Fake News Detection using NLP & Machine Learning

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Objective:

To develop a machine learning model that accurately detects fake news articles using Natural Language Processing techniques.

Dataset:

Used True.csv and Fake.csv from the Kaggle dataset: 'Fake and Real News Dataset'. Combined both and labeled them as REAL or FAKE.

Tools and Technologies Used:

- Python
- Scikit-learn
- Pandas
- TF-IDF Vectorizer
- PassiveAggressiveClassifier

Model Details:

The text data was vectorized using TF-IDF to convert text into numerical form. The PassiveAggressiveClassifier was trained on 80% of the data and evaluated on 20%.

Results:

Accuracy Achieved: 99.58%

Confusion Matrix:

[4647 25]

[13 4295]

Example Prediction:

Input: "Breaking: Scientists discover a new method to teleport matter in quantum labs!"

Prediction: FAKE

Key Learnings:

- How to preprocess and vectorize text data using TF-IDF

- Training and evaluating a machine learning classifier

- Understanding accuracy and confusion matrix

- Real-time prediction of news authenticity