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Financial Market Sentiment and Price Prediction Analysis

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Abstract: *Financial markets are greatly affected by how investors feel, big global events, overall economic trends, and how people behave. As digital content has grown quickly, the emotions expressed in news, social media, and financial forums have become a key part of predicting how stock prices will move. This research introduces a combined system that analyzes financial market sentiment and predicts prices, using Natural Language Processing (NLP), Machine Learning (ML), and Time-Series Analysis.*
The system gathers historical market data and text-based sentiment information.It uses tools like VADER, Text Blob, and Transformer-based sentiment models to process this data. To predict market direction, it applies algorithms such as Long Short-Term Memory (LSTM), Random Forest Regression, and Autoregressive Integrated Moving Average (ARIMA). Testing this system on stock market data shows that including sentiment features with numerical price data greatly improves prediction accuracy compared to methods that only use price data.
This study shows that models that take sentiment into account better understand market psychology, making financial forecasting systems more reliable, consistent, and effective for short-term predictions.

Keywords: Financial Analytics, Market Sentiment Analysis, Natural Language Processing (NLP), Machine Learning, LSTM, ARIMA, Random Forest, Time-Series Forecasting, Stock Market Prediction, Behavioural Finance, Text Mining, Predictive Modelling

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