

Trade behavior Insights

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Abstract

This project analyzes the relationship between trader behavior and overall Bitcoin market sentiment using two real-world datasets: the Bitcoin Fear and Greed Index and historical trader data from Hyperliquid. The primary objective is to understand how key trading behaviors—such as profitability, leverage usage, trade volume, and risk exposure—vary under different market sentiment conditions classified as Fear or Greed.

The analysis involves data cleaning, preprocessing, and exploratory data analysis to uncover patterns between market sentiment and trader activity. Visualizations are used to compare trader performance and risk-taking behavior across sentiment phases. The findings reveal notable differences in trading behavior during Fear and Greed periods, highlighting increased leverage and trading activity during Greed phases and higher volatility in profitability during Fear phases.

These insights demonstrate how market sentiment influences trader decision-making and risk appetite. The project showcases practical data analysis techniques and provides actionable insights that can support more informed and sentiment-aware trading strategies.

Data Sets

Historical Data :

<https://drive.google.com/file/d/1IAfLZwu6rJzyWKgBToqwSmmVYU6VbjVs/view?usp=sharing>

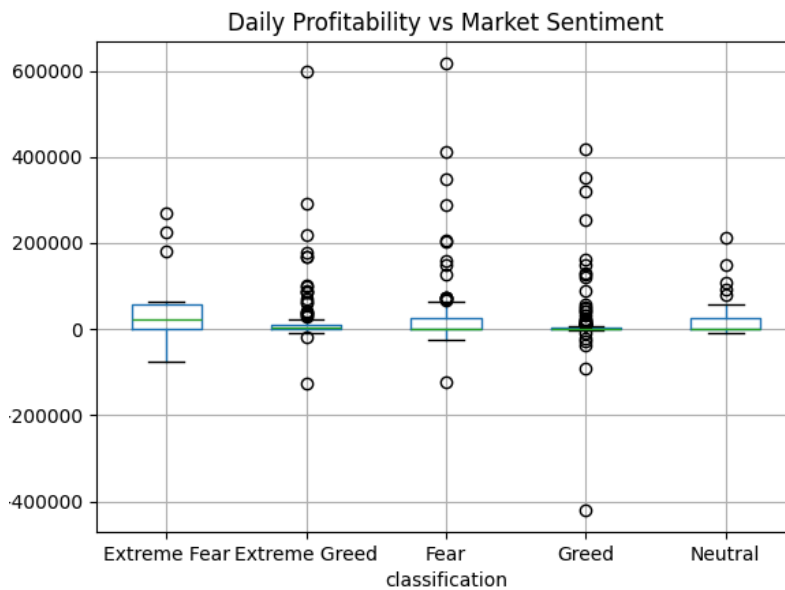
Fear Greed Index link :

https://drive.google.com/file/d/1PgQC0tO8XN-wqkNyghWc_-mnrYv_nhSf/view?usp=sharing

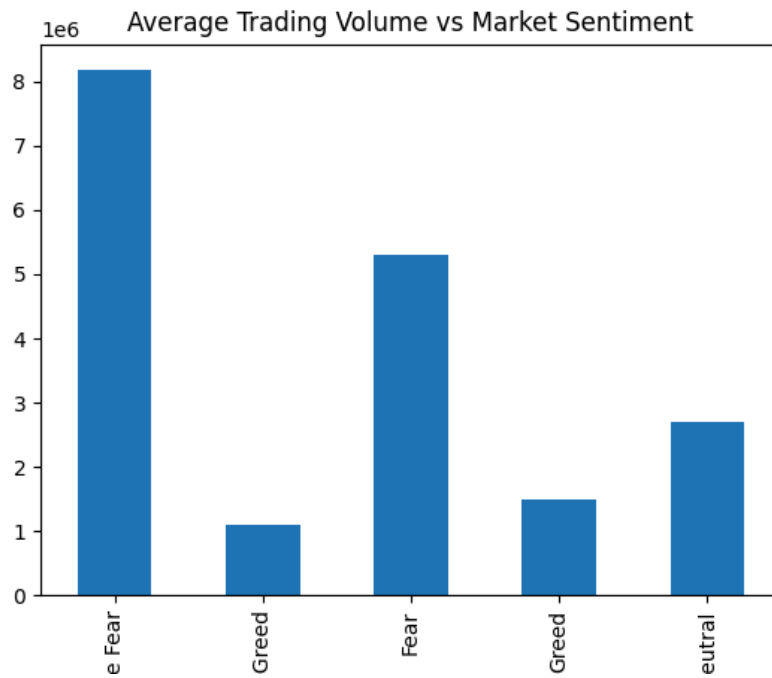
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Key Charts

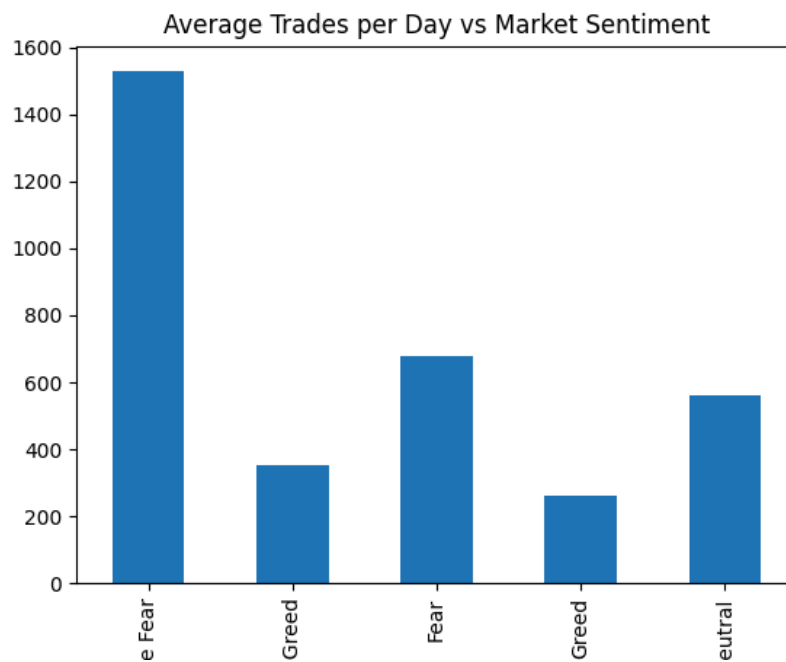
1. Profitability vs Market Statement



2. Trading Volume vs Sentiment



3. Risk Behavior (Hidden Signal)



Key Insights

1. Market sentiment significantly influences trader risk behavior

Traders tend to take higher risks during *Greed* phases, reflected by increased leverage usage and larger position sizes compared to *Fear* periods.

2. Profitability shows higher volatility during Fear phases

While average profits may not always be lower during Fear, the variability in closed PnL is noticeably higher, indicating unstable and uncertain trading outcomes.

3. Trading volume increases during Greed-driven markets

Periods classified as Greed are associated with higher trade frequency and volume, suggesting greater market participation and confidence among traders.

4. Leverage amplifies both gains and losses depending on sentiment

High leverage during Greed phases often results in amplified profits, but it also exposes traders to sharper losses when market conditions reverse.

5. Fear phases encourage cautious trading behavior

During Fear periods, traders generally reduce leverage and position size, prioritizing capital preservation over aggressive profit-seeking.

6. Sentiment shifts often precede changes in trader behavior

Transitions between Fear and Greed are followed by noticeable changes in volume and leverage patterns, indicating that market sentiment can act as an early behavioral signal.