

DS Report: Trader Behavior Insights in Web3 Trading

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Assignment for: Web3 Trading Team

1. Introduction and Objective

This report summarizes the analysis of trader behavior in relation to overall market sentiment, a required assignment for the Junior Data Scientist role. The primary objective was to explore and analyze the relationship between trader actions and market sentiment, specifically comparing profitability, risk, volume, and leverage during periods of Fear versus Greed. The goal is to identify hidden trends or signals that can inform and influence smarter trading strategies.

2. Methodology and Data Preparation

The analysis utilized the two provided datasets: the Bitcoin Market Sentiment Dataset (Fear & Greed Index) and the Historical Trader Data from Hyperliquid. The core of the methodology involved integrating the two datasets to associate every individual trade with the daily market sentiment. The time-stamped trades were converted to daily dates and joined with the Sentiment Data based on that key. Key Metrics Analyzed: • Profitability: closedPnL • Risk/Leverage: leverage • Volume: size × execution price • Trader Archetype: top-performing accounts based on cumulative closedPnL

3. Key Findings and Insights

A. Profitability (closedPnL) vs. Sentiment: • Median profitability is lower during Fear periods compared to Greed periods. • Distribution shows improved profitability when the market is in 'Greed'. B. Risk and Volume Utilization: • Traders use higher average leverage ($\approx 2.5x$) during Greed vs. $\approx 1.8x$ during Fear. • Total trading volume is significantly higher during Greed. C. Profitable Trader Archetype (Top 10 Accounts): Top traders tend to: • Use lower leverage when others are over-leveraging. • Trade counter to market sentiment (accumulate in Fear, trim in Greed).

4. Conclusion and Trading Signals

This analysis confirms a strong link between sentiment and trader behavior. High risk and high volume occur during Greed, but profitability only slightly improves. Actionable Trading Signals: 1. Risk Calibration Signal: Reduce leverage during Greed. 2. Liquidity Filter: Treat high volume as a liquidity, not profitability signal. 3. Counter-Signal: Watch for strategic entries during Fear. Leveraging sentiment data offers clear potential for enhancing trading systems' alpha generation.