



StockSage

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Introduction

Background

- Traditional models ignore market sentiment impact.
- StockSage combines deep learning, sentiment analysis.

Objectives

- Comprehensive prediction using indicators, sentiment analysis.
- LSTM model for time series forecasting.

Literature Review



Related Work

- Traditional models use historical price data.
- LSTM and deep learning for time series.



Research Gap

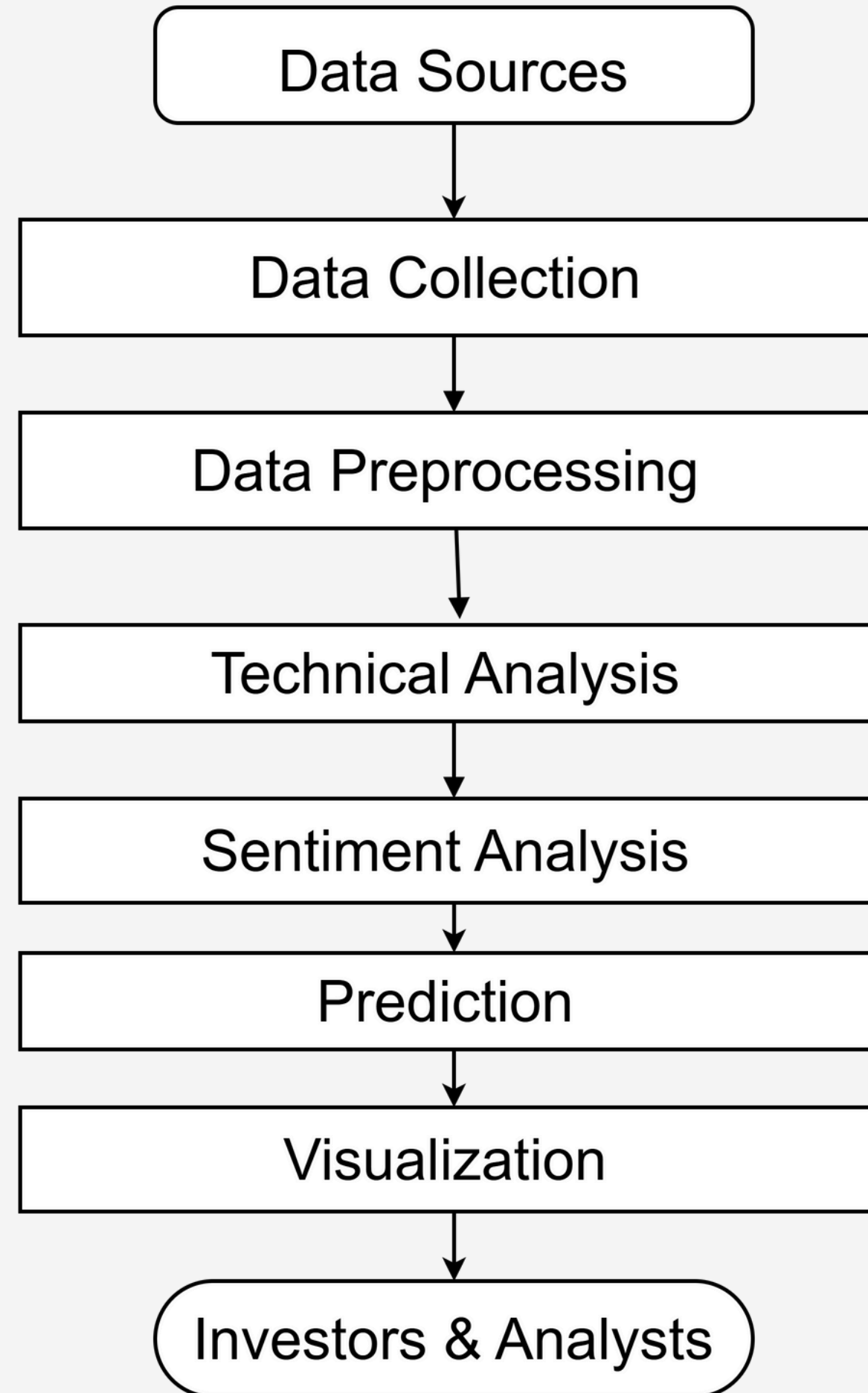
- Limited research on emerging markets like Nepal.
- Need for real-time, multi-sentiment analysis.

Limitations of Existing Tools

- **Outdated Models**
- **Limited Integration of Sentiment Analysis:**
- **Absence of Time-Weighted Sentiment Impact:**
- **Over-Reliance on Historical Data**

Methodology

System Overview



Methodology

Data Processing

Data Collection

- Stock price data provided by Merolagani
- Financial news from sources like Merolagani and Sharesansar

Data Preprocessing

- Combined Stock price, sentiment scores, and indicators
- Normalized data range for balanced model performance.

Methodology

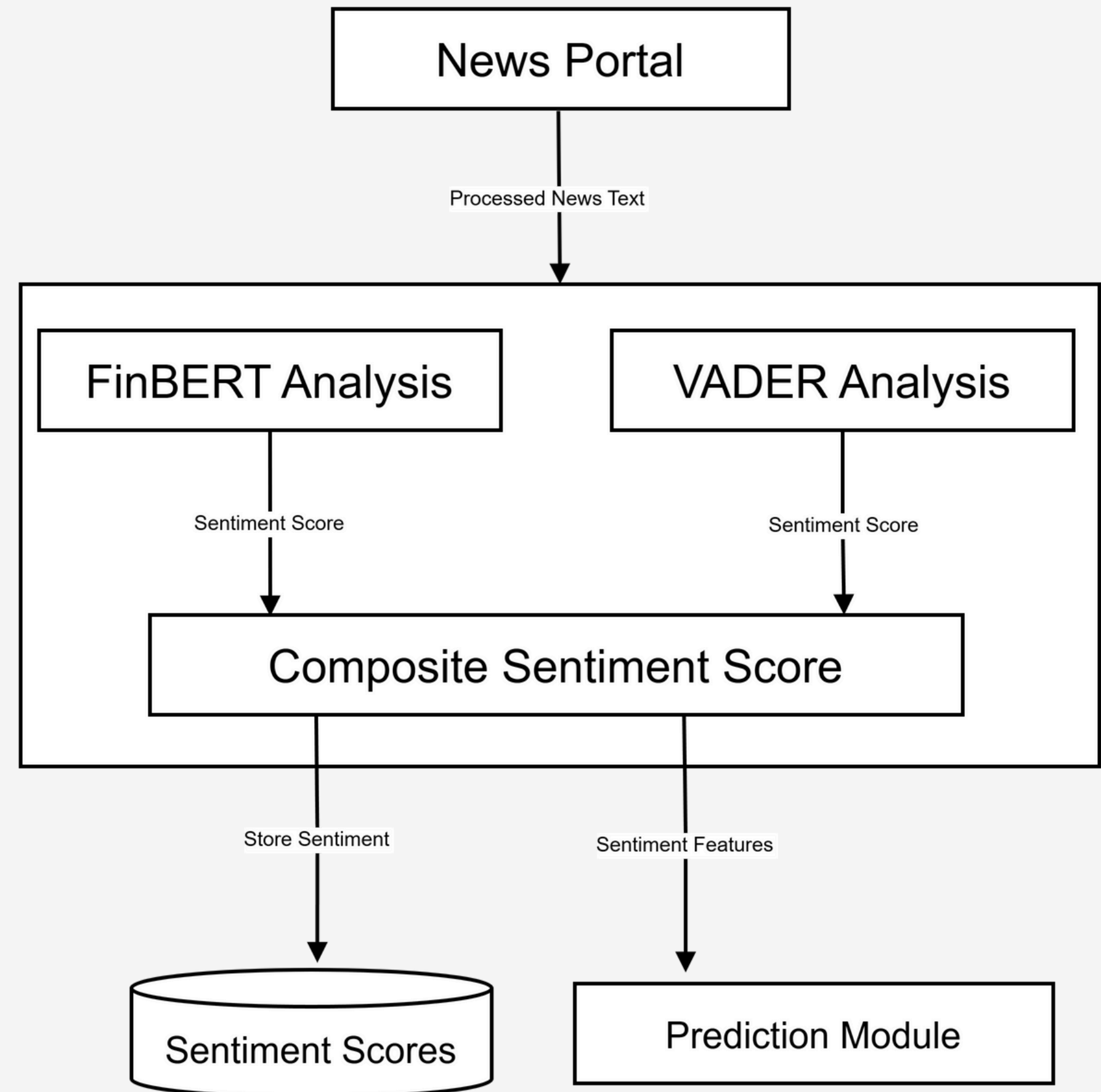
Sentiment Analysis

FinBERT

 BERT financial sentiment analysis.

VADER

 Lexicon-based rule-driven sentiment analysis tool.



Methodology

Data Integration

Combining Stock Data with Sentiment Scores

- Integration of Sentiment weighted score
- Alignment of sentiment scores with trading days.

Day	Sentiment Weight
1	1
2	0.6
3	0.25
4	0

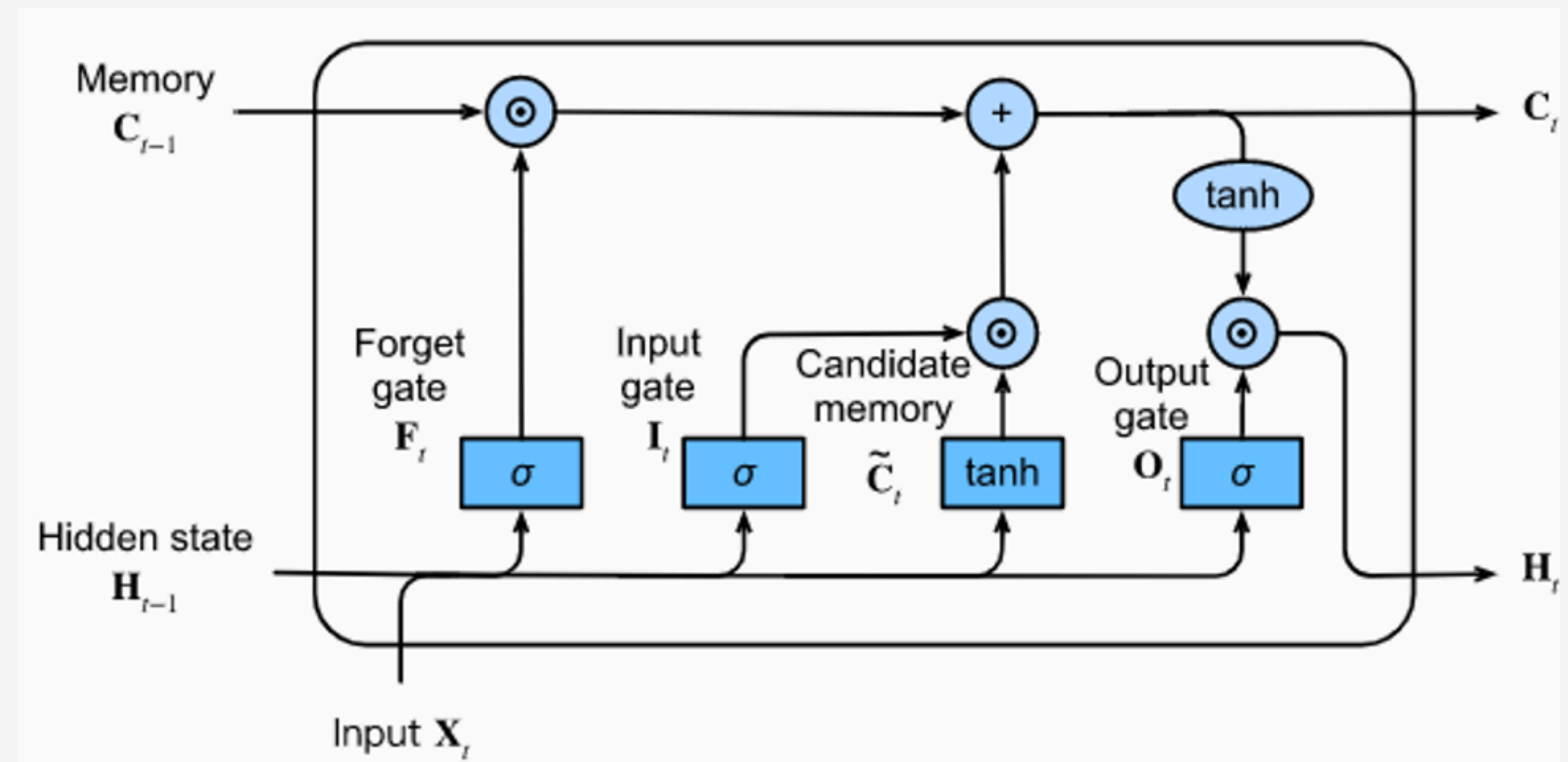
Combining Stock Data with Technical Indicators

- Technical indicators are derived from historical stock prices using Python.
- Alignment of Technical indicators with trading days.

Methodology

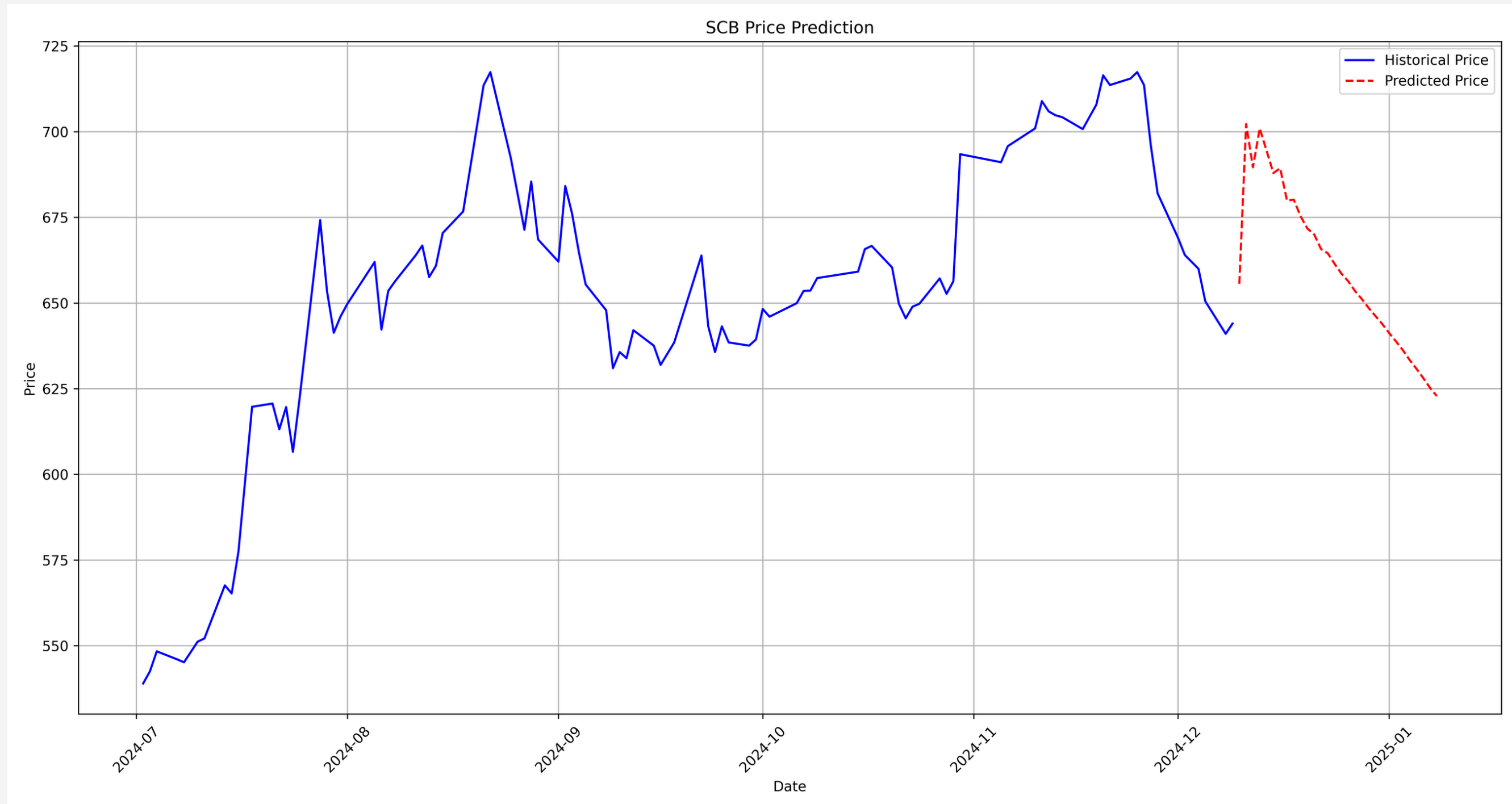
🎯 LSTM (Long Short Term Memory)

- Handles Sequential Data
- Captures Long-Term Dependencies
- Capturing Non-Linear Patterns
- Enhanced Stability and Learning



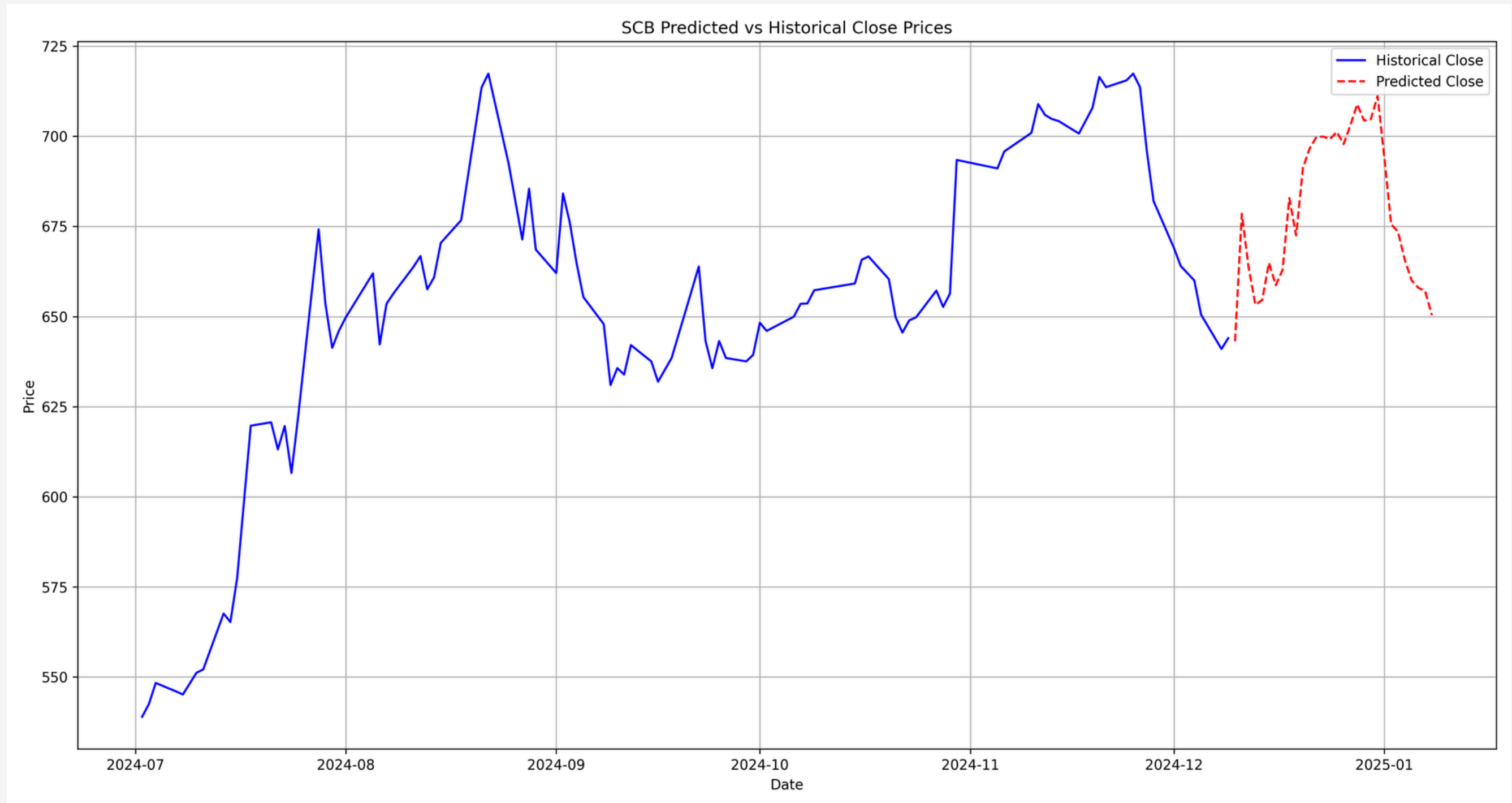
RESULTS

Without Sentiment Analysis






RESULTS

With Sentiment Analysis





Conclusion

Key Findings

-  Sentiment analysis improves stock prediction accuracy.
-  Time-weighted sentiment enhances real-world relevance.
-  LSTM effectively captures stock price trends.

Significance

-  Hybrid tool helps investors make better decisions.
-  User-friendly interface for stock analysis, visualization.

Limitations

- Limited historical data from NEPSE.
- Absence of real-time sentiment tracking.
- Influence of macroeconomic factors not fully integrated.

Future Improvements

- Real-time news sentiment processing.
- Inclusion of social media and additional sentiment sources.
- Enhanced deep learning architectures .
- Expansion to other emerging markets.

Thank You