WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

A TECHNICAL NEWS RECOMMENDATION SYSTEM

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A B S T R A C T

Filtering and classifying technical news is the goal of technical news recommendation systems. The basic purpose of a news recommendation system is to present the user with current news. The goal of this project is to create news recommendation systems that can provide relevant news suggestions. Accessing one's desired technical news from a collection of all available technical news has become a major concern. A tailored suggestion system can be quite useful, especially if the consumer does not have any obvious targeted news.The project here is a technical news recommendation system that suggests news articles from user depending on their interests. And users submit ratings to a certain article in order to arrange the suggestions in descending order of rating for the user's convenience. The Django framework was used to create the website in this project. The project employs the KNN algorithm, which takes an article title as input and identifies the most relevant news based on user ratings. So that a new user can read more dynamically on the website the news that he is interested.

1. INTRODUCTION

With the growing growth of digital data, finding relevant material is becoming increasingly difficult. There is a huge amount of material on the internet, and filtering it according to user preferences is tough. The recommendation mechanism is geared toward resolving this issue. Almost every online service provider today employs some form of recommendation system. The project discussed here is a technical news article recommendation system. The history of a user's previously accessed articles is retrieved from a data set of technical news articles. The recommendation system then examines the user's past behaviour to determine whether the accessible article data is of interest to the user. The website will recommend new technical articles to the user based on this strategy.

2. PROBLEM DESCRIPTION

The user has a restricted number of topics to choose from in the given data collection of technical news items. It is tough for the user to find them quickly. As a result, the user is dissatisfied, and the information is no longer accessible. The following issue is solved by developing and implementing a recommendation system that employs the KNN algorithm.

3. LITERATURE REVIEW

1. **General introduction**: The literature survey is an important task that we must complete when obtaining information on a specific topic. It will assist us in obtaining necessary information or suggestions for our job. The following paragraphs explore similar studies and issues in the domain of movie prediction and news article recommendation.

2. **Literature survey:**

- Burke.R and his colleagues proposed Hybrid systems for personalised suggestions in their study [1]. To solve customized news recommendation, a range of strategies have been offered, including content-based, collaborative filtering systems, and hybrid versions of these two.

- Scienstein developed an effective alternative to presently used academic search engines in his study [2]. He refines the approach to an often used keyword-by combining it with citation analysis, author analysis, and source analysis, implicit and explicit ratings, as well as inventive and methods such as the 'Distance Similarity Index' (DSI) and the 'In-text Impact Factor' are underutilised (ItIF). Rather than just typing keywords.

- In the paper [3] [Deldjoo et al. 2019] adopts a similar ideas and combines a variety of features in a database, including meta-data as well as low-level visual and audio features For movies, there is a recommendation system. Additionally, they combine their content-based model through a hybrid approach with collaborative information An offline and online analysis are also available In addition, a preliminary user survey confirms the model's utility in new item cold start conditions.

- In the paper [4] [Fabian Abel, Qi Gao.2013] We investigate different strategies for mining user interest profiles from microblogging activities ranging from strategies that analyze the semantic meaning of Twitter messages to strategies that adapt to temporal patterns that can be observed in the microblogging behavior.A lightweight content-based algorithm that recommends items according to their cosine similarity with a given user profile.

- In the paper[5] [Mozhgan Karimia.2018] The newspaper industry has experienced a substantial transformation during the last twenty years. Today, readers can find various sources of news online, e.g., on the web presences of traditional newspaper companies, on digital only news sites, or on news aggregation platforms provided, for example, by Google or Yahoo Recommender systems are often classified into four main categories.In that they use collaborative filtering method.

- In the paper[6] [Dr. Roberto Frias, Porto 2018] A hybrid approach for personalized news recommendation in a mobility scenario using long-short user interest. Over the years, recommendation of online news articles has become an area of great interest. Large newsfeed portals, such as Google News, and Yahoo! News, provide personalized news recommendation services for a large amount of online users. The implemented hybrid recommendation system combines content-based and georeferenced recommendation methodologies.

- In the paper[7] [Sudhanshu Kumar, Shirsendu S. Halder 2016] A Movie Recommendation System using Sentiment Analysis from Data. Movie Recommendation Systems help us to search our preferred movies and also reduce the trouble of spending a lot of time searching for favorable movies. content-based model with collaborative information in a hybrid approach.

- In the paper[8] [Nguyen Anh Khoa Dam and Thang Le Dinh 2019] A Recommender Systems for the Cultural Sector.In the age of big data, the challenge of customers has changed from information shortage into information overload.Association models are widely used in many RSs with various data mining techniques.

- In the paper[9] [Abhishek Raghuvanshi,Rachana Naik 2017] The hybrid news recommendation system using tf-idf and associative calculus.This paper has investigated the importance of news recommendation solution and effort to improve the performance of nr using Tf-idf algorithm.The solution is implemented by java.Tf-idf algorithm and customized document mapping concept.

4. PROBLEM FORMULATION

- **General**: We must first formulate or define a problem before attempting to solve it. It's critical to define the problem you're trying to tackle precisely. The act of defining a problem, finding the cause of the problem, and identifying a solution is known as problem formulation.

- **Problem Statement**: In latest years, accessing a news app and searching for stories or resources that are relevant has become the normal it is also inconvenient and time-consuming to sift through all of the news. For proposing user-interested content, the given project employs the KNN algorithm. The KNN algorithm makes recommendations based on previous user experiences.

Objectives of the Present Study:

The following are the goals of the proposed project:

1. To create a news recommendation system based on artificial intelligence.

2. Creating and implementing a hybrid algorithm based on user data.

3. To use the K-NN method to evaluate the suggested approach’s performance**.**

5. REQUIREMENTS AND METHODOLOGY

Requirement

The proposed project consists of following modules:

1. Hardware requirements
2. Software requirements

1. Hardware requirements:

The following table shows the hardware requirements for the proposed project:

SL.NO	Hardware/Equipment	Specialization
1	Processor.	Intel core i3-6400
2	Clock Speed	1.6 GHz
3	RAM	2GB DDR

2. Software Requirements:

The following table shows the hardware requirements for the proposed project:

SL.NO	Software Requirements	Specialization
1	Browser	Chrome
2	Operating System	Windows/MAC/Linux
3	Framework	Django

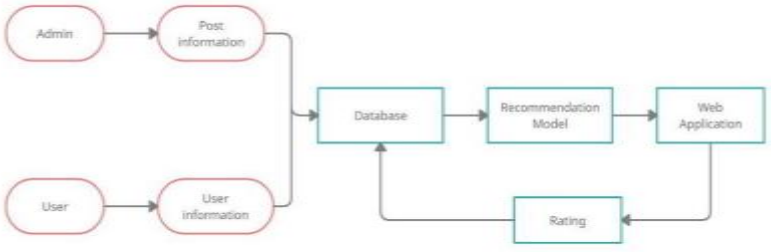
Methodology Used:

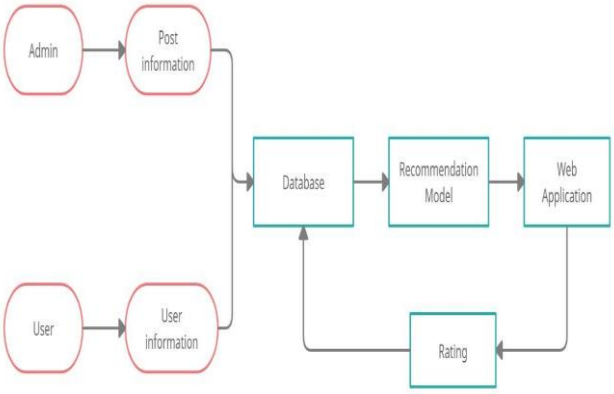
- K- Nearest Neighbor Algorithm (KNN) : The K-NN method assumes that the new case/data and existing cases are similar and file the new case in the category that is the most comparable to the others.
- singular value decomposition (SVD) : Singular value decomposition (SVD) is a factorization of a real or complex matrix in linear algebra that generalises the eigen decomposition,using an extension of the polar decomposition, which only occurs for square normal matrices, to any display style mtimes nm times n matrix.

6. SYSTEM DESIGN

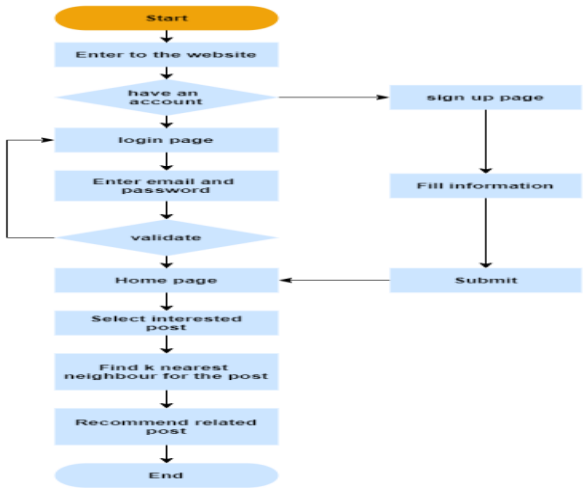
System design can be defined as method of defining different modules required for software or system to fulfill all requirements.

ARCHITECTURE OF PROPOSED SYSTEM

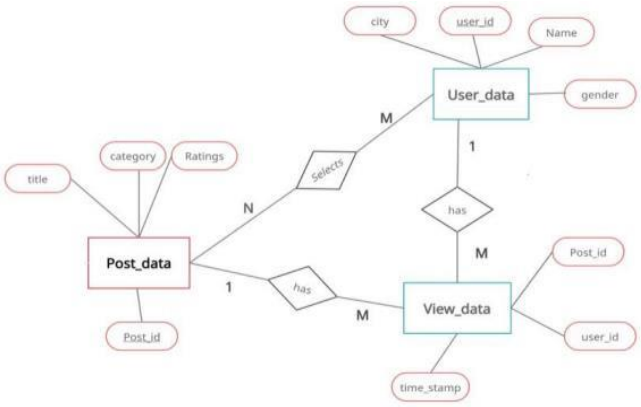




FLOW CHART:



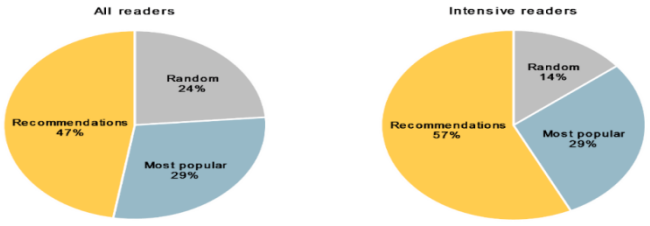
DATABASE DESIGN:



7. RESULTS ANALYSIS

Succeeded in developing KNN and SVD models:

- Successfully developed interactive Web application.
- Collected Dataset containing articles.
- Succeeded in deploying Recommendation model to our Web application.



(a) (b)

User preference on technical news lists generated by the recommendation algorithm and two simple approaches: (a) for all readers, (b) for readers with a notable record of access.

8. CONCLUSION

Recommendation systems are a natural complement to search and are quickly gaining traction as a means of generating revenue through advertising or recommending relevant content to consumers. In order to prevent information overload, recommended systems are an important technology. They no longer have to deal with the issues of real-time computations and data overload.

9. SCOPE FOR FUTURE WORK

The goal is to use different recommendation algorithms and working features to make the feature more dynamic for users to use for efficient work flow for the user.

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