

Fake News Prediction sing Machine learning

Synopsis

# MCA - IV Sem

# Submitted By

Student Name- Gursharan Singh

Student Registration- 23FS20MCA00028

# Faculty Coordinator

Dr. Pramod Soni

DEPARTMENT OF COMPUTER APPLICATIONS

2025

## Introduction

In the digital age, the rapid dissemination of information through online platforms has given rise to the challenge of distinguishing genuine news from fake news. The proliferation of false information can have serious consequences, including misinformation, social unrest, and political instability. This project aims to develop a fake news detection system using machine learning techniques to classify news articles as either real or fake.

### II. Motivation

The motivation behind this project stems from the increasing spread of misinformation and the negative impact it has on society. Fake news can manipulate public opinion, influence elections, and create panic. Given the critical need to counteract misinformation, an automated and reliable fake news detection system can help ensure the credibility of online information sources. By leveraging natural language processing (NLP) and machine learning, we can create a system capable of identifying and filtering out fake news efficiently.

### III. Problem Statement

With the rise of social media and digital news consumption, the challenge of differentiating real news from fake news has become more complex. Traditional fact-checking methods are time-consuming and labor-intensive. This project aims to address this issue by developing an automated system that can analyze textual content and classify news articles based on their authenticity. The proposed solution will enhance the reliability of news sources and assist users in identifying misleading information.

### IV. Methodology/ Planning of Work

1. **Data Collection:** Gather a dataset of real and fake news articles from reliable sources.
2. **Data Preprocessing:** Perform text cleaning, tokenization, and removal of stop words to prepare the data for analysis.
3. **Feature Extraction:** Use NLP techniques such as TF-IDF (Term Frequency-Inverse Document Frequency) and word embeddings to extract meaningful features.
4. **Model Selection & Training:** Implement machine learning models such as Logistic Regression, Decision Trees, Random Forest, and Deep Learning (LSTM, CNN) to train the detection system.
5. **Evaluation:** Assess model performance using accuracy, precision, recall, and F1-score.
6. **Implementation:** Develop a web-based or desktop-based interface for real-time fake news detection.
7. **Testing & Deployment:** Perform extensive testing on unseen data before deploying the final model for public use.

### V. Requirements for Proposed Work

#### **Software Requirements:**

* Programming Language: Python
* Libraries: Scikit-learn, TensorFlow/Keras, NLTK, Pandas, NumPy
* Development Environment: Jupyter Notebook, Google Colab, or VS Code

#### **Hardware Requirements:**

* Processor: Intel i5 or higher
* RAM: 8GB or more
* Storage: Minimum 100GB
* Metrics for Evaluation:
  + Precision & Recall (to reduce false positives and negatives)
  + F1 Score
  + ROC-AUC Score
  + Confusion Matrix

### VII. Conclusion

The Fake News Detection System is an essential tool in today's digital era, where misinformation can spread rapidly and influence public perception. By utilizing machine learning and NLP techniques, this project aims to provide an efficient, automated solution to identify and filter out fake news. The successful implementation of this system can contribute to more reliable online information sources, helping individuals and organizations make informed decisions. Further improvements and refinements can be made by integrating real-time data and expanding the dataset for better accuracy.