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WRITERPAD: Connecting Writers, Full Stack Application using MERN Stack

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ABSTRACT: With the growing population, social media has become one of the most popular means of connecting with people. Social media besides entertainment provides livelihood to many individuals. Starting from Facebook to Instagram, Twitter and many more, there are various platforms that have become a huge market for content creators. People along with money gain fame through these platforms. But for a long time these platforms are wisely being exploited by communities of actors/singers/dancers. There is still a requirement of these kinds of platforms for various different communities who are not able to use these much for their benefits.

Therefore our motive is to build one such for writers community. It will provide a platform for authors/writers to post their poems/ writing/ short stories and also can be used for promotion of their books. Like any other social media platform it provides the searching facilities based on various factors such as Users, Shares, Photos, Friends. It will provide filters on Shares, Photos, Friends. Through this people will connect with their like minds. This will ensure and promote a growth of talent amongst people who love to read and write their thoughts.

KEYWORDS: Machine learning, Content based filtering, Collaborative filtering, Full Stack Application.

I. INTRODUCTION

Social media has become very popular amongst people these days. It provides entertainment, opportunities to many people to gain name and fame. Starting from Facebook to Instagram, Twitter and many more, there are various platforms that have become a huge market for content creators. Social media is also used for promotion of products and small businesses. Digital Marketing, which is already a very popular field, its sub-discipline, Social Media Engagement and Marketing, is also gaining fascination among young people. This field deals with marketing of products and services on social media. But the range of social media is still quite limited to the field of entertainment like acting/dancing/singing. This platform provides an opportunity specifically to writers and bloggers to share their writings and thoughts or promote and sell their works. Just like any other social media, writers and poets can hold meetups online through this and gain popularity and earn livelihood.

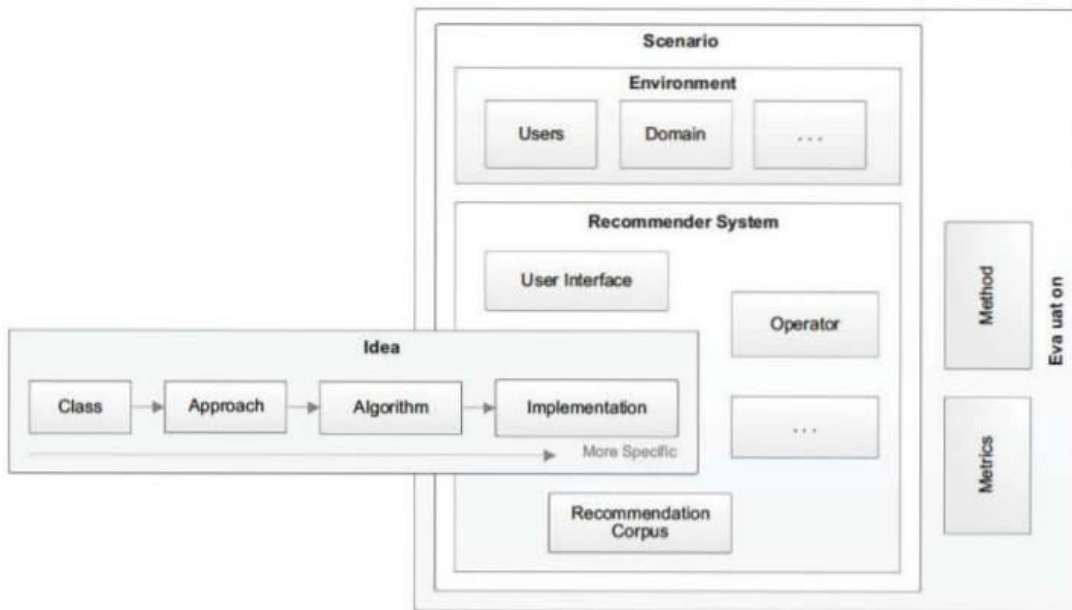


Fig 1.1: Illustration of recommendation system terminology and concepts

The purpose is to build a platform for the writers community. It will give an opportunity for authors/writers to post their poems/ writing/ short stories and also can be used for promotion of their books. Like any other social media platform it provides the searching facilities based on various factors such as Users, Shares, Photos, Friends. It will be designed to show the information and description of the Users and Shares. All the fields such as Users, Shares, Friends are validated and do not take invalid values. It will provide filters on Shares, Photos, Friends. Through this people will connect with their like minds. This will ensure and promote a growth of talent amongst people who love to read and write their thoughts.

With a strong social media strategy and the ability to create engaging content, artists can engage their audience. It allows people to reach, nurture, and engage with their target audience — no matter their location. Any person can share their original poetry, discover new poems daily, and make meaningful connections with a global community of poets and poetry enthusiasts. It also provides a level of community like Instagram, but people might find a different type of audience reading your work. It is also a place where poets can get paid for their work. It is a free social network for poets and poetry lovers available as a website. It is an excellent choice for writers who want all the spacious content of their own website without having to maintain it independently. Whether a writer writes fiction, poetry, scripts, nonfiction or all of the above, social media can help them boost their audience. Having an already-established audience will make agents and publishers more likely to pick their work. Although all art is a reflection of its period, poetry can seem especially malleable. Often unrestricted by the conventions of traditional writing, poetry is an organic representation of human experiences, emotions and ideas. Social media platforms add a new layer — allowing poets to reach new audiences around the world and providing a virtual space for the development of dynamic new poetry communities.

II. LITERATURE SURVEY

1. N. Thilagavathi, R. Taarika. have identified the basic issue in the online social network is to provide the ability for the user to manage the messages posted on their wall. Online social networks offer only minimal assistance to avoid unwanted content displayed in the user wall. To enhance the support, a system is designed to filter unwanted messages and allow users to have direct control on the messages posted in the wall. It is achieved using a flexible rule based system that allows the user to specify filtering rules for their wall. Inference algorithms are used to infer new information from the filtering rules to increase the efficiency of the filtering process. Machine Learning based soft classifiers are employed to facilitate the content based filtering.

2. Xiongcai Cai, Michael Bain, Alfred Krzywicki, Wayne Wobcke, Yang Sok Kim, Paul Compton, Ashesh Mahidadia says predicting people other people may like has recently become an important task in many online social networks. Traditional collaborative filtering approaches are

popular in recommender systems to effectively predict user preferences for items. However, in online social networks people have a dual role as both “users” and “items”, e.g., both initiating and receiving contacts. Here the assumption of active users and passive items in traditional collaborative filtering is inapplicable. In this paper we propose a model that fully captures the bilateral role of user interactions within a social network and formulate collaborative filtering methods to enable people to recommend people. In this model users can be similar to other users in two ways – either having similar “taste” for the users they contact, or having similar “attractiveness” for the users who contact them.

Traditional social filtering or recommender systems attempt to discover user preferences over items by modeling the relation between users and items. The aim is to recommend items that match the taste (likes or dislikes) of users in order to assist the active user, i.e., the user who will receive recommendations, to select items from an overwhelming set of choices. Such systems have many uses in e-commerce, subscription based services and other online applications, where provision of personalized suggestions is required. By applying recommendation techniques it is possible to greatly increase the likelihood of the successful purchase of products or services by the active user.

3. Joeran Beel, Bela Gipp, Stefan Langer, Corinna Breitingner found that more than half of the recommendation approaches applied content-based filtering (55%). Collaborative filtering was applied by only 18% of the reviewed approaches, and graph-based recommendations by 16%. Other recommendation concepts included stereotyping, item-centric recommendations, and hybrid recommendations. The content-based filtering approaches mainly utilized papers that the users had authored, tagged, browsed, or downloaded. TF-IDF was the most frequently applied weighting scheme. In addition to simple terms, n-grams, topics, and citations were utilized to model users’ information needs. We concluded that several actions could improve the research landscape: developing a common evaluation framework, agreement on the information to include in research papers, a stronger focus on non-accuracy aspects and user modeling, a platform for researchers to exchange information, and an open-source framework that bundles the available recommendation approaches.

4. Jianming He, Wesley W. Chu says Social influence plays an important role in product marketing

.However, it has rarely been considered in traditional recommender systems. In this chapter, we present a new paradigm of recommender systems which can utilize information in social networks, including user preferences, item’s general acceptance, and influence from social friends. A probabilistic model is developed to make personalized recommendations from such information. We extract data from a real online social network, and our analysis of this large data set reveals that friends have a tendency to select the same items and give similar ratings. Experimental results on this data set show that our proposed system not only improves the prediction accuracy of recommender systems but also remedies the data sparsity and cold-start

issues inherent in collaborative filtering. Furthermore, we propose to improve the performance of our system by applying semantic filtering of social networks and validate its improvement via a class project experiment. In this experiment we demonstrate how relevant friends can be selected for inference based on the semantics of friend relationships and finer-grained user ratings. Such technologies can be deployed by most content providers.

5. Fab ricio Benevenuto, Tiago Gomes Rodrigues, Meeyoung Cha, Virgilio Almeida suggests how users behave when they connect to social networking sites creates opportunities for better interface design, richer studies of social interactions, and improved design of content distribution systems. In this paper, we present a rst of a kind analysis of user workloads in on- line social networks. Our study is based on detailed click- stream data, collected over a 12-day period, summarizing HTTP sessions of 37,024 users who accessed four popular social networks: Orkut, MySpace, Hi5, and LinkedIn. The data were collected from a social network aggregator web- site in Brazil, which enables users to connect to multiple social networks with a single authentication. Our analysis of the clickstream data reveals key features of the social net- work workloads, such as how frequently people connect to social networks and for how long, as well as the types and sequences of activities that users conduct on these sites. Ad- ditionally, we crawled the social network topology of Orkut, so that we could analyze user interaction data in light of the social graph. Our data analysis suggests insights into how users interact with friends in Orkut, such as how frequently users visit their friends' or non-immediate friends' pages. In summary, our analysis demonstrates the power of using clickstream data in identifying patterns in social network workloads and social interactions. Our analysis shows that browsing, which



cannot be inferred from crawling publicly available data, accounts for 92% of all user activities. Consequently, compared to using only crawled data, considering silent interactions like browsing friends' pages increases the measured level of interaction among users.

SL. NO.	Author	Year	Title of the paper	Methodology	Remarks/ Limitations
1.	N. Thilagavathi, R. Taarika	2014	Content based filtering in online social network using inference algorithm	Inference algorithms are used to infer new information from the filtering rules Machine Learning based soft classifiers are employed to facilitate the content based filtering.	To filter the undesired messages from OSN walls, the system exploits a machine learning soft classifier to enforce customizable content-dependent filtering rules. Learning paradigms are used to infer new rules from the existing

2.	Joeran Beel, Bela Gipp, Stefan Langer, Corinna Breitinger	2016	Research-paper recommender systems: a literature survey	Collaborative filtering was applied by only 18% of the reviewed approaches, and graph-based recommendations by 16%. Other recommendation concepts included stereotyping, item-centric recommendations, and hybrid recommendations	one. Content-based filtering (CBF) is the predominant recommendation class. The main problem of collaborative filtering for research papers seems to be scarcity.
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<p>3. Xiongcai Cai, Michael Bain, Alfred Krzywicki, Wayne Wobcke, Yang Sok Kim, Paul Compton, Ashesh Mahidadia</p>	<p>2010</p>	<p>Collaborative Filtering for People to People Recommendation in Social Networks</p>	<p>A model that fully captures the bilateral role of user interactions within a social network and formulate collaborative filtering methods to enable people to people recommendation. In this model users can be similar to other users in two ways – either having similar “taste” for the users they contact, or having similar “attractiveness” for the users who contact them.</p>	<p>The proposed algorithms SocialCollab and CF+ both outperform standard CF as measured on both Precision (SR) and Recall, with SocialCollab being the best. A general framework for ranking in the context of the SocialCollab algorithm is the subject of further work.</p>
<p>4. Jianming He, Wesley W. Chu</p>	<p>2010</p>	<p>A Social Network-Based Recommender System (SNRS)</p>	<p>Presented with a new paradigm of recommender systems which can utilize information in social networks, including user preferences, item's</p>	<p>The performance of SNRS with other methods, such as collaborative filtering (CF), friend average (FA), weighted friends (WVF), and</p>

			<p>general acceptance, and influence from social friends. A probabilistic model is developed to make personalized recommendations from such information</p>	<p>naive Bayes (NB) with the same data set. In terms of the prediction accuracy, SNRS achieves the best result. It yields a 17.8% improvement compared to that of CF</p>
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<p>5. <u>Fabrcio Benevenuto,</u> <u>Tiago Gomes Rodrigues,</u> <u>Meeyoung Cha,</u> <u>Virgilio Almeida</u></p>	<p>2009</p>	<p>Characterizing user behavior in online social networks</p>	<p>Understanding how users behave when they connect to social networking sites creates opportunities for better interface design, richer studies of social interactions, and improved design of content distribution systems. In this paper, we present a rst of a kind analysis of user workloads in on- line social networks</p>	<p>Many previous social network studies reconstructed user actions from “visible” artifacts, such as comments and testimonials. Using the clickstream model, we underscored the presence of “silent” user actions, such as browsing a profile page or viewing a photo of a friend. These results led us to classify social interactions into two groups, composed of publicly visible activities and silent activities, respectively.</p>
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III. METHODOLOGY

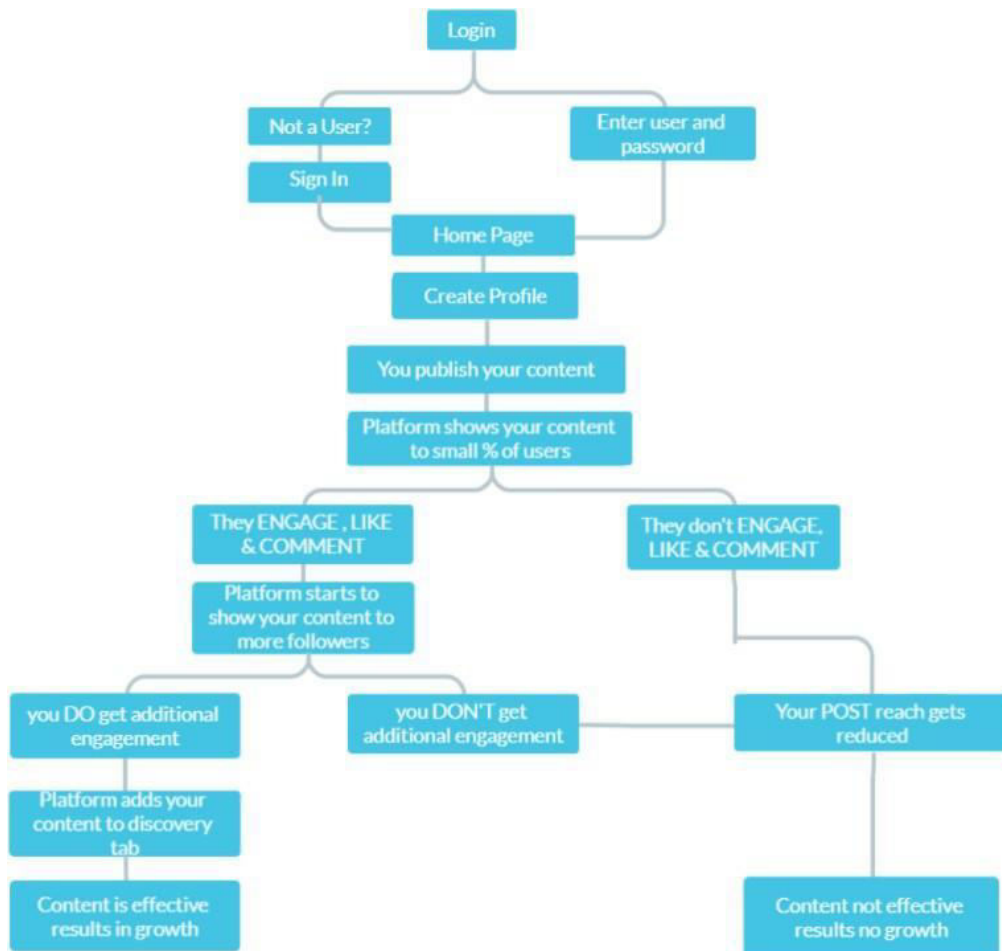


Fig 1.3 System Architecture



As shown in Fig 1.3, our first step involves logging in the user. It lands the user on the homepage and then the user can create a profile which will track all user activities and posts. Other users will see the posts and based on the engagement from those users, if feedback is positive, content is shown on the discovery tab for more users, and if the feedback is negative, there is less engagement to the profile.

• **User behavior Analysis for Social Media**

Characteristics identified for investigating user behavior on social media include frequency of use, information management, social attribution, self-orientation, reciprocity, social courage, and social quest. The context in which user behavior has been discussed includes trust, privacy, age, culture, gender, information sharing, and distance. Factors that influence a user's behavior, but

not in the behavioral category, include social exploration, personality traits, social orientation, social impact, self-esteem, and information management.

• **Content Recommendation through Collaborative Filtering**

Collaborative filtering uses similarities between users and items at the same time to provide recommendations. This allows for random recommendations. That is, the collaborative filtering model can recommend items to User A based on the interests of similar User B.

Basically, the SVD predicts how a user will rate a new item, depending on the rating the user gives to the item. Making recommendations is as much as predicting how to rate all items that the user hasn't interacted with (in this case shared), and sorting the list back to the user. it's simple.

To make this prediction, first create a matrix where each row represents the user and each column represents the element. An element of this matrix is the user's rating on the article.

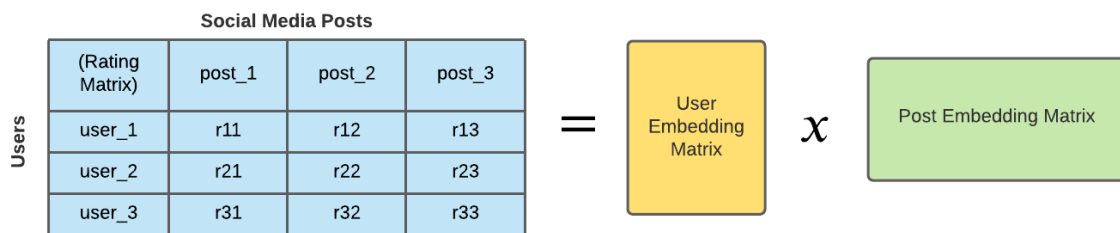


Fig 1.4: Collaborative Filtering in a nutshell

• **Content based Filtering Recommender System**

Content based filtering is a type of recommender system that attempts to guess what a user may like based on that user's activity.

Content based filtering makes recommendations by using keywords and attributes assigned to objects in a database (e.g., items in an online marketplace) and matching them to a user profile. The user profile is created based on data derived from a user's actions, such as purchases, ratings (likes and dislikes), downloads, items searched for on a website and/or placed in a cart, and clicks on product links.

Recommender systems such as content based filtering benefit both sellers and buyers. Buyers

can spend less time searching through pages of different products in a digital marketplace. Sellers can use content-based filters to better understand customer preferences, provide a more personalized buyer experience.

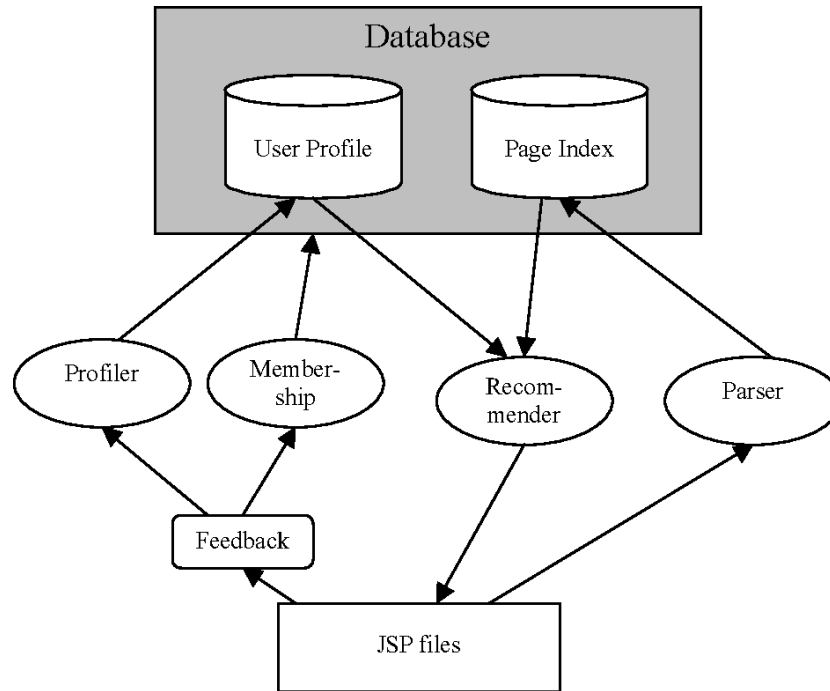


Fig 1.5: Content based filtering Recommender System

Metrics

Measuring the performance of recommender systems based on accuracy is a kind of anti-pattern. When using accuracy, assume that a system that recommends posts that users will definitely share is best. Users didn't even think about it, but it's still better to encourage contributions that find true value.

Diversity: measures how narrow or wide the spectrum of recommended products are to a single user. A recommender that only recommends the music of one topic of post is pretty narrow; one that recommends across multiple topics is more diverse.

Coverage: reflects the degree to which the generated recommendations cover the catalog of available items, wider coverage increases user's satisfaction. Coverage is not defined at the level of an individual user, but rather at the level of the system. High diversity != high coverage, eg: if different users are recommended the same diverse set of items, the average

diversity of the system will be high, but the coverage will remain low. Diversity is measured according to user recommendations, while coverage is a system-level measurement.

Novelty: Measure how new, original, or unusual a recommendation is to a user. In general, recommendations consist primarily of popular items. This is because (i) popular items contain more data, and (ii) popular items work well for offline and online ratings.

IV. ISSUES IN THE PREVIOUS WORK

1. The current system already existing for the writers community is not much in use.
2. There are platforms specifically for articles, blogs but not for all kinds of literary works.

3. The platforms are not very popular amongst people, therefore can not be exploited by people to earn money and fame.
4. There is no such dedicated platform for writers to host their book announcements and promotions virtually .

V. PLAN OF ACTION

It will provide a platform for authors/writers to post their poems/ writing/ short stories and also can be used for promotion of their books. Like any other social media platform it provides the searching facilities based on various factors such as Users, Shares, Photos, Friends. The transactions are executed in off-line mode, hence on-line data for Users, Videos capture and modification is not possible. It tracks all the information of Posts, Photos etc. It will be designed to show the information and description of the Users and Shares. All the fields such as Users, Shares, Friends are validated and do not take invalid values . It will provide filters on Shares, Photos, Friends . Through this people will connect with their like minds. This will ensure and promote a growth of talent amongst people who love to read and write their thoughts.

VI. CONCLUSION

In recent years social media has become an integral part of lives. With the growing population it has become one of the most common ways of connecting with people. The focus earlier was primarily entertainment which is shifting towards business these days and people are taking social media seriously. The demand of content creation is at its best these days and will henceforth increase. Many artists are using it as a platform to showcase their talent especially dance, music and art and they even manage to earn well. But still the types of content is limited and there are various others which are not that popular. One among the unpopular ones is literature. This project aims at building a platform for the writers community where they can post their writings, promote their books and connect with similar people. The users can read what others have written and get more ideas. This will help them to grow more as this will be a chance to explore. This will promote a growth of talent and motivate others to join and share their thoughts. Not every writer gets a chance to get published and get others' reviews. So, here they will have people who can be critic to their work. Users with similar choices will be suggested to them. Personalized suggestions are preferred a lot these days.

Posts which will be displayed to the users will be based on a recommendation system. The model of this recommendation system will be a hybrid model using both collaborative filtering and content-based filtering. This means that the recommendations will be based on the type of content which one has earlier liked and prefer and the content liked by the people with similar choices. First the collaborative filtering technique will be used and top recommendations will be its result then its content will be scanned using NLP techniques and then the content which is similar to that users choice will be showed to them. The user can post text as well as pictures. Connect with people, follow them and have a conversation as well. They can read , like others post and share as well. So, it will be an aid to the people who love to write and read and wish to be read by others.

VII. ACKNOWLEDGEMENT

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