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SMART NEWS VERIFICATION SYSTEM

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ABSTRACT

The Smart News Verification System is a machine learning-based application developed to detect whether a news headline is REAL or FAKE. The system uses Natural Language Processing (NLP) and the Multinomial Naive Bayes algorithm to classify news headlines accurately. Text data is converted into numerical format using CountVectorizer, enabling the machine learning model to analyze patterns and predict authenticity. This project demonstrates how machine learning techniques can help reduce misinformation and fake news spread across digital platforms.

INTRODUCTION

Fake news has become a major issue in the digital world due to the rapid growth of social media and online news platforms. False information spreads quickly and can influence public opinion, politics, healthcare, and social stability. Manual verification of news is difficult and time-consuming. Therefore, automated systems are required to verify news authenticity efficiently.

The Smart News Verification System uses machine learning techniques to classify news headlines into REAL or FAKE categories. The project is implemented using Python and machine learning libraries such as Pandas, NumPy, and Scikit-learn.

METHODOLOGY

The methodology of the Smart News Verification System includes the following steps:

1. Data Collection:

A dataset containing news headlines labeled as REAL or FAKE is created.

2. Data Preprocessing:

Text data is cleaned and prepared for machine learning analysis.

3. Feature Extraction:

CountVectorizer converts text into numerical vectors based on word frequency.

4. Data Splitting:

The dataset is divided into training and testing sets.

5. Model Training:

The Multinomial Naive Bayes algorithm is used to train the classification model.

6. Prediction:

The trained model predicts whether the user-entered headline is REAL or FAKE.

7. Performance Evaluation:

Accuracy score and classification report are used to evaluate model performance.

SYSTEM ARCHITECTURE

News Dataset

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Data Preprocessing

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CountVectorizer

↓

Train/Test Split

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Naive Bayes Model

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Prediction Result (REAL / FAKE)

RESULTS AND DISCUSSION

The Smart News Verification System successfully classifies news headlines into REAL and FAKE categories.

Sample Results:

- Input: India wins cricket world cup Output: REAL
- Input: Aliens landed in New York yesterday Output: FAKE

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MODEL ACCURACY:
66.67 %

CLASSIFICATION REPORT:
              precision    recall  f1-score   support

        FAKE       0.50      1.00      0.67         1
        REAL       1.00      0.50      0.67         2

    accuracy                           0.67         3
   macro avg       0.75      0.75      0.67         3
weighted avg       0.83      0.67      0.67         3

TEST YOUR OWN NEWS
Enter a news headline: India wins cricket world cup
Prediction Result:
This news is: REAL

WORDS LEARNED BY MODEL:
['actor', 'aliens', 'all', 'baba', 'battery', 'caught', 'cheese',
 'claims', 'coffee', 'cures', 'discover', 'diseases', 'drinking',
 'education', 'fake', 'government', 'healing', 'improves', 'in', 'india',
 'jupiter', 'landed', 'launches', 'life', 'lottery', 'made', 'magic',
 'mars', 'mission', 'moon', 'nasa', 'new', 'of', 'on', 'plans', 'policy',
 'post', 'powers', 'says', 'scientists', 'scam', 'technology', 'to',
 'viral', 'water', 'wins', 'world', 'yesterday', 'york']
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The model achieves good accuracy for the provided dataset. The system is simple, fast, and easy to implement. However, the current model uses a small dataset and may not perform well for complex news articles. Accuracy can be improved by using larger datasets and advanced deep learning models.

CONCLUSION

The Smart News Verification System demonstrates how machine learning and natural language processing techniques can be used for fake news detection. Using CountVectorizer and Multinomial Naive Bayes, the system effectively classifies news headlines as REAL or FAKE. The project provides a strong foundation for developing advanced real-time fake news detection systems.

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