NewsK

Your News, Your Way.

Group 5

Osama

Khalil

Ahmed

Ayadh

Aysha

Yousif

Abdulaziz

Executive Summary

The 2016 World Press Trends report by the World Association of Newspapers and News Publishers (WAN-IFRA) revealed a pivotal milestone: digital news readership surpassed **1.3 billion individuals**, accounting for approximately **40% of global internet users** who regularly access news online. With digital news consumption projected to continue its upward trajectory. Statista estimates the number of digital news readers will approach **2.0 billion by 2029**. In response to this demand, NewsK emerges as an innovative News-as-a-Service (NaaS) platform, specifically designed to address the information overload faced by bilingual individuals in the GCC region. Leveraging cutting-edge machine learning (ML) and natural language processing (NLP) technologies, NewsK delivers personalized, multilingual news recommendations tailored to the unique preferences of individual users and the strategic needs of corporate clients. By bridging the gap between overwhelming information and user-centric access, NewsK redefines how audiences interact with digital news, fostering efficiency and personalization in a globalized, multilingual environment.

The Microsoft News Dataset (MIND) and **Saudi Newsnet**. MIND provides a vast collection of English news articles, capturing user interactions and metadata, while Saudi Newsnet offers localized Arabic news content from various Saudi Arabian online newspapers. This blend ensures that NewsK delivers high-quality, contextually relevant news in both languages, making it a versatile tool for its users.

NewsK's platform engine uses a hybrid approach, combining collaborative filtering, which analyzes user interaction data to identify preferences, with content-based filtering, which employs NLP to match similar topics and themes within articles. This dual strategy ensures that recommendations are both accurate and relevant, even for new users with limited interaction data. Additionally, the platform leverages transformer-based models like BERT and classify news by AraBERT to generate high-quality contextual embeddings, and mT5 for summarizing Arabic News, ensuring that users receive concise and pertinent information.

The user interface of NewsK, built with Vue.js, is designed to be responsive and engaging, allowing users to easily navigate, view personalized recommendations, and read article summaries in Arabic. This commitment to inclusivity and multilingual support significantly enhances user engagement and satisfaction.

To maintain the quality of its recommendations, NewsK incorporates MLOps principles, which support continuous deployment and monitoring of machine learning models. Kubernetes and Docker facilitate scalable and efficient deployments, while monitoring tools like MLflow and Prometheus track model performance and detect instances of data and model drift. Automated retraining processes ensure that the recommendation engine adapts to changes in user behavior and content trends, keeping the platform up-to-date and relevant.

For businesses, NewsK offers substantial value by aligning news content with strategic objectives, helping companies stay informed about industry trends, risks, and opportunities. The platform supports proactive decision-making, public image management, and investor confidence. Its scalable architecture, robust data processing capabilities, and adherence to quality standards and

best practices make NewsK a reliable and future-proof solution for both individual users and corporate clients.

Solution Architecture:
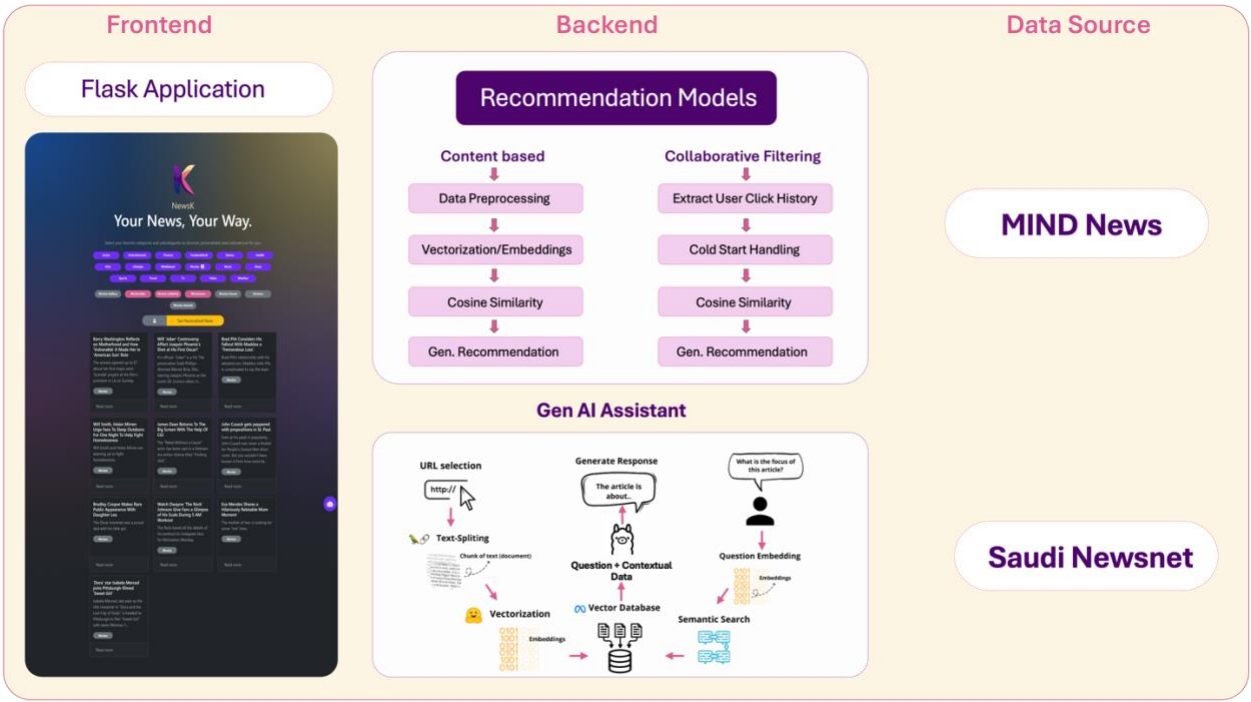
In summary, NewsK is an advanced news recommendation platform designed to streamline information consumption, reduce cognitive overload, and aid informed decision-making. Utilizing transformer-based models like llama3, distilbert, classify Arabic news wtih AraBERT, and summarize it by mT5, with Gen AI assistant to deliver high-quality contextual embeddings and concise content summaries. Positioned as a leading solution, NewsK is set to make a significant impact in the GCC region and beyond.