Fake News Detection Model Using TensorFlow

Project Overview

This project implements a deep learning model to classify news articles as FAKE or REAL based on their text content. The model leverages an LSTM (Long Short-Term Memory) neural network built with TensorFlow to analyze the textual data and accurately detect fake news.

Dataset

- The dataset contains labeled news articles with two classes: FAKE and REAL.
- Data columns include the text of the news article and its corresponding label.
- Source: [Provide your dataset source or link here]

Features

- Text preprocessing including cleaning, stopword removal, and tokenization.
- Conversion of labels into binary format (FAKE=0, REAL=1).
- Use of word embeddings via Tokenizer and padding sequences for uniform input length.
- Deep learning model built with:
  - Embedding layer for word vector representation.
  - LSTM layer for capturing sequence dependencies.

  - Dense layers for binary classification with Sigmoid activation.

- Model compiled with Binary Crossentropy loss and Adam optimizer.

Usage

1. Install required libraries:

pip install numpy pandas tensorflow scikit-learn nltk

2. Run the notebook:

- Load and preprocess the dataset.

- Train the LSTM model on the training data.

- Evaluate model performance using accuracy, precision, recall, and F1-score.

- Make predictions on new, unseen news articles.