Fake News Detection Using Machine Learning

What Is Fake News?

- Fake news is false information presented as real news.

- It misleads people and spreads quickly, especially on social media.

Goal of the Project

- To identify whether a news article is fake or real using Machine Learning (ML).

- Help people trust only authentic information.

Technologies Used

- Python - Programming language.

- Machine Learning - For detecting fake news.

- Natural Language Processing (NLP) - To process and understand text data.

How the System Works (Overview)

- Collect Data - Real and fake news articles are gathered.

- Preprocessing - Remove unnecessary words, symbols, and make text clean.

- Feature Extraction - Convert text into numerical data using methods like TF-IDF.

- Model Training - Use ML algorithms like Logistic Regression, Naive Bayes, Passive Aggressive Classifier.

- Testing and Evaluation - Check model accuracy and performance.

Dataset Used

- Dataset contains labelled articles (real or fake).

- Data source: Online news articles (CSV file format).

Machine Learning Models Used

- Logistic Regression - Best for binary classification (Real vs Fake).

- Naive Bayes - Based on probability.

- Passive Aggressive Classifier - Fast and good for text classification.

Accuracy

- Logistic Regression: ~96%

- Naive Bayes: ~92%

- Passive Aggressive: ~93%

Testing the System

- You input a news article.

- The model checks if it's real or fake.

- Output is shown on the screen.

Advantages

- Fast and efficient.

- Helps fight misinformation.

- Easy to use after setup.

Limitations

- May not work well with new fake styles.

- Accuracy depends on data quality.

Conclusion

- Machine Learning can successfully detect fake news.

- With good data and model, we can reduce false information spread.