Problem Statement: Sentiment Analysis for Financial News

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Background

Financial markets are highly influenced by **news articles, reports, and public sentiment**. Investors, traders, and financial analysts rely on market news to make critical decisions. However, manually analyzing large volumes of financial news is time-consuming and prone to biases.

Objective

The goal of this project is to build a **Machine Learning (ML)-based Sentiment Analysis Model** that can automatically classify financial news headlines into three sentiment categories:

- **Positive**: Indicates favorable market conditions (e.g., "Company profits surge by 20%").

- **Neutral**: No significant impact (e.g., "Company releases Q3 earnings report").

- **Negative**: Indicates unfavorable market conditions (e.g., "Stock prices fall amid economic slowdown").

Business Impact

- **For investors**: Helps in making informed trading decisions based on market sentiment.

- **For financial analysts**: Provides a quick summary of news sentiment trends.

- **For businesses**: Helps track public perception and market trends.

Scope of the Project

- **Data Source**: The project will use the **Financial PhraseBank dataset**, which contains labeled financial news headlines.

- **Preprocessing**: Text cleaning, tokenization, and vectorization (TF-IDF).

- **Modeling**: Machine Learning models like **Logistic Regression**, with potential upgrades to **SVM, Random Forest, or Deep Learning (LSTMs, BERT)**.

- **Deployment**: A **Streamlit-based web application** to analyze user-provided financial news.