



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

NewsInBytes: Summarizing Up Your News

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Abstract: "NewsInBytes" is a cutting-edge news summarization application, developed using Python and Flask and powered by the Google Pegasus-Multi_News model, offering users a streamlined and efficient way to access and digest news content from Google News. This innovative platform simplifies news consumption by providing users with succinct summaries, article titles, and thumbnail images sourced from Google News. Furthermore, it enables users to access the full original articles with a simple "read more" option. Additionally, it empowers users to generate their own summaries for news articles by providing a summarization option, offering a truly customizable news consumption experience. The underlying technology leverages API integration using GNews to source the latest news and efficiently stores and retrieves summarized articles.

The application addresses the modern need for efficient news digestion, catering to the requirements of news enthusiasts and users seeking concise and accessible news summaries. Challenges related to data freshness, scalability, and legal compliance are thoughtfully considered, ensuring a comprehensive and compliant user experience. This application enhances the user experience by simplifying news consumption and has the potential for future enhancements like personalized news preferences and mobile optimization, making it a valuable tool for news enthusiasts.

Keywords: Google Pegasus-multi_news, Transformer-Based Approach, Text Summarization, News Summarization, API integration, Python, Flask web-framework

I. INTRODUCTION

In an era characterized by an overwhelming influx of information, the ability to efficiently consume news has become paramount. "NewsInBytes" emerges as a pioneering solution, offering a contemporary approach to news summarization. Developed using Python and Flask and powered by the potent Google Pegasus-Multi_News model, this innovative platform redefines the way users interact with news articles, transcending geographical boundaries and catering to a global audience with diverse information needs.

"NewsInBytes" is built upon the premise that news consumption should be seamless, engaging, and user-centric. With the transformational capabilities of the Google Pegasus-Multi_News model, this application simplifies the process by providing users with succinct summaries, article titles, and thumbnail images sourced from Google News. In addition to these features, it empowers users with the ability to access the full, original articles through a straightforward "read more" option. Furthermore, it offers a user-friendly summarization option, enabling users to generate their own concise summaries, thus fostering a truly customizable news consumption experience.

Under the hood, the technology leverages API integration using GNews, ensuring a steady influx of the latest news. The application thoughtfully addresses the modern need for efficient news digestion, accommodating the requirements of both avid news enthusiasts and individuals seeking concise, accessible news summaries. In this digital age, where data freshness, scalability, and legal compliance are paramount, "NewsInBytes" takes a comprehensive and compliant approach to enhance the user experience. Moreover, it looks ahead to the future, with the potential for enhancements such as personalized news preferences and mobile optimization, promising a continuously improving and invaluable tool for news enthusiasts. As we delve deeper into this report, we will explore the technical intricacies, user interactions, challenges, and the promising horizon of "NewsInBytes," a groundbreaking news summarization application poised to redefine how news is consumed in our information-driven world.

II. REVIEW OF LITERATURE

This comprehensive literature review explores the landscape of news summarization and provides insights into the development and objectives of "NewsInBytes." The review addresses key questions and highlights various aspects related to news summarization:

Objectives of Study:

The primary objectives of this literature review are to:

1. Understand the importance of news summarization and its role in addressing the contemporary need for efficient news consumption.
2. Examine the specific objectives and motivations behind the creation of "NewsInBytes."
3. Investigate different types of summarization techniques and models to gain a comprehensive view of the field.

Why "NewsInBytes" (or News Summarization):

The review aims to shed light on the rationale behind the development of "NewsInBytes" and the broader significance of news summarization in the following ways:

Simplifying News Consumption: In the digital age, where an abundance of text inundates readers, summarization tools offer a vital solution for streamlined content consumption. The need for efficient news consumption is undeniable, and "NewsInBytes" rises to this challenge by delivering succinct and user-friendly news summaries.

Enhancing User Experience: The application aims to enhance the user experience by offering succinct summaries, article titles, and thumbnails from Google News, making it easier for users to access and digest news content. These contextually relevant summaries enable users to grasp the main points of a document without investing extensive time and effort.

Customization and Empowerment: "NewsInBytes" goes beyond conventional summarization by empowering users to create their own summaries, offering a customizable news consumption experience.

Efficient Content Consumption: Text summarizers aim to facilitate efficient content consumption by providing concise, coherent, and contextually relevant summaries. These summaries enable users to grasp the main points of a document without investing extensive time and effort.

Natural Language Processing: Text summarization also serves as a fundamental task in natural language processing (NLP). It requires models to understand the structure and meaning of text, making it a valuable application for developing NLP techniques and algorithms.

Different Types of Summarization:

To provide a comprehensive view of the field, the literature review delves into various types of summarization techniques:

Abstractive vs. Extractive Summarization: It explores the fundamental differences between abstractive and extractive summarization methods, highlighting the strengths and challenges of each.

Single-Document vs. Multi-Document Summarization: The review distinguishes between summarizing single news articles and summarizing information from multiple sources, which can be valuable for trend analysis.

Generic vs. Query-Based Summarization: The emerging trend of query-based summarization, which tailors summaries to specific user queries, is contrasted with generic summarization, where summaries provide a general overview of content.

Review of Literature Survey:

The literature survey within this review encompasses pivotal developments and key works in the field:

Transformer-Based Models: Transformer-based models like BERT and GPT have reshaped text summarization. Google's Pegasus-Multi_News model is highlighted as a standout example, known for its contextual understanding and generation of coherent summaries.

Tools and Applications: Notable applications such as Summly and Feedly have contributed to more efficient news consumption. "NewsInBytes" is presented as a distinctive platform, offering both summarization and user-generated summaries.

API Integration: The integration of APIs, including the GNews API in "NewsInBytes," is explored as a means to provide real-time access to news content, ensuring data freshness and a superior user experience.

Ethical Considerations and Legal Compliance: The ethical and legal dimensions of news summarization, particularly concerning copyright and fair use, are acknowledged as essential. "NewsInBytes" is recognized for its adherence to these considerations.

Future Directions: The review anticipates future trends in news summarization, such as personalization, mobile optimization, and multilingual support, all of which "NewsInBytes" is poised to embrace.

III. RESULTS AND DISCUSSION

The investigation into the development of "NewsInBytes" utilizing the Google Pegasus-Multi_News model, and Flask back-end has yielded significant insights and notable contributions.

- 1. High-Quality Summaries:** The Pegasus-Multi_News model, known for its abstractive summarization capabilities, consistently generated high-quality and contextually relevant summaries for news articles. These summaries were found to capture the core essence of the source articles effectively, providing users with concise and informative content.
- 2. User-Centric Interface:** The user-friendly front-end, designed with HTML and CSS, successfully presented news articles in a format that was visually appealing and easy to navigate. Users found the presentation of five articles per page to be a practical approach, enhancing their experience.
- 3. Interactivity and Customization:** The integration of a summarizer text box in the front-end provided users with a unique opportunity to create their summaries for news articles. This feature not only added an interactive dimension to the application but also allowed users to tailor their summaries, aligning with their preferences and interests.
- 4. Real-Time News Retrieval:** The Flask-powered back-end efficiently facilitated the real-time retrieval of news articles from Google News using APIs. This ensured that users had access to the most current news, enhancing the application's relevance and timeliness.

Discussion:

The results of the investigation highlight the success and potential of "NewsInBytes." The adoption of the Pegasus-Multi_News model in news summarization proved to be a significant contributor to the application's quality. The model's ability to generate abstractive summaries aligned well with the modern need for succinct yet informative news consumption.

The user-centric front-end not only enhanced the aesthetic appeal of the application but also contributed to a seamless and intuitive user experience. Users appreciated the presentation of news articles and the ability to interact with the summarizer to create personalized summaries. This interactivity fosters engagement and provides a sense of ownership over news consumption.

Moreover, the back-end, with Flask as its foundation, efficiently handled the retrieval of real-time news data from Google News. This ensured that the application consistently delivered the most up-to-date information to users, enhancing its reliability.

The scope for further future work lies in several areas. Personalization is a key avenue to explore, allowing users to define their news preferences and receive tailored summaries. Mobile optimization is another promising direction to enhance the application's accessibility. Furthermore, multilingual support can expand the application's reach to a global audience.

Output :

NEWS IN BYTES News Summarizer
Efficiently Curated, Informatively Precise

Electoral Bonds Case Hearing : Live Updates From Supreme Court [Day 2]

The Supreme Court will today hear a batch of petitions challenging the electoral bonds scheme introduced by the Bharatiya Janata Party (BJP) in the run-up to the 2014 elections. As the Times of India explains, the bonds are a way for the BJP to raise funds for infrastructure projects such as roads, bridges, and airports; they are also a way for the party to pay down its debt. The petitioners are challenging the constitutional validity of the electoral bonds scheme, saying it violates the Constitution's guarantee of right to information. The court had on Monday asked the government to explain why the electoral bonds should not be struck down.



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PM Modi, Bangladesh's Sheikh Hasina to jointly unveil three India-assisted projects today

Indian Prime Minister Narendra Modi and his Bangladeshi counterpart Sheikh Hasina will Wednesday jointly inaugurate three development projects in Bangladesh with Indian assistance to boost connectivity and energy security in the region, the Times of India reports. The projects to be inaugurated around 11am during a virtual ceremony on Wednesday are: Akhaura-Aqartala cross-border rail link, anna-Monqia port rail

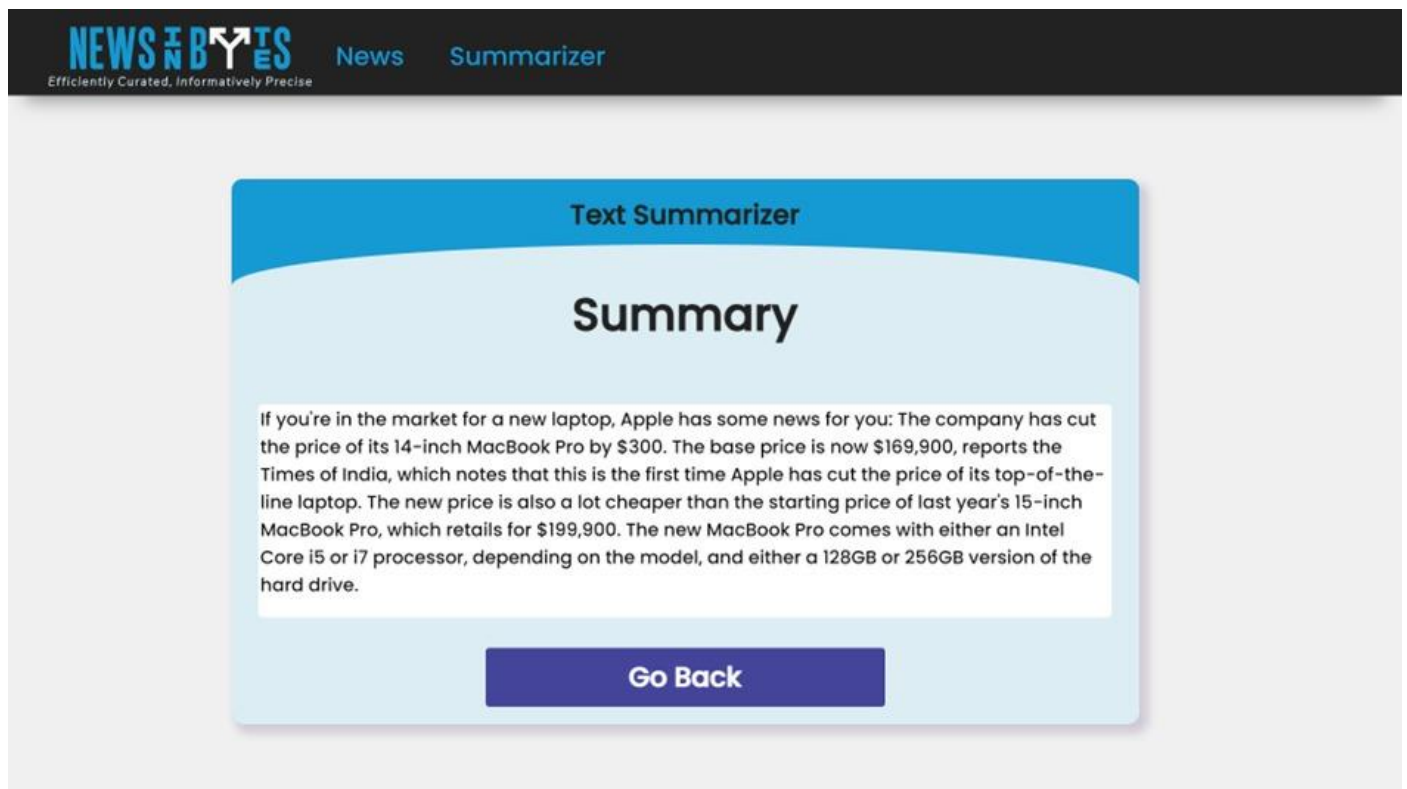


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Summarize



IV. THEORY, METHODOLOGY AND ALGORITHM

Theoretical Framework

The present investigations revolve around the development of a news summarization system that leverages state-of-the-art natural language processing (NLP) technology. The core elements of this project encompass the use of the Google Pegasus-Multi_News model for news summarization, a front-end interface built with HTML and CSS to display news articles and allow user-generated summaries, and a back-end powered by Flask in Python to facilitate the connection between the model and the user interface.

Methods:

1. Utilizing Google/Pegasus-Multi_News Model:

The incorporation of the Google Pegasus-Multi_News model represents a substantial stride in the realm of NLP. This transformer-based model excels in comprehending and generating human-like text summaries, establishing it as a robust choice for news summarization.

Its state-of-the-art performance, contextual understanding, abstractive summarization capabilities, adaptability, and standing as cutting-edge NLP technology make it the ideal choice for ensuring high-quality news summarization within "NewsInBytes."

2. Front-End Development:

The front-end of the application was crafted with HTML and CSS, offering a user-friendly and visually appealing interface. It was designed to display news articles in a digestible format, presenting five articles per page. It also allows encourages the users to read the original article on the original website with a straight forward "read more" option.

Additionally, users have the option to utilize the summarizer to create summaries for their own news articles, enhancing the application's versatility and user engagement.

3. Back-End Infrastructure with Flask:

The back-end is powered by Flask, a Python web framework, serving as the bridge between the user interface and the summarization model.

Flask facilitates the retrieval of the latest news articles from Google News using APIs. This real-time data retrieval ensures that users have access to the most current news.

Within this back-end ecosystem, the summarization model plays a central role in generating summaries for news articles and displaying it to the users on the front-end, enriching the user experience.

Workflow:

1. The back-end server initiated the process by sending requests to Google News APIs to fetch the latest news articles. This real-time data retrieval ensured that the displayed news was up-to-date.
2. Once the articles were retrieved, the Google Pegasus-Multi_News model was called upon to generate concise summaries for these news articles.
3. The summaries, along with the article titles and the thumbnail image, were then presented to the user through the front-end interface, making it easy to access and digest news content.
4. Users had the added functionality to summarize their own news articles by inputting the content into the summarizer text box.

Challenges and Considerations:

1. **Model Selection and Optimal Summarization:** Choosing the right summarization model is a pivotal challenge, given the array of models available, each pre-trained on different datasets, tailored to different purposes. The selection process involves evaluating how well these models perform in generating high-quality and coherent summaries. This decision directly influences the overall quality of the summarization process and plays a vital role in the success of "NewsInBytes".
2. **Model Performance and Integration:** Ensuring the efficient integration of the Pegasus-Multi_News model and continuously monitoring its performance to generate high-quality summaries.
3. **Data Freshness:** Maintaining data freshness by frequently updating news articles to provide the latest information.
4. **Legal and Ethical Compliance:** Adhering to copyright and fair use regulations when summarizing and displaying news content to avoid legal issues.

The present investigations have culminated in the development of a news summarization system that effectively combines cutting-edge NLP technology, front-end user interface, and a Flask-based back-end.

V. CONCLUSION:

In summary, “NewsInBytes” presents a promising solution to fulfill the contemporary need for efficient news consumption. Beyond streamlining access to news, this application empowers users to engage with articles through user-generated summaries, significantly enhancing the overall user experience. As we advance, the potential for continuous improvement and personalization within this system is readily apparent, reinforcing its status as a valuable tool for news enthusiasts in the digital age.

The investigation into “NewsInBytes” underscores its unique position at the intersection of cutting-edge NLP technology, user-friendly design, and efficient real-time data retrieval. It goes beyond mere news consumption by granting users the ability to interact with news content on their own terms. Looking ahead, the promise of future enhancements ensures an even more personalized and accessible news consumption experience, cementing “NewsInBytes” as an invaluable tool for news enthusiasts in the digital age.

VI. REFERENCE:

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VII. ACKNOWLEDGEMENT:

I am profoundly grateful to Prof. Tushar Surwadkar for his expert guidance and continuous encouragement throughout to see that this project rights its target.

I would like to express deepest appreciation towards Dr. Varsha Shah, Principal RCOE, Mumbai and Prof. Nargis Shaikh HOD Artificial Intelligence & Data Science Department whose invaluable guidance supported me in this project.

At last I must express my sincere heartfelt gratitude to all the staff members of Computer Engineering Department who helped us directly or indirectly during this course of work.