

Stock Movement Analysis Based on Social Media Sentiment

Introduction

This project aims to predict stock movements by analyzing sentiment from social media platforms such as Twitter, Reddit, and Telegram. By extracting relevant data, applying sentiment analysis, and building machine learning models, this solution provides insights into stock trends.

Methodology

1. Data Scraping:

- Platforms: Twitter, Reddit, Telegram.
- Tools: Tweepy, PRAW, Telethon.

2. Data Analysis:

- Sentiment Analysis: Using VADER for polarity scores.
- Feature Extraction: Sentiment polarity and frequency of mentions.

3. Machine Learning Model:

- Model: Logistic Regression.
- Evaluation Metrics: Accuracy, Precision, Recall, F1-Score.

Challenges and Solutions

Challenges encountered include handling noisy data, extracting meaningful features, and ensuring model accuracy. Solutions involved rigorous preprocessing, feature engineering, and hyperparameter tuning.

Results and Improvements

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The Logistic Regression model achieved an accuracy of approximately 80% on test data. Future work could involve integrating multiple data sources, exploring deep learning models, and real-time predictions.

Conclusion

This project demonstrates the potential of leveraging social media sentiment for stock market predictions. With improved data integration and advanced models, this approach can provide valuable insights for investors.