**Project Title:** News Article Classification (Fake/Real)

**Name:** Hadeel Ismail

**Tools Used:** Python, NLTK, Sklearn, Pandas, Streamlit

1. **Introduction**

With the rise of misinformation, detecting fake news has become critical. This project aims to classify news articles as real or fake using natural language processing and machine learning techniques. A Streamlit web app was built to allow real-time predictions.

1. **Abstract**

A Naive Bayes classifier was trained on a dataset of labeled news articles using the TF-IDF vectorization method. The model was deployed using a simple Streamlit interface. It enables users to paste any news content and instantly check if it's real or fake based on the model's prediction.

1. **Tools & Technologies Used**

• Python for scripting

• NLTK for text preprocessing

• Sklearn for TF-IDF and model training

• Pandas for data handling

• Streamlit for building the web app interface

**4. Steps Involved in Building the Project**

1. Collected and merged real/fake news datasets

2. Cleaned the text using NLTK (stopwords, punctuation)

3. Applied TF-IDF vectorization

4. Trained a Naive Bayes classifier

5. Evaluated model using accuracy and F1-score (achieved ~94.6% accuracy)

6. Created a Streamlit UI to input and classify news text

7. Tested and validated with real-time examples

**5. Conclusion**

This project demonstrated how machine learning and NLP can be used to fight misinformation. The model shows high accuracy and the Streamlit app provides a user friendly interface for real-time prediction. This project enhanced my understanding of ML pipelines and real-world app deployment.