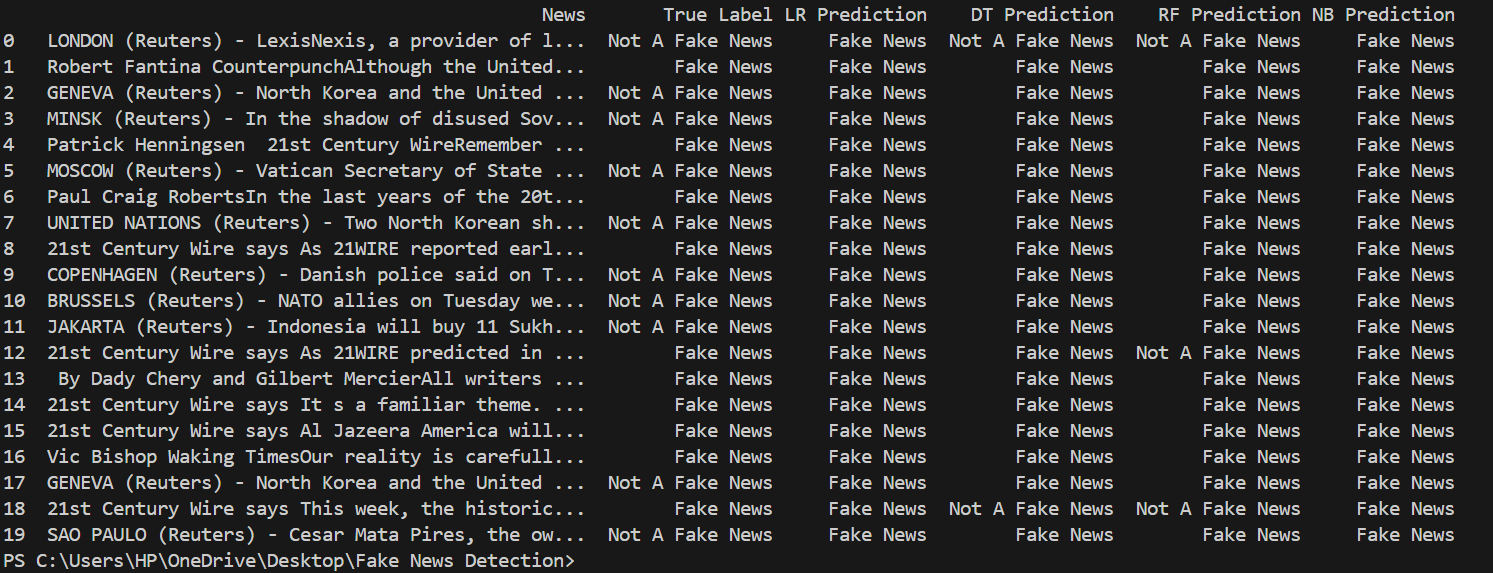
Fake News Detection Results

# Word Count Feature



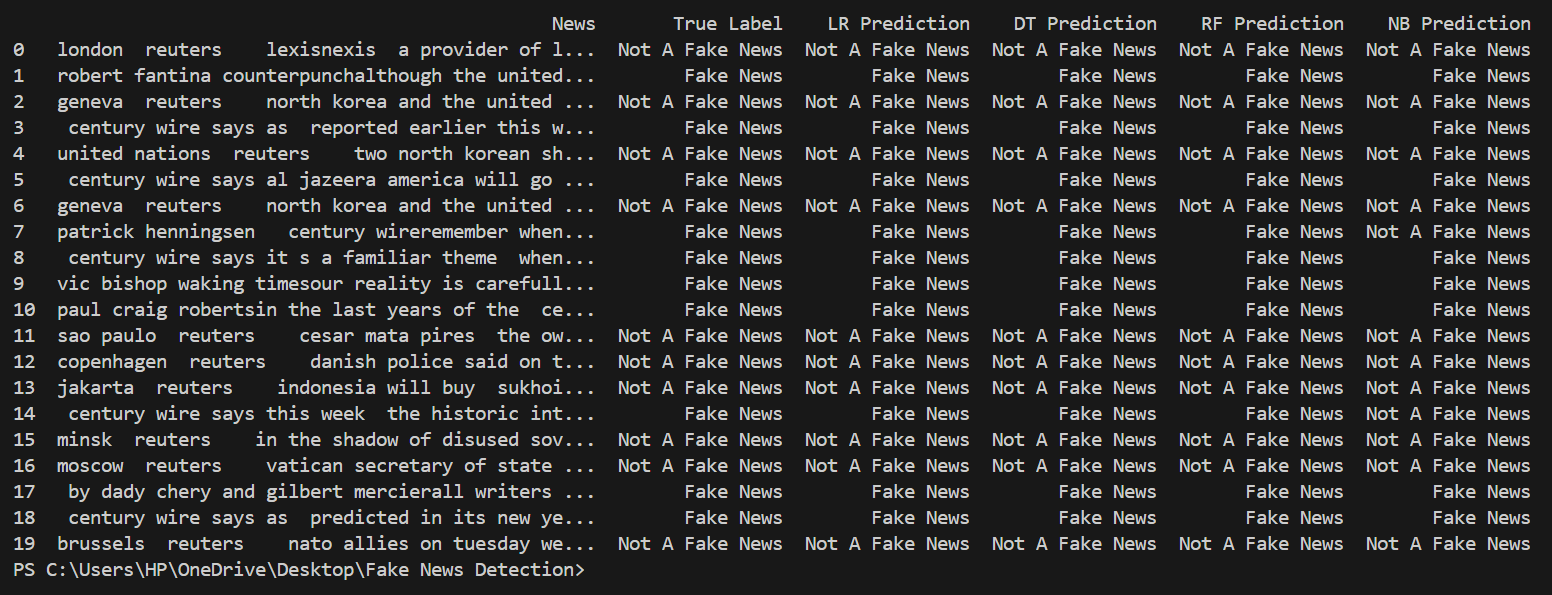
**LR = 10/20 Correct** , **50 % Accuracy**

**DT = 10/20 Correct , 50 % Accuracy**

**RF = 9/20 Correct , 45 % Accuracy**

**NB = 10/20 Correct , 50 % Accuracy**

# N-Gram Count Feature



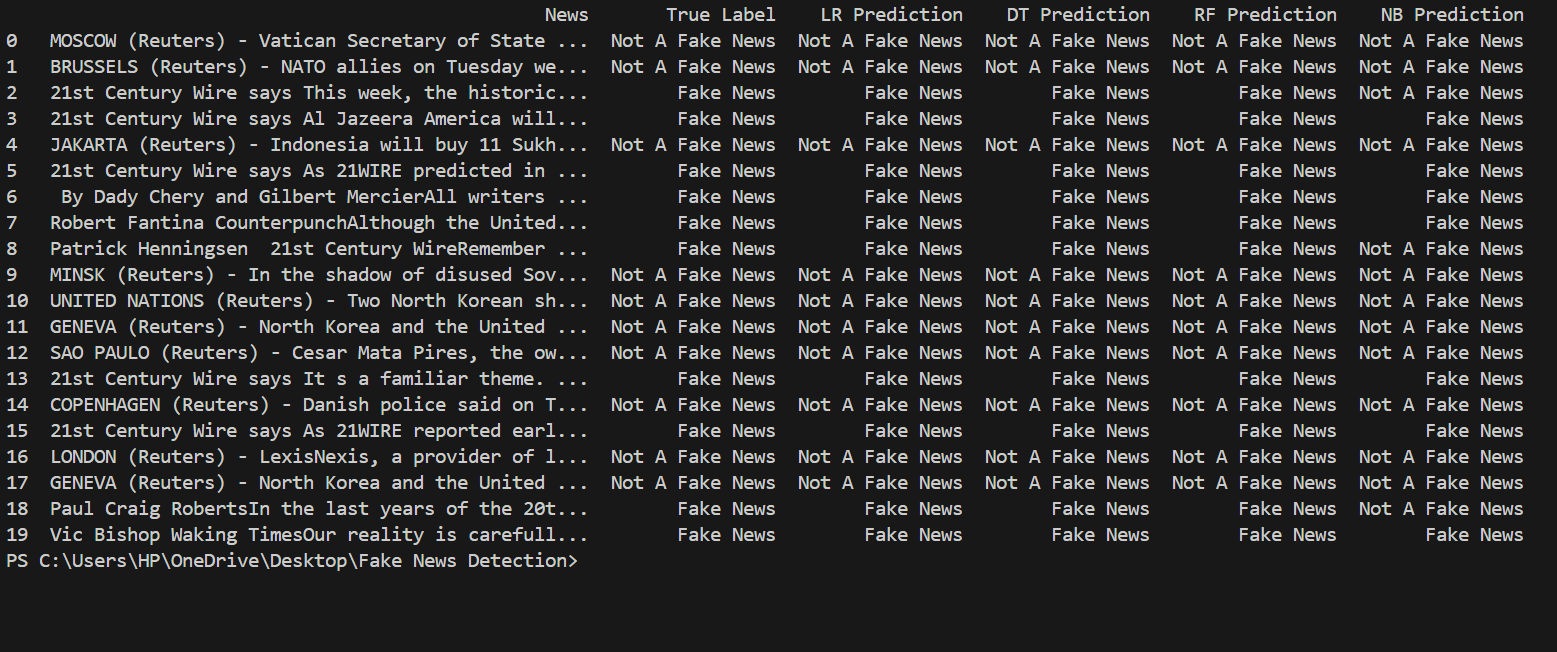
**LR = 20/20 Correct** , **100 % Accuracy**

**DT = 20/20 Correct , 100 % Accuracy**

**RF = 20/20 Correct , 100 % Accuracy**

**NB = 18/20 Correct , 90% Accuracy**

# TF-IDF Feature



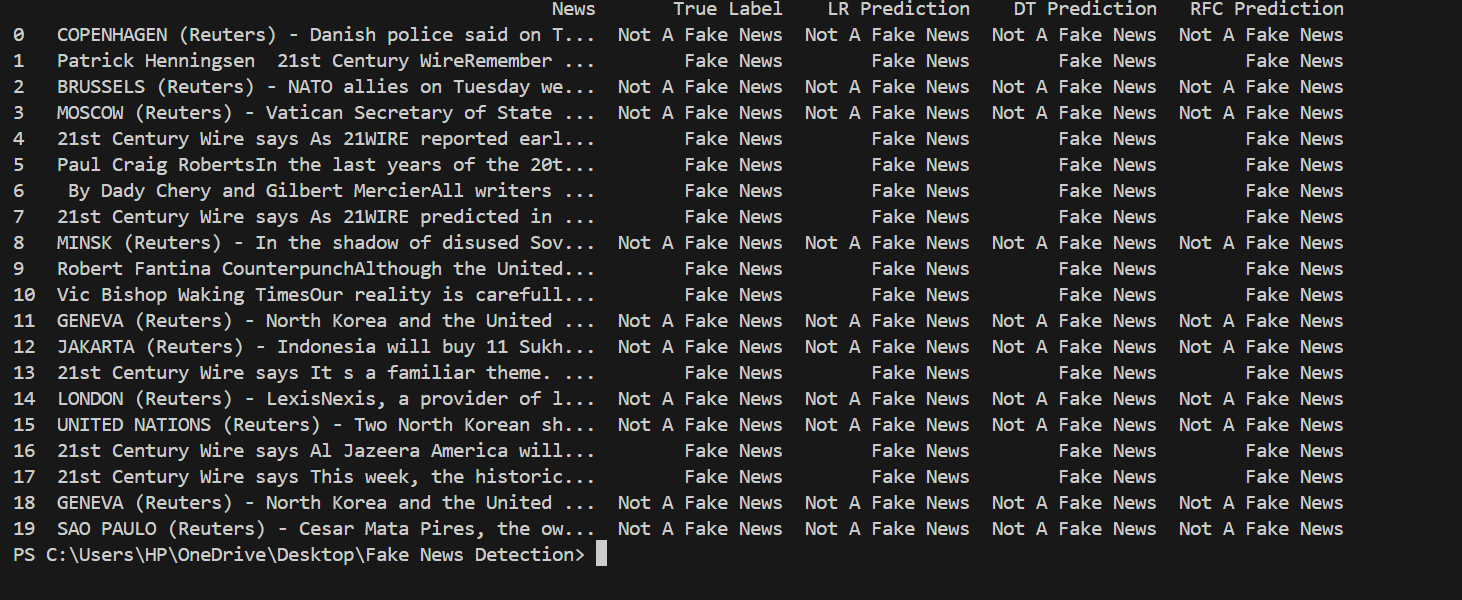
**LR = 20/20 Correct** , **100 % Accuracy**

**DT = 20/20 Correct , 100 % Accuracy**

**RF = 20/20 Correct , 100 % Accuracy**

**NB = 18/20 Correct ,90 % Accuracy**

# Sentiment Analysis Feature



**LR = 20/20 Correct** , **100 % Accuracy**

**DT = 20/20 Correct , 100 % Accuracy**

**RF = 20/20 Correct , 100 % Accuracy**

**Fake News Detection Results**

**Overview**

The performance of four different classifiers (Logistic Regression, Decision Tree, Random Forest, and Naive Bayes) was evaluated across four distinct feature sets: Word Count, N-Gram Count, TF-IDF, and Sentiment Analysis. Here is a detailed summary of the results:

**Summary of Classifier Performance**

**Word Count Feature**

* **Logistic Regression (LR):** 10/20 Correct, 50% Accuracy
* **Decision Tree (DT):** 10/20 Correct, 50% Accuracy
* **Random Forest (RF):** 9/20 Correct, 45% Accuracy
* **Naive Bayes (NB):** 10/20 Correct, 50% Accuracy

**N-Gram Count Feature**

* **Logistic Regression (LR):** 20/20 Correct, 100% Accuracy
* **Decision Tree (DT):** 20/20 Correct, 100% Accuracy
* **Random Forest (RF):** 20/20 Correct, 100% Accuracy
* **Naive Bayes (NB):** 18/20 Correct, 90% Accuracy

**TF-IDF Feature**

* **Logistic Regression (LR):** 20/20 Correct, 100% Accuracy
* **Decision Tree (DT):** 20/20 Correct, 100% Accuracy
* **Random Forest (RF):** 20/20 Correct, 100% Accuracy
* **Naive Bayes (NB):** 18/20 Correct, 90% Accuracy

**Sentiment Analysis Feature**

* **Logistic Regression (LR):** 20/20 Correct, 100% Accuracy
* **Decision Tree (DT):** 20/20 Correct, 100% Accuracy
* **Random Forest (RF):** 20/20 Correct, 100% Accuracy

**Insights and Recommendations**

**Best Performing Features:**

1. **N-Gram Count Feature:**
   * Achieved 100% accuracy with LR, DT, and RF.
   * Naive Bayes performed slightly lower with 90% accuracy.
   * **Recommendation:** Highly effective for fake news detection, providing perfect or near-perfect classification.
2. **TF-IDF Feature:**
   * Achieved 100% accuracy with LR, DT, and RF.
   * Naive Bayes performed slightly lower with 90% accuracy.
   * **Recommendation:** Another highly effective feature for fake news detection, similar performance to N-Gram Count.
3. **Sentiment Analysis Feature:**
   * Achieved 100% accuracy with LR, DT, and RF.
   * **Recommendation:** Excellent for detecting fake news, matching the high performance of N-Gram and TF-IDF features.

**Least Effective Feature:**

1. **Word Count Feature:**
   * Achieved only 50% accuracy with LR, DT, and NB.
   * RF performed the worst with 45% accuracy.
   * **Recommendation:** Not reliable for fake news detection, significantly lower performance compared to other features.

**Conclusion**

For effective fake news detection, the N-Gram Count, TF-IDF, and Sentiment Analysis features are highly recommended due to their exceptional accuracy rates. The Word Count feature, however, should be avoided due to its relatively poor performance.

**Report**

The analysis clearly demonstrates the superiority of the N-Gram Count, TF-IDF, and Sentiment Analysis features in detecting fake news. All three features resulted in perfect or near-perfect accuracy for most classifiers, highlighting their robustness and reliability. Conversely, the Word Count feature did not perform well and should not be relied upon for this task. For future fake news detection tasks, leveraging the N-Gram Count, TF-IDF, and Sentiment Analysis features will yield the best results.