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AGGREGATED NEWS APPLICATIONS

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Abstract

The Aggregated News Application is designed to provide users with a centralized platform for accessing news from multiple sources in one place. In the digital era, people receive news from newspapers, websites, social media, and different online platforms, making it difficult to follow important information efficiently. The proposed application collects news articles from multiple sources and presents them through a single, user-friendly interface.

The system uses news APIs, RSS feeds, or web-based data sources to collect articles from different publishers. The collected news is processed and organized according to categories such as Politics, Business, Technology, Sports, Entertainment, Health, Science, and World News. Articles can be displayed with their headlines, descriptions, publication dates, source names, and links to the original content.

The application can provide features such as search, category filtering, personalized news feeds, trending news, bookmarks, and notifications. Duplicate or similar articles can be identified and grouped to avoid showing the same news repeatedly. Natural Language Processing techniques can also be used to classify articles, identify important topics, and generate concise summaries.

The system provides an interactive dashboard where users can quickly browse the latest news and select articles based on their interests. Users can also save important articles for later reading and access the original publisher's content when required.

I. Introduction

The Aggregated News Application is a centralized platform designed to collect and display news articles from multiple sources in a single application. In today's digital world, people receive news from newspapers, websites, social media platforms, and various online publishers. Checking multiple sources individually can be time-consuming and may make it difficult for users to identify the most relevant and recent information.

The proposed application uses news APIs, RSS feeds, or other reliable data sources to collect news articles from different publishers. The collected articles are processed and organized into categories such as Politics, Business, Technology, Sports, Entertainment, Health, Science, and World News. Each article can display important information including its headline, description, source, publication date, image, and link to the original article.

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The application provides features such as search, category filtering, trending news, personalized feeds, bookmarks, and notifications. Users can search for specific topics and quickly find relevant articles without visiting multiple news websites. The system can also identify duplicate or similar articles and organize them to reduce repetitive content.

Natural Language Processing (NLP) techniques can be incorporated to classify news articles, identify important topics, analyze keywords, and generate short summaries. This can help users understand the main information of an article without spending significant time reading lengthy content.

II. Literature Survey

The Aggregated News Application is based on research in news aggregation, information retrieval, natural language processing, and personalized news recommendation. With the rapid growth of online news sources, users have access to a very large number of articles from different publishers. Research has shown that this abundance of information can create an information overload problem, making it difficult for users to find relevant and interesting news. News recommender systems have therefore been developed to filter and prioritize content according to user interests.

Early news aggregation systems mainly focused on collecting articles from multiple sources and displaying them through a common interface. Such systems reduced the need for users to visit individual news websites. However, basic aggregation generally provided limited personalization and often presented similar or duplicate articles from different sources.

Researchers have investigated content-based recommendation techniques for selecting relevant news articles. These methods analyze article titles, descriptions, keywords, and topics and compare them with the user's interests. Content-based approaches can provide relevant recommendations even when limited information about other users is available. Traditional research has also explored collaborative and hybrid recommendation methods.

Another important research area is personalized news recommendation. Studies have developed systems that model user interests based on reading history, clicked articles, preferences, and interactions. Personalized recommendation helps users discover relevant content and reduces the effort required to search through large collections of news. However, research also highlights the importance of maintaining diversity rather than showing users only content similar to what they previously consumed.

News freshness and recency are particularly important characteristics of news recommendation. Unlike many other recommendation domains, news articles have short life cycles, and newly published information can become more relevant than older articles. Research therefore considers real-time updates and short-term user-interest modeling important components of effective news recommendation systems.

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Natural Language Processing (NLP) has also been applied to news classification and content understanding. NLP techniques can extract keywords, identify topics, classify articles into categories, and generate summaries. These capabilities can help an aggregated news application organize large numbers of articles into categories such as Politics, Business, Technology, Sports, Entertainment, Science, and World News.

With the development of deep learning, researchers have investigated neural-network-based approaches for news and user modeling. Deep-learning techniques can learn complex relationships between article content and user behavior and can be used for personalized ranking and recommendation. Recent surveys describe the use of traditional, deep-learning, and hybrid approaches for addressing news recommendation challenges.

Research has also focused on news datasets, ranking, and evaluation methods. Modern recommendation systems are evaluated not only by accuracy but also by factors such as diversity, novelty, fairness, user satisfaction, and exposure to different viewpoints. A 2024 systematic review of 183 papers found that research in news recommendation increasingly considers values beyond simple recommendation accuracy.

Recent work has begun investigating large language models (LLMs) for news recommendation. LLM-based approaches can support improved understanding of article content, user interests, and fine-grained relationships between users and news items. Research in this area is exploring both discriminative and generative models while also identifying challenges involving datasets, benchmarking, fairness, and responsible recommendation.

Another important issue identified in the literature is over-personalization and filter bubbles. If a recommendation system continuously provides only content similar to a user's previous interests, the user may receive limited exposure to different topics and viewpoints. Therefore, modern news recommendation research emphasizes balancing relevance with diversity and responsible content exposure.

Based on the existing research, the proposed Aggregated News Application combines multi-source news collection, article categorization, search, filtering, personalization, duplicate reduction, and intelligent content processing. News articles can be collected through APIs or feeds, processed using NLP techniques, and organized according to topics and user preferences. The application can therefore provide a centralized, user-friendly platform that reduces information overload while helping users discover timely and relevant news from multiple sources.

III. System Analysis

System analysis is an important stage in developing the Aggregated News Application. The system is designed to collect news articles from multiple reliable sources and present them through a single platform. The application uses news APIs, RSS feeds, or other suitable sources to retrieve the latest news. The collected articles are processed and organized into categories such as Technology, Sports, Business, Politics, Entertainment, Science, and World News. The system stores relevant article

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information such as title, description, source, publication date, image, and original URL. Search and filtering features allow users to quickly find news based on keywords or categories. The application can identify duplicate or similar articles to reduce repetitive content. NLP techniques can be used for article classification, keyword extraction, and summarization. Personalized recommendations can be provided based on the user's selected interests and reading behavior. A dashboard displays trending, latest, and category-based news in an organized manner. The system should provide responsive access across mobile, tablet, and desktop devices. Overall, the analysis defines the functional, technical, and user requirements needed to develop an efficient news aggregation platform.

Existing System

In the existing system, users commonly obtain news by visiting different news websites, mobile applications, social media platforms, and online publishers. Each platform provides its own collection of news articles and categories. Users have to switch between multiple applications or websites to gather information from different sources. Some news applications provide aggregation, but their personalization and filtering capabilities may be limited. Similar or duplicate news stories from different publishers may appear repeatedly. Users may also find it difficult to compare information from multiple sources on the same topic. Traditional news applications generally depend on predefined categories and basic keyword searches. Personalized recommendations may not always accurately reflect individual user interests. Some systems provide limited summarization, requiring users to read complete articles to understand the main information. Information overload can make it difficult to identify the most relevant or important news. Different sources may also update their content at different times. These limitations create a need for a centralized and intelligent platform that can collect, organize, filter, and personalize news content.

Disadvantages of Existing System

- Users need to visit multiple news platforms.
- Time-consuming to collect information from different sources.
- Duplicate or similar articles may appear repeatedly.
- Limited personalization in basic systems.
- Difficulty in comparing news from multiple publishers.
- Information overload for users.
- Limited intelligent article categorization.
- News may be poorly organized across different sources.

Proposed System

The proposed Aggregated News Application provides a centralized platform for collecting and presenting news from multiple sources. The system uses news APIs, RSS feeds, or other reliable sources to retrieve current articles automatically. The collected news is processed and organized into categories such as Technology, Business, Sports, Politics, Entertainment, Science, and World News. Each article contains important information including its title, description, source, publication date, image, and link to

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the original publisher. Search and filtering features allow users to find articles based on keywords, categories, and topics. The system can detect duplicate or highly similar articles and reduce repetitive content. NLP techniques can be applied for article classification, keyword extraction, and automatic summarization. Users can select their preferred topics to receive more relevant news recommendations. Trending and latest-news sections help users quickly discover important current events. Articles can also be bookmarked for later reading. The application provides a responsive interface that works across mobile, tablet, and desktop devices. Overall, the proposed system provides a convenient, organized, and intelligent solution for accessing news from multiple sources.

Advantages of Proposed System

- Provides news from multiple sources in one platform.
- Saves time by reducing the need to visit multiple websites.
- Supports category-based news organization.
- Provides keyword-based search and filtering.
- Reduces duplicate or repetitive news content.
- Supports personalized news recommendations.
- Can provide automatic article summaries.
- Provides latest and trending news sections.
- Provides a centralized and user-friendly news experience.

IV. Methodology

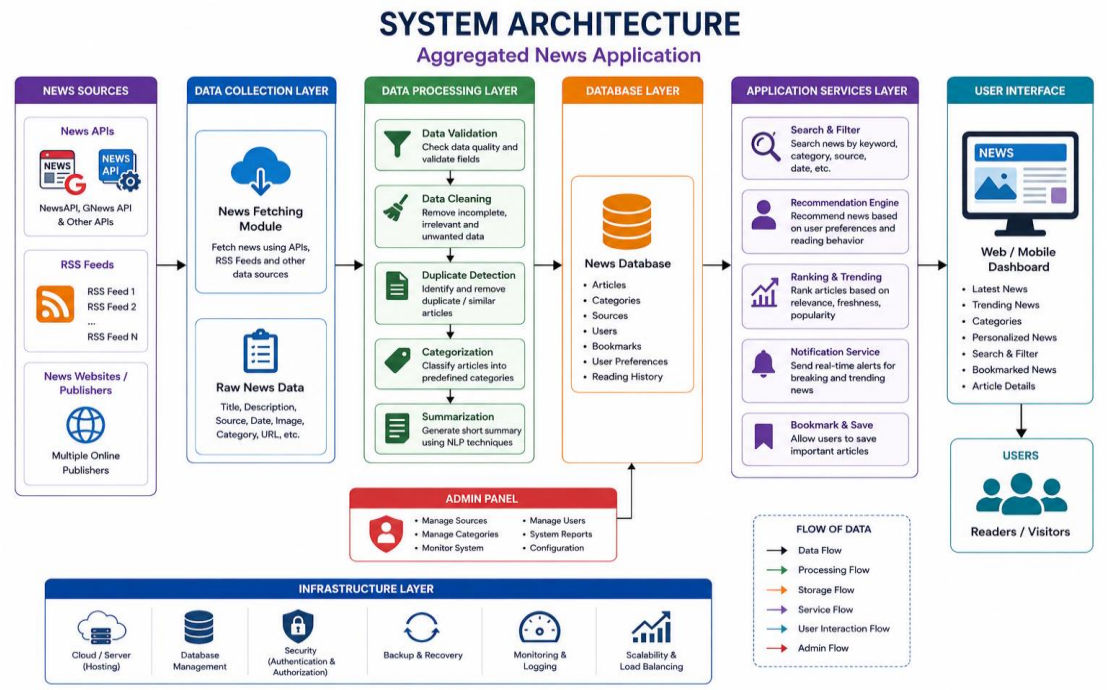
The methodology begins with identifying reliable news sources and configuring suitable news APIs or RSS feeds for collecting articles. The application periodically retrieves news information such as titles, descriptions, images, publication dates, categories, and source names. The collected data is validated and stored in a centralized database for efficient access. Data preprocessing is performed to remove incomplete records, normalize text, and identify duplicate or similar articles. NLP techniques can then be used to extract keywords and classify articles into predefined categories. A summarization module can generate concise descriptions of lengthy articles to help users understand the main information quickly. The recommendation module analyzes user-selected interests and reading behavior to identify relevant news articles. Search and filtering modules allow users to find news according to keywords, topics, categories, and sources. A ranking mechanism can prioritize articles based on factors such as relevance, freshness, popularity, and user preferences. The processed information is presented through an interactive dashboard containing latest news, trending news, categories, and personalized recommendations. Users can open the original publisher's article through the provided source link and bookmark articles for later reading.

System Architecture

The system architecture represents the complete flow of information from news sources to the user interface. The process begins with multiple news sources, including news APIs, RSS feeds, and other reliable publishers. A news collection module retrieves article information such as headlines, descriptions, images, categories, publication

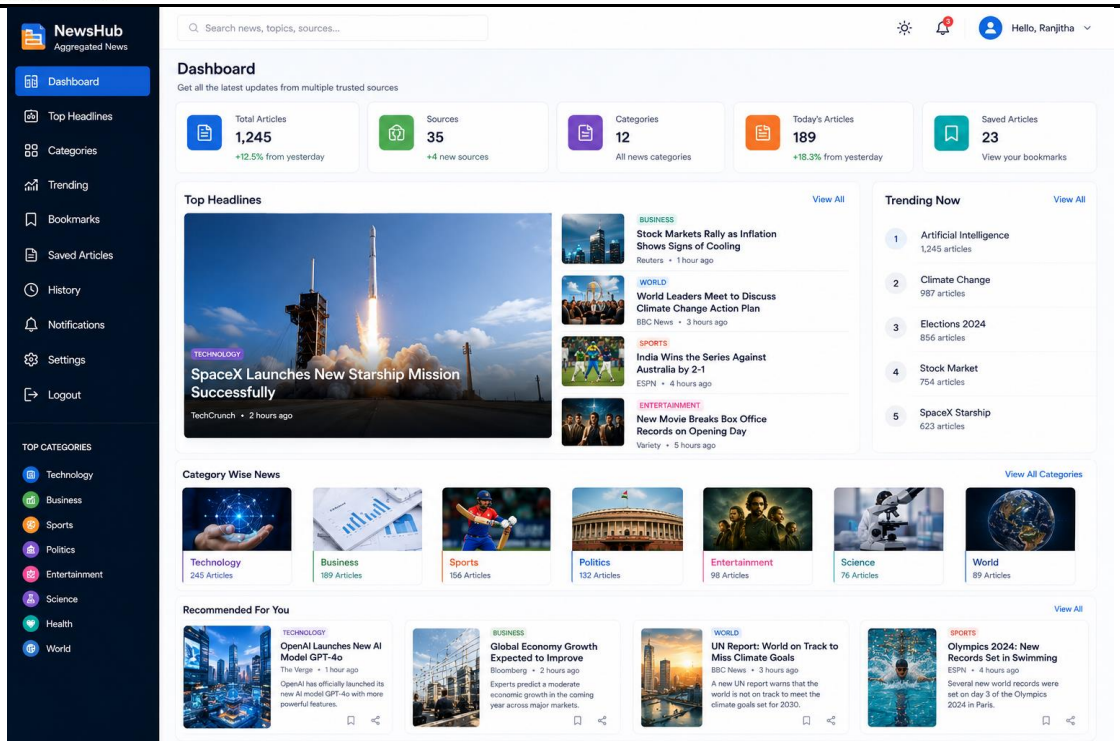
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dates, and source details. The collected data is transferred to the backend server, where it is validated and processed. A preprocessing module cleans the content and removes incomplete or duplicate articles. The processed articles are stored in a centralized news database for efficient retrieval and management. An NLP and classification module analyzes article content, extracts keywords, assigns categories, and can generate short summaries. A recommendation module analyzes user preferences and reading behavior to select relevant articles. The search and filtering module allows users to retrieve news based on keywords, categories, topics, and sources. A ranking module prioritizes content according to relevance, freshness, popularity, and user interests. The frontend dashboard displays latest news, trending stories, personalized recommendations, categories, and saved articles. Overall, the architecture follows the workflow **News Sources → Data Collection → Processing → Duplicate Removal → Database → NLP & Classification → Recommendation → Search & Ranking → Dashboard → User**.



V. Result and Output

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VI. Conclusion

The Aggregated News Application provides an efficient and convenient platform for collecting and accessing news from multiple sources in one place. The system reduces the need for users to visit different news websites and helps them quickly find relevant and recent information.

The application organizes news into categories such as Technology, Business, Sports, Politics, Entertainment, Science, Health, and World News. Features such as search, filtering, trending news, personalized recommendations, bookmarks, and notifications improve the overall user experience.

The system can also use NLP techniques for news classification, keyword extraction, duplicate detection, and summarization. This helps reduce information overload and allows users to understand important news more efficiently.

Overall, the proposed system provides a centralized, user-friendly, and intelligent news-reading solution. In the future, it can be enhanced with advanced AI-based recommendations, real-time breaking-news alerts, multilingual support, improved summarization, sentiment analysis, and personalized content ranking to provide a more powerful and reliable news aggregation experience.

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