the application by specifying their credentials and can make use of application services.

B. Registration Module – In this module the customer of book selling website can get registered to the application by specifying their details such as customer name, address, contact number, email address, city, pin code etc, during registration process customer gets the unique id and password, using that customers can login to the application.

C. Manage Customers – This module belongs to the administrator who can view all the registered customer details like customer name, address, contact number, email id, registered date etc.

D. Manage Book Categories – Using this module the administrator can manage the book categories like adding new book category, view existing book categories, update & delete the existing book categories. Ex: Architecture, Education, Games, Cooking, History etc.

E. Manage Book Subcategories – Similar to the previous module, in this module the administrator can manage book subcategories like adding new subcategory based on the category; view subcategories, update & delete the existing book subcategories. Ex: English, Science, Social are the subcategories for the category Education.

F. Manage Books – In this the administrator can manage the books based on the book subcategory like adding new book based on subcategory, view books, update & delete existing books. Ex: Life of Pi by Yann Martel (2003, Paperback) Life of Pi by Yann, Freakonomics: A Rogue Economist Explores the Hidden Side of Everything by Steven D. Levitt and Stephen J. Dubner (2009, Paperback) etc.

G. Manage Customer Transactions – In this module administrator can manage the customer transactions like view customer transactions, their histories, dispatching the orders etc.

H. Find Books – Using this exploring module the consumers find a book of interest by visiting the website directly.

I. Customer Feedback Management - Here customer can post their opinions regarding the application services as feedbacks to administrator. Administrator can view all the feedbacks send by the customer and can know the interest of customers and improve wise the application.

J. Item based Feedbacks or Rating - Here customer can specify the rating for the purchased books, based on the customer rating, book recommendation is done after an item is selected.

K. Book Recommendation Module

1. Content-Based Recommendation System – On selection of this module the recommendations are provided based on the content based filtering of similar books.

2. Collaborative Filtering-Based Recommendation System – On selection of this module the recommendations are provided based on the ratings provided by users to the books which are similar to the one selected by the user.

3. Keyword based recommendations – In this module the recommendation is done based on the keywords [words related to the document content] of the item the user has selected. The keywords of the similar items are considered for recommendation. Here administrator of the website sets all possible keywords for the item [product] while uploading the item details into the server. When the user selects a particular item/product, the application first searches for the similar category of item/product, then it compares the keywords for that category with the
contents of the book. If the threshold value of keyword matching crosses preset limits then based on the keywords matching, application recommends the items to the user.

4. **Using both Content based filtering and collaborative filtering** - Here both the concepts of content and collaborative filtering are used to provide recommendations.

5. **Based on Price** – This is the final step in the recommendation. In this module the books are displayed to the customer in the ascending order of prices.

![Figure 1. Screenshot of the implemented book recommendation system](image1)

![Figure 2. Screenshot of the homepage of the book recommendation system](image2)

**III. CONCLUSION**

Book Recommendation systems are robust trending technology for the increasing the business value and also for benefitting users to allow them to find what items they like. These are becoming a very important tool in E-commerce on the web. But the usual recommender systems cannot access huge volume of data in the corporate databases. So we have come up with a new recommender system which involves the combination of multiple features like content based filtering, collaborative filtering, keyword based filtering and content with collaborative filtering to make it much more efficient than the existing ones.
We evaluated our project with the help of multiple test cases and the results were promising and more efficient than the existing ones. Thus this paper will be of great help for the business corporations and the users in turn.

REFERENCES


