**NEWS CLASSIFICATION (DL)**

INTRODUCTION

News classification using deep learning is a cutting-edge application of artificial intelligence and machine learning techniques to automatically categorize news articles into predefined topics or classes. With the exponential growth of digital news sources and the vast amount of information available on the internet, news classification systems have become essential tools for organizing, filtering, and summarizing news content.

WHAT IS DEEP LEARNING

Deep learning, a subset of machine learning, has gained prominence in news classification due to its ability to automatically extract intricate patterns and features from textual data. Deep learning models, particularly neural networks, have proven highly effective in solving complex natural language processing tasks like news classification. Here's an introduction to the key components and benefits of news classification using deep learning:

KEY COMPONENTS

1. Data Preparation: The first step in news classification involves collecting and preprocessing a large dataset of news articles.
2. Word Embeddings: Deep learning models often utilize word embeddings like Word2Vec, Glove, or Fasttext to represent words as dense vectors.
3. Neural Networks: Deep learning models for news classification frequently involve various neural network architectures,
4. Training and Fine-Tuning: The neural network model is trained on the labeled news dataset, adjusting its weights and parameters to minimize classification errors.

LIBRARIES

1. PANDAS - it is a Python library used for working with data sets. It has functions for analyzing, cleaning, exploring, and manipulating data.
2. NUMPY -   it is a Python library used for working with arrays. It also has functions for working in domain of linear algebra, fourier transform, and matrices.
3. TENSORFLOW - it is an open-source library developed by Google primarily for deep learning applications.
4. KERAS - it is a high-level, deep learning API developed by Google for implementing neural networks. It is written in Python and is used to make the implementation of neural networks easy. It also supports multiple backend neural network computation.
5. MATPLOT – it is a comprehensive library for creating static, animated, and interactive visualizations in Python. Matplotlib makes easy things easy and hard things possible. Create publication quality plots. Make interactive figures that can zoom, pan, update

CODE



