**PROPOSED SYSTEM**

The proposed system aims to enhance the accuracy and reliability of fake news detection by integrating advanced machine learning (ML) and deep learning (DL) techniques with improved feature extraction methods. This system leverages Natural Language Processing (NLP) to analyze textual content from diverse sources, including social media, news websites, and online portals. Unlike existing systems, the proposed approach focuses on combining multiple classification models to achieve better generalization and higher accuracy. It utilizes algorithms like Support Vector Machines (SVM), Logistic Regression (LR), and Random Forest (RF) alongside advanced deep learning models such as Long Short-Term Memory (LSTM) networks and Convolutional Neural Networks (CNN). Furthermore, the system incorporates additional features, including sentiment analysis, temporal patterns, and social context, to detect misinformation more effectively. By employing ensemble learning techniques and real-time data processing capabilities, the proposed system addresses the limitations of current approaches, such as difficulty in handling deepfakes and dynamic misinformation patterns. The integration of metaheuristic optimization methods is also explored to fine-tune model parameters, ensuring robust performance across different datasets and use cases. This system aspires to provide a scalable, efficient, and accurate solution for identifying and mitigating the spread of fake news.

**ADVANTAGES :**

**Improved Accuracy and Reliability**: By combining multiple machine learning (ML) and deep learning (DL) models, the system enhances accuracy and generalization, addressing the weaknesses of individual models and improving overall performance.

**Comprehensive Feature Extraction**: The use of advanced feature extraction techniques, including sentiment analysis, temporal patterns, and social context, allows the system to capture more nuanced aspects of fake news, leading to better detection.

**Multimodal Classification Models**: The integration of both traditional machine learning algorithms (SVM, LR, RF) and advanced deep learning models (LSTM, CNN) offers a robust approach, leveraging the strengths of various techniques for more accurate fake news detection.

**Ensemble Learning**: The use of ensemble learning techniques helps combine predictions from multiple models, improving the robustness and accuracy of the system by reducing bias and variance.

**Real-time Data Processing**: Real-time data processing capabilities allow the system to analyze and detect fake news as it emerges, providing timely responses to misinformation spread.

**Handling Dynamic Misinformation**: The system is designed to handle the evolving nature of fake news and deepfakes, making it adaptable to new challenges and ensuring long-term effectiveness in detecting various types of misinformation.