SDP MID-TERM EVALUATION

Fighting Fake News With Machine Learning: A New Era Of Fake Journalism

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Presentation Outline

- Introduction
  - Motivations
  - Uniqueness of the work

- Literature Survey
  - Existing System
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- Schematic Layout OR Model Diagram

- Methods OR Tools OR Algorithms used

- Experimentation and Results
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  - Experimental outcomes (Tables and Figures)

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- Bibliography

Introduction

❑ Overview

- ▪ Low-quality news full of misinformation is called "fake news"[1].
- ▪ Maintains lie about a certain statistic in a country of certain services [2].
- ▪ Spread through various channels.
- ▪ A crucial and challenging task[3].

Introduction contd..

❑ Motivations

- Promoting truth and accuracy.

- Protecting individuals and society.

- Advancing research and technology.

- Enhancing information integrity.

- Promoting a healthier information eco-system.

Literature Survey

Year	Publisher	Title	Dataset	Algorithms Used	Result
2022	IEEE	"A Machine Learning Approach for Fake News Detection"	FakeNewsNet	LSTM, CNN, BERT	F1 Score of 0.95
2021	ACM	"A Comprehensive Review of Fake News Detection Techniques"	PolitiFact, BuzzFeedNews	Random Forest, SVM, NB, KNN	Average Accuracy of 0.85
2020	Springer	"Fake News Detection: A Deep Learning Approach"	GossipCop, PolitiFact	BiLSTM, CNN, GAN	Precision of 0.93
2019	Elsevier	"A Survey of Machine Learning Techniques for Fake News Detection"	FakeNewsNet, LIAR	NB, SVM, RF, ANN	Average Accuracy of 0.80

Table 1: Literature Study Of Fake News Detection Using Machine Learning.
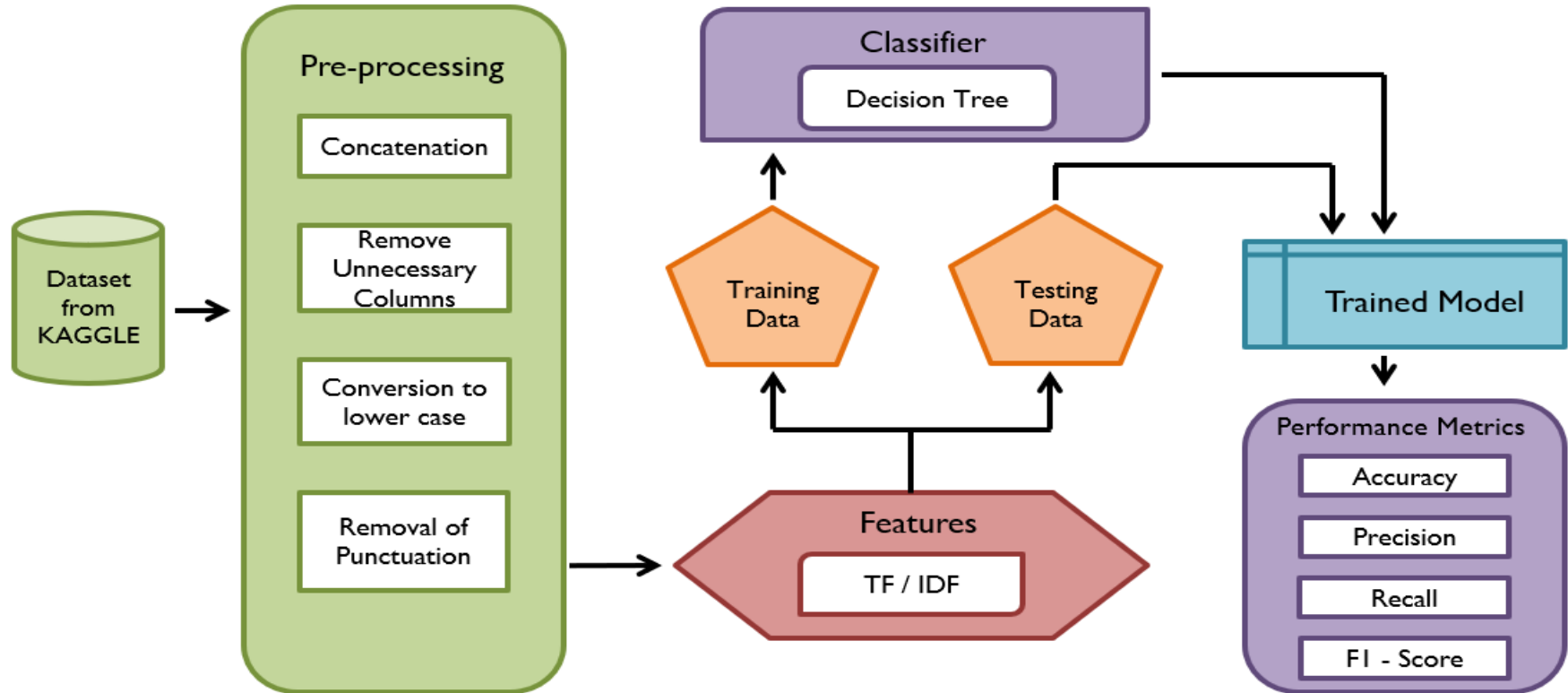
Model Diagram

Fig 1: Schematic layout of the model.

Methods OR Tools OR Algorithms used

❑ Libraries used
  ▪ NumPy
  ▪ Seaborn
  ▪ Matplotlib
  ▪ Scikit – Learn
  ▪ Pandas
  ▪ NLTK
  ▪ Word Cloud
❑ Software
  ▪ Google Colab
❑ Algorithm
  ▪ Decision Tree

❑ Performance Metrics

- Accuracy = $\dfrac{(TP + TN)}{(TP + FP + TN + FN)}$

- Precision = $\dfrac{True\ Positive(TP)}{True\ Positive(TP)\ +\ False\ Positive(FP)}$

- Recall = $\dfrac{TP}{TP + FN}$

- F1 Score = $\dfrac{TP}{TP + \frac{1}{2}(FP - FN)}$

Experimentation and Results

❑ System Specifications

- Processor: Intel(R) Core(TM) i5 8th Gen

- RAM: 8 GB

- Graphics Card: NVIDIA

- Operating System: Windows(x64 bit)

- Language: Python

- Platform: Google Colab

Experimentation and Results Contd..

❑ Datasets Description

- We have a dataset of news articles.
- Downloaded from Kaggle [4].
- Each article is labeled as either real or fake.
- It consists of title, text, subject and date.
- It also consists of textual features.
- The shape of the fake article is (23481,4).
- The shape of the real article is (21417,4).
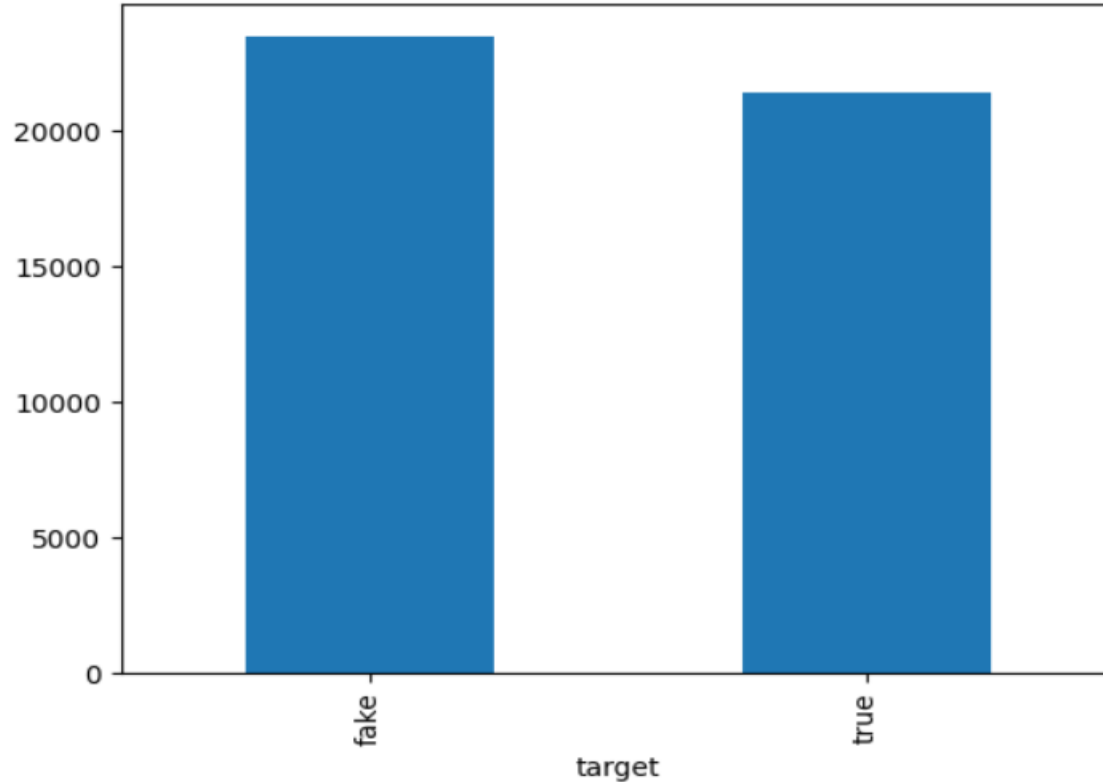
Experimentation and Results Contd..

Fig 2:No. of Fake & Real News

Experimentation and Results Contd..

❑ Parameters used

- Count Vectorizer Parameters
    - Text Pre-processing Parameter

❑ Future Scope

- TF-IDF Transformer parameters
- DecisionTree Classifier Parameters
- train_test_split Parameters
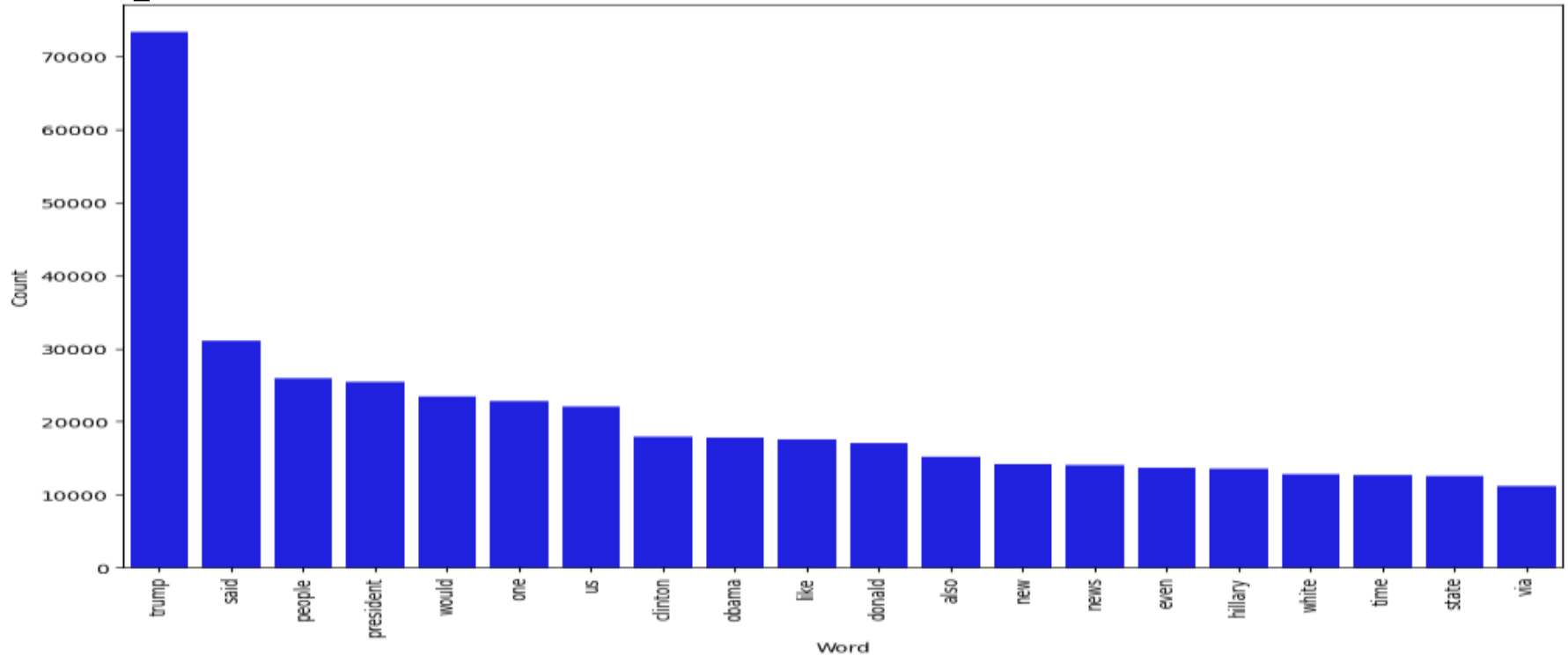
Experimentation and Results Contd..

Fig 3: Frequent words in fake news

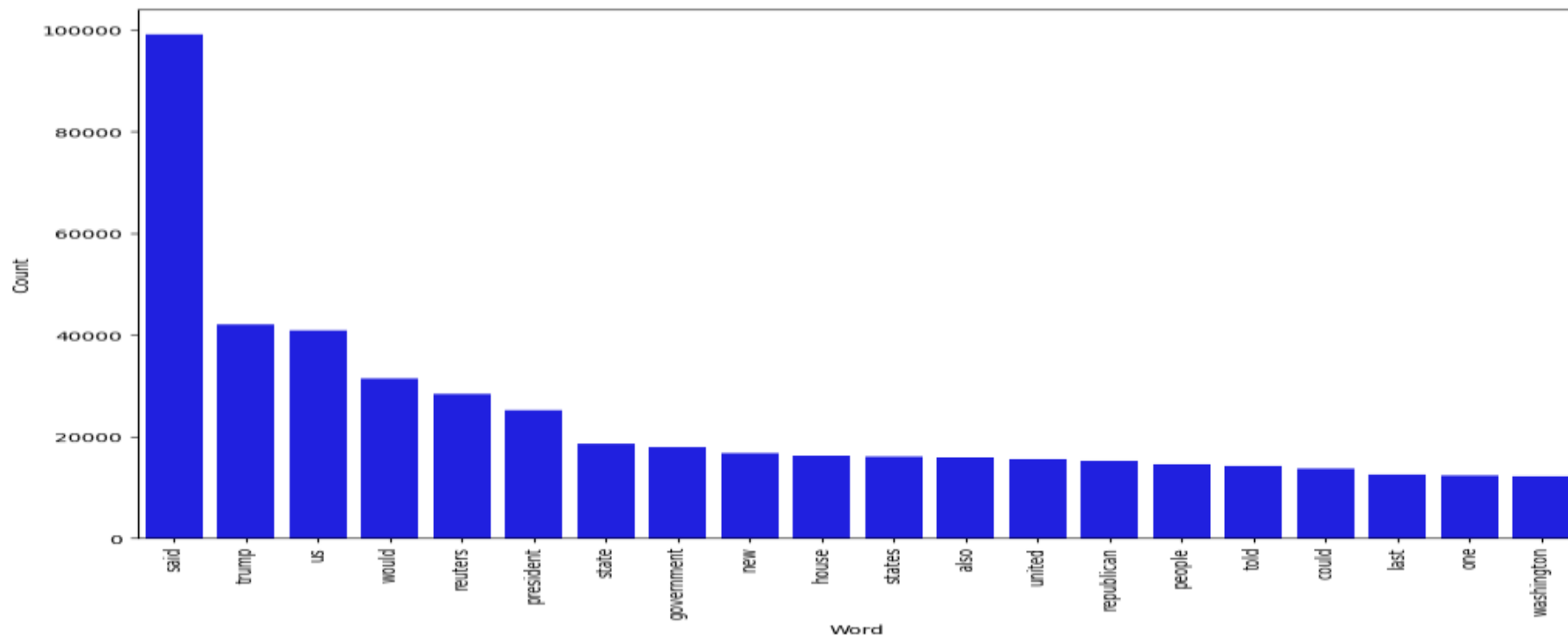# Experimentation and Results Contd..

Fig 4: Frequent words in real news

Summary

- Decision trees can be an effective tool for detecting fake news.

- One advantage of using decision trees is their interpretability.

- With the help of this we can combat the spread of misinformation.

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