Analyzing Trader Behavior vs Market Sentiment

1. Introduction

In the world of Web3 and crypto trading, understanding the interplay between trader behavior and market sentiment is key to building predictive strategies. This project explores how individual trader actions — including trade volume, size, leverage, and profitability — align or diverge from overall market sentiment, captured by the Fear & Greed Index.
Datasets Used: - Bitcoin Market Sentiment: Daily labels of “Fear” or “Greed”. - Hyperliquid Trader Data: Individual trades with metadata (account, symbol, price, size, leverage, closed PnL, etc.)

2. Data Preprocessing

Parsed timestamp and converted to date format-Filtered out rows with zero or null trade sizes. - Calculated derived metrics like size_usd = execution_price * size. - Merged the two datasets on the date field to create a unified dataset.

3. Exploratory Data Analysis

3.1 Sentiment Distribution: - Bar chart shows days labeled “Fear” vs “Greed”. - Insight: The market has been in a “Greed” state for majority of the period. 3.2 Average Trade Size by Sentiment: - Larger average trade sizes observed during Greed phases. 3.3 Total Volume
Traded by Sentiment: - Greed periods saw higher total USD volume. 3.4 Buy vs Sell Distribution: - Buy trades dominate in both sentiments. - More aggressive buy behavior during Greed. 3.5 Top Trades by Sentiment: - Extracted top 5 largest USD trades for both Fear and Greed. - Large trades occur even during Fear — likely by institutional participants.

4. Key Insights

Metric	Greed	Fear	Observation
Avg Trade Size (USD)	Higher	Lower	Traders take bigger risks during Greed
Total Volume	Higher	Lower	More participation during Greed
Buy/Sell Ratio	Higher	Moderate	Greed drives aggressive buying

5. Conclusion

This analysis reveals a strong relationship between trader behavior and market sentiment. Periods of Greed drive higher participation and trade size, while Fear periods still attract strategic activity, particularly from larger players. Future Directions: - Analyze PnL distribution across sentiment types. - Train predictive models for sentiment-based strategy signals. - Combine with on-chain metrics for stronger indicators.

6. Submission Assets

- All charts saved in outputs/ folder. - All intermediate files saved in csv_files/ folder. - Final notebooks hosted on Google Colab and GitHub.