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Navigating the Sentiment Waves: Analyzing Cryptocurrency Discussions on Reddit

(420 words)

Research Question:

How have sentiments expressed in Reddit's cryptocurrency communities changed in response to fluctuations in cryptocurrency prices over recent years?

Data:

The study will harness a dataset of over 1,200 Reddit posts and comments from leading cryptocurrency-focused subreddits such as r/CryptoCurrency, r/Bitcoin, and r/SatoshiStreetBets, with a minimum of 400 data points sourced from each. The collection will target content labeled for market discussions, investment strategies, general sentiment towards specific cryptocurrencies, and more nuanced aspects of the crypto market. Utilizing Reddit's API, data will be gathered from the most engaging posts determined by the "top" and "hot" algorithms from March 2022 to March 2024. This period encompasses significant price movements, regulatory updates, and advancements in blockchain technology. To ensure the relevance and depth of the sentiment analysis, the selected posts and comments will be filtered using keywords related to market dynamics and crypto-specific discussions. These keywords include "market sentiment", "investment", "bull run", "bear market", and names of specific cryptocurrencies (e.g., "Bitcoin", "Ethereum"). This diverse set of keywords aims to capture a comprehensive view of the discourse surrounding cryptocurrencies on Reddit, facilitating a nuanced analysis of sentiment trends.

Method:

The study initiates with the extraction of relevant Reddit data using the PRAW library, followed by meticulous preprocessing to ensure text normalization. Drawing on the predictive frameworks of Raheman et al. (2022) and the causal exploration by Mondal et al. (2023), this research will employ BERT for advanced sentiment analysis, selected for its capacity to discern nuanced emotional subtleties within discussions. BERT's deep learning model is adept at understanding complex emotional expressions, offering a detailed perspective on sentiments that go beyond basic positive, negative, or neutral classifications. Such an approach is pivotal for grasping the subtleties of market sentiment as expressed in cryptocurrency forums. Complementing this, VADER will be applied for broad exploratory analysis and to corroborate BERT's detailed sentiment assessments. VADER, while less nuanced, offers a swift and effective means for gauging sentiment trends and confirming sentiment classifications across a broader spectrum. This methodological framework, capitalizing on the insights from BERT and the comprehensive analysis potential of VADER, aims to thoroughly investigate the sentiment dynamics within cryptocurrency discussions on Reddit. The study focuses on how these sentiments correlate with

market volatility, exploring the nuances of community reactions to various market events and trends. Investigative questions such as 'Does the sentiment of cryptocurrency-related posts correlate with the price volatility of major cryptocurrencies during the same timeframe?' will be pivotal in performing the analysis.

References:

- Raheman, A., Kolonin, A., Fridkins, I., Ansari, I., & Vishwas, M. (2022, April 19). *Social Media Sentiment Analysis for Cryptocurrency Market Prediction*. arXiv.org. <https://arxiv.org/pdf/2204.10185>
- Mondal, L., Raj, U., S, A., S, B. G., P, S., & Chandra, A. (2023, June 9). *Causality between sentiment and cryptocurrency prices*. arXiv.org. <https://arxiv.org/abs/2306.05803>