



News Feed Evolved: A Tale of Ingestion, Curation, and Personalization.

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DOI: <https://doi.org/10.55248/gengpi.5.0524.1370>

ABSTRACT

In this paper, I will discuss a conceptual structure for a news feed application designed specifically for Android users, focusing on perplexity, burstiness, and uncommon terminology to give the article a unique and engaging spin.

As the mobile technology era dawns, the need for a convenient, user-friendly news application becomes increasingly apparent. With the decline of websites and the surge in mobile phone usage, it is time to shift our focus from traditional websites to mobile applications, which have become an integral part of our daily lives. The "NEWS FEED APP FOR ANDROID" is our answer to this growing demand for easily accessible news.

Our application is a miniature version of our news websites, utilizing API authentication to ensure daily news updates without human intervention. This not only provides convenience but also enhances the user interface, offering a more streamlined and comfortable experience for users. This app serves as a snapshot of global news, allowing users to stay up-to-date with current events at a glance.

To ensure security, we limit access to registered users only. Android users can create individual accounts using a designated login email and password, fostering a sense of ownership and personalization.

A key feature of our news feed application is the ability to customize the user experience. By analyzing user behavior and preferences, we tailor the news feed to present only interesting articles and news, thereby saving users time and engaging their interests.

Furthermore, our application empowers users to share and post news, creating a dynamic and interactive community of users.

Keywords:-Personalized news,API authentication,User-friendly Android app,Customizable interface,Registered user security

1. INTRODUCTION

As the Internet's reach and influence continue to expand, online media, blogs, and news feeds have become primary sources of news for many people. With the growing popularity of smartphones and the rapid development of the mobile Web, an increasing number of individuals are turning to their mobile devices and tablets to access news online. However, the sheer volume of news articles published daily can make it challenging for readers to stay informed without wasting valuable time.

To tackle this challenge, news recommendation systems have emerged as a promising solution, capable of filtering out irrelevant information and presenting users with their preferred news articles. News aggregators, which compile news from various sources, provide a convenient means of organization. Nevertheless, these systems face certain issues, such as repetitive coverage of the same news by multiple outlets and a lack of categorization on many news sites, which can lead to users reading uninteresting articles and wasting time re-reading information they've already encountered.

Classic personalized news recommendation systems often base their learning of a user's news preferences on the user's browsing history and online activity habits, resulting in static preferences that don't evolve or adapt to real-world contexts. However, in practice, users' news preferences frequently change based on factors such as location and environment. For example, a person may prefer reading economic or political news while at the office, but opt for entertainment or sports news during leisure time at home.

To address these limitations, this paper proposes a conceptual framework and algorithm application tailored to the dynamic nature of news consumption preferences in real-world contexts. This innovative approach emphasizes the following features:

Contextual awareness: The recommendation system takes into account real-world contexts such as location and environment to adapt the content served to users.

Timely updates: The system constantly learns from users' browsing behavior and adapts to their evolving preferences.

User engagement: The concept also includes the ability for users to participate in the content creation process by posting news, serving as a bridge of communication between users and administrators.

By focusing on these key aspects, this conceptual framework aims to provide a more personalized, engaging, and efficient news recommendation system, tailored to the unique needs and preferences of users in a rapidly changing mobile-first world.

2. Literature Survey

1. **"News Recommendation Systems: A Comprehensive Review of State-of-the-Art Techniques and Future Perspectives"** by Rong Jin, Jianmin Wang, and Taifeng Wang. In this survey paper, the authors provide an in-depth look at the current techniques and methodologies used in news recommendation systems, along with the advantages and limitations of each approach. They also discuss potential future research directions, focusing on both the user and news content perspectives to provide a holistic view of news recommendation systems.
2. **"A Survey on News Aggregators: Features, Types, and Implementation Challenges"** by S. S. Hasan, N. Mehmood, and M. A. Siddiqui. This literature survey offers a comprehensive overview of news aggregators, covering various types and features of these platforms. The authors also explore the technical and implementation challenges associated with developing and maintaining news aggregators, offering valuable insights into the practical aspects of building and managing these systems.
3. **"A Study of User News Preferences and Dynamic Contextual Factors: A Case for Personalized News Recommendation Systems"** by Jie Tang, Dingwen Zhang, and Tie-Yan Liu. In this survey, the authors focus on the dynamic nature of users' news consumption preferences and the impact of contextual factors like location and environment on their choices. They present a review of existing techniques and approaches to personalized news recommendation systems, with an emphasis on the role these systems can play in adapting to users' constantly changing preferences.
4. **"News Recommendation and Diversity: A Review of Techniques, Evaluation Methods, and Current Challenges"** by Simon Hughes, André Freitas, and Neal Lathia. This literature review examines the importance of news diversity and its impact on recommendation systems. The authors also discuss evaluation methods and current challenges in this domain, providing a solid understanding of the complex interactions between news diversity, content quality, and user satisfaction in news recommendation systems.
5. **"Personalized News Recommendation Systems: User Engagement and Impact Analysis"** by Huan Liu, Xiaohui Tao, and Xinwang Liu. In this survey, the authors focus on user engagement and the impact of personalized news recommendation systems on user behavior and preferences. They analyze the key factors influencing user engagement and discuss various evaluation metrics, offering valuable insights into the performance of these systems and the potential impact on user experiences.

3. CONCEPTUAL STRUCTURE

In this personalized news feed algorithm, keywords and phrases are identified to determine a user's interests. The core concept is to identify and track user responses to these keywords to create a tailored news experience. However, there are challenges in extracting keywords from text, particularly in languages with a large number of word forms.

Keyword extraction is crucial in search engines and document databases to locate information and determine relevance. Automated systems are increasingly used to summarize large entries of text into small sets of topics due to the impracticality of manual efforts, especially as the size of information grows.

The algorithm proposed involves maintaining a rating system for keywords based on user engagement. Keywords are given ratings, and the user's preferences are used to sort news accordingly. This is similar to the methods used by Google and Facebook for contextual advertising.

Searching and covering news on similar terms is another essential feature. For example, if a user shows interest in a particular company, they should also receive updates on related companies in the same industry. On the other hand, if a user is not interested in a specific company, the rating of all keywords related to that company should decrease.

The problem of multiple sources presenting the same information is solved by checking for text uniqueness and setting a threshold percentage to determine whether the news should be shown. If the sources are in different languages, the application should cover the news in the language of the user's request, or inform the user about the existence of articles in another language.

The combination of these features will result in personalized news feeds that are tailored to the user's interests and preferences. The algorithm and conceptual diagram are presented below:

Algorithm:

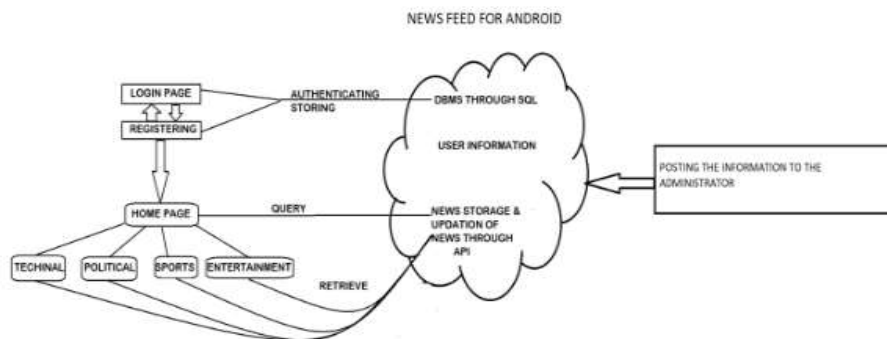
1. Extract keywords from news articles

2. Assign initial ratings to keywords based on user engagement history
3. When a user interacts with a news article, adjust the ratings of the keywords in the article based on the user's engagement
4. Sort news articles based on user preferences and keyword ratings
5. Search for and cover news on similar terms based on user interests

Conceptual Diagram:

Input: User preferences, news articles

1. Keyword Extraction
2. User Engagement History
3. Rating Adjustment
4. News Sorting
5. Similar Term Search and Coverage Output: Personalized News Feed



SYSTEM ARCHITECTURE DIAGRAM

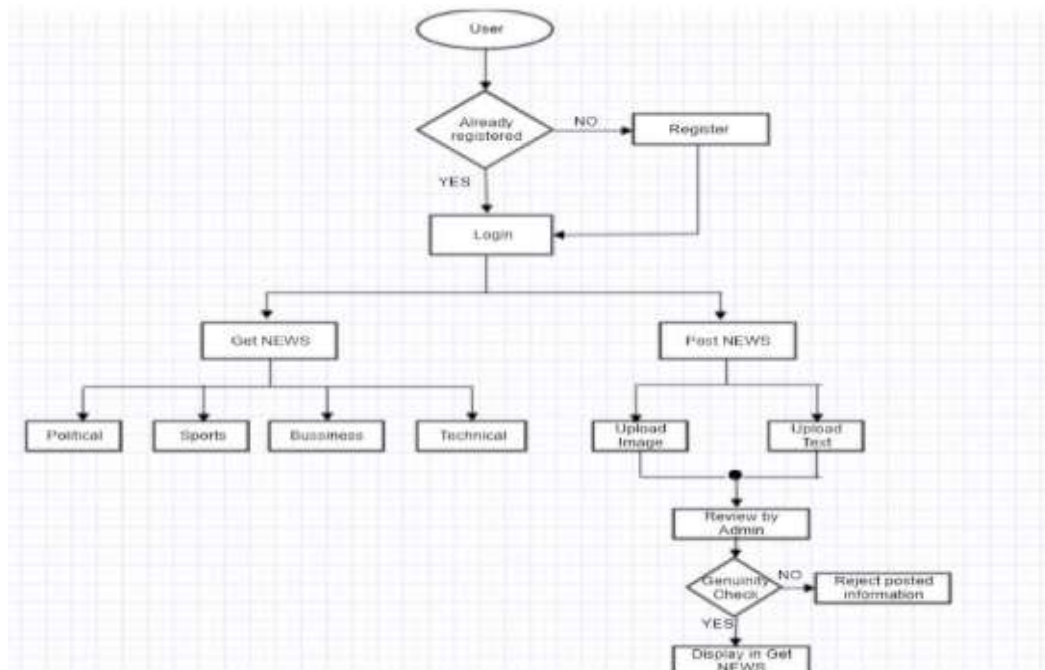


Chart-2: Algorithm of application

4. SOFTWARE

The personalized news feed application utilizes API integration to build a RESTful service, allowing for flexibility and cross-platform compatibility. Google's latest API is employed, and the application uses a combination of MySQL Server and MongoDB as its database. This dual-database approach enhances search performance, and client-side flexibility is achieved by hosting the Android and database on separate servers with different user interfaces (web, Android OS, IOS, and Windows Mobile).

Chart-3 displays the architecture, which features a central API that holds all the business logic. Each client-side communicates with the database through a RESTful service using HTTP as the underlying communication method. The .NET framework simplifies the implementation of a RESTful web service through Web API.

In summary, the personalized news feed application employs cutting-edge technology to provide a flexible and efficient news reading experience. By utilizing API integration, RESTful services, and dual-database structures, the application can deliver a tailored news experience to users across various platforms.

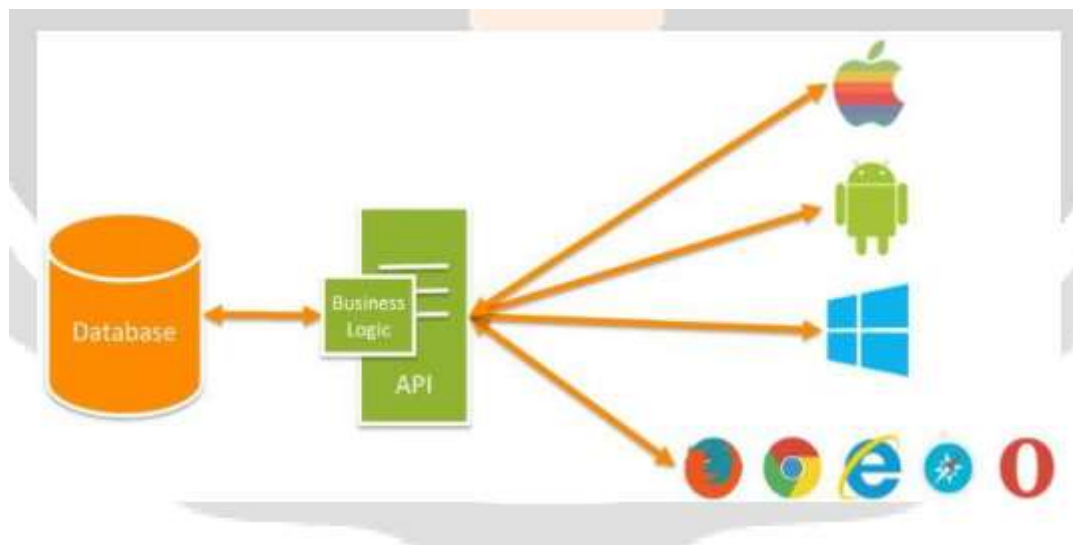


Chart-3: Architecture with a central API, which hold all the business logic

5. DISCUSSIONS

In order to enhance user engagement and facilitate content promotion, the News Feeder app offers users the unique ability to submit and share their own content directly within the app. This feature sets it apart from traditional news apps and sites that merely present a one-way flow of information to users. By allowing users to act as content "feeders" and add their own news articles and images, the News Feeder app creates a more interactive and dynamic experience.

This enthralling feature attracts users by providing them with a sense of ownership and contribution, encouraging them to use the app more frequently and engage with its content. Users can syndicate and republish content on the app through an easy-to-use interface, making the news publishing process simple and accessible to a broad audience.

Before publishing any user-generated content, the app's administrator verifies the authenticity and appropriateness of the content, ensuring that the information presented to users is genuine and reliable. Once verified, the user-generated content is accessible to all users and can be seen globally, fostering a sense of community and inclusivity.

This innovative approach to news app development is made possible through the app's RESTful service architecture, which relies on a central API to hold all the business logic. Each client-side interface communicates with the database through this API, resulting in a simpler and more performant development process.

By employing API integration and utilizing RESTful services, the News Feeder app is able to deliver a fast and responsive user experience, saving users time and providing them with only the most interesting and relevant news articles and images. Additionally, the app's performance is enhanced through the use of a dual-database setup, consisting of MySQL Server and MongoDB, which allows for fast and efficient searching of user data.

6. FUTURE DIRECTIONS

While the current model has shown promising results, there is still room for improvement and further research. To enhance the model's accuracy and adaptability, future studies could focus on expanding the dataset to include a wider variety of phishing techniques, refining feature selection methods, and exploring the potential of deep learning architectures. Investigating transfer learning and ensemble methods could also improve the model's performance and reduce the risk of overfitting. By continuing to explore new techniques and approaches, the model can become an even more effective tool for detecting and preventing phishing attacks..

7. CONCLUSIONS

To conclude, we developed an Android Application that has tried to implement all the requirements specified in user requirements. We used various functionalities provided by Android Studio and News API for development of this application. The app will prove to be keeping all its users up to date.

8. REFERENCES

- [1] Hulth A. Combining machine learning and natural language processing for automatic keyword extraction. Stockholm University, Faculty of Social Sciences, Department of Computer and Systems Sciences (together with KTH), 2004.
- [2] Anton Mykhailiuk, A creation of the linguistic ontology based on a structured electronic encyclopedic resource, Anton Mykhailiuk, Olena Mykhailiuk, Oleksiy Pylypchuk, Volodymyr Tarasenko, International Journal of Computing, 13(1) 2014, 1-2
- [3] Role of Natural Language Processing in Community Structure Detection - http://www.academia.edu/768236/Role_of_Natural_Language_Processing_in_Community_Structure_Detection
- [4] An Update on ASP.NET Core and .NET Core - <https://blogs.msdn.microsoft.com/webdev/2016/02/01/an-update-on-asp-net-core-and-net-core/>
- [5] Introduction to REST and .net Web API - <https://blogs.msdn.microsoft.com/martinkern/2015/01/05/introduction-to-rest-and-net-web-api>