

FAKE NEWS DETECTION USING NLP

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Phase 2: Innovation

Introduction:

In an era dominated by information, distinguishing between credible news and misleading information is more crucial than ever. The "Detecting Fake News Using Natural Language Processing" project aims to tackle this challenge by harnessing the power of NLP.

Source:

The dataset is obtained from Kaggle.com.

Dataset link: <https://www.kaggle.com/datasets/clmentbisailon/fake-and-real-news-dataset>

Innovation:

- **Advanced NLP Models:**

Utilize state-of-the-art NLP models like transformers (e.g., BERT, GPT-3) to understand the context and semantics of news articles effectively.

Implement fine-tuning and transfer learning techniques to adapt pre-trained models to the specific task of fake news detection.

- **Contextual Understanding:**

Develop models that consider the broader context in which news articles are published, including historical events, political climate, and the reputation of the news source.

Incorporate temporal analysis to track the evolution of news stories over time, identifying changes in narratives or updates.

- **User Behavior Analysis:**

Analyze user interactions with news articles on social media platforms to identify patterns of information sharing and amplification of fake news.

- **Real-time Monitoring:**

Create a system that continuously monitors news sources and social media for the emergence of potentially fake news stories.

Utilize streaming data processing to keep the detection system up-to-date in real-time.

- **User Feedback Loop:**

Implement a user feedback mechanism where users can report potentially fake news articles and provide feedback on system predictions.

Use user input to improve the accuracy and performance of the fake news detection system over time.

- **Web application integration:**

The Fake News Detection Web Application is designed to combat the spread of misinformation by providing users with a user-friendly platform to access and verify news articles' credibility. The application

leverages Natural Language Processing (NLP) and user interaction to deliver accurate and up-to-date assessments of news articles.

Language used : PYTHON

Algorithm used : BERT

- BERT stands for Biredirectional Encoder Representations from Transfers.
- It is a machine learning(ML) framework for Natural Language Processing.

Required Modules:

- **pandas** - To analyse given dataset.
- **numpy** - To perform array operations.
- **matplotlib** - To plot various graphs.
- **tensorflow** - To implement data automation,model tracking.
- **tranformers** - Tp provide an easy interface to use BERT with TensorFlow.

Conclusion:

Our approach integrates user engagement, leveraging a collaborative ecosystem where users actively participate in the verification process. By providing an intelligible platform and educational modules, we not only detect fake news but also empower users to develop critical media literacy skills.