

Project Report: Personalized News Article Recommendation System

Introduction:

The "Personalized News Article Recommendation System" is designed to provide users with relevant news articles that align with their reading habits, preferences, and behaviors. By analyzing user interactions such as searches, reads, likes, and comments, the system generates personalized article recommendations, fostering a more engaging and user-centric news consumption experience.

Project Overview:

The "Personalized News Article Recommendation System" project focuses on developing an efficient and effective recommendation system for news articles. The goal is to enhance user engagement by delivering tailored news content that resonates with individual preferences and behaviors.

Methodology:

Data Collection and Preprocessing:

A diverse dataset was collected from user interactions and article metadata sources. The data underwent thorough preprocessing, including data cleaning and transformation, to ensure data quality and consistency.

Feature Engineering and Representation:

Textual information such as article descriptions, authors, categories, and sections were combined to create comprehensive features. These features were converted into numerical vectors using the TF-IDF technique, facilitating article matching.

User Profile Analysis:

User interactions were analyzed to create detailed user profiles. Interaction types were assigned varying weights, allowing for personalized recommendations based on individual preferences.

Similarity Calculation and Article Ranking:

The cosine similarity metric was used to quantify the similarity between article vectors and user profiles. This enabled the ranking of articles and their weighting to cater to user-specific preferences.

Implementation:

The project was implemented using Python, incorporating libraries like Pandas for data manipulation and scikit-learn for vectorization and similarity calculations. Challenges encountered during implementation were addressed to ensure seamless functionality and accuracy.

Results:

As an illustration, for a sample user, the system successfully generated the top 5 recommended articles. Screenshots of the system's output demonstrated the effectiveness of the recommendation engine in delivering articles aligned with user preferences.

Conclusion:

The Personalized News Article Recommendation System project successfully achieved its objective of delivering tailored news articles to users based on their interactions and preferences. Through the utilization of user interactions and advanced techniques like TF-IDF and cosine similarity, the system significantly enhanced the user's news consumption experience.

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