Fake News Detection Using NLP

Page 1: Project Overview

Introduction

Fake news refers to misleading or false information disguised as legitimate news. With the rise of social media and rapid content sharing, fake news can quickly influence public opinion and cause widespread misinformation. Detecting fake news automatically is essential to maintaining online information integrity.

Abstract

This project applies Natural Language Processing (NLP) and machine learning techniques to identify fake news articles. A labeled dataset of real and fake news is preprocessed, vectorized using TF-IDF, and trained using Logistic Regression. The model is then deployed with a Streamlit web interface for real-time predictions.

Tools Used

- Python
- Pandas
- Scikit-learn
- NLTK
- Streamlit

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Page 2: Technical Steps & Conclusion

Steps Involved

1. Load and clean the dataset (Fake.csv and True.csv)
2. Merge and label the data
3. Preprocess the text (remove stopwords, lowercase, stemming)
4. Vectorize text using TF-IDF
5. Train a classifier (Logistic Regression)
6. Evaluate model accuracy, precision, recall
7. Create a Streamlit UI for prediction

Conclusion

This project demonstrates a simple and efficient way to detect fake news using NLP. The model achieves high accuracy and offers a user-friendly interface for real-time testing. Future improvements could include using deep learning models and multilingual datasets.