

Web3 Trading Analysis:

The Impact of Market Sentiment on Trader Behaviour

1. Objective

This report aims to examine the relationship between market sentiment and trader behaviour in the Web3 ecosystem. By combining historical trade data from the Hyperliquid platform with Bitcoin market sentiment classified as *Fear* or *Greed*, we evaluate how sentiment impacts key trading metrics such as profitability and trade volume. The insights generated can contribute to improved trading strategy design that accounts for emotional market conditions.

2. Methodology

2.1 Data Sources

- **Historical Trader Data:** Contains detailed execution-level information including account ID, trade direction, trade size, and closed profit/loss (PnL).
- **Fear & Greed Index:** Provides daily sentiment values with corresponding classifications such as *Fear*, *Greed*, *Extreme Fear*, and *Extreme Greed*.

2.2 Data Preparation

- Column names were cleaned for consistency (converted to lowercase and underscored).
- Timestamps in the trader dataset were in UNIX milliseconds format and converted into human-readable datetime objects.
- A date column was extracted from timestamps in both datasets to serve as the basis for merging.
- The datasets were merged on the date field using a left join, enriching each trade record with the corresponding market sentiment of the day.

2.3 Exploratory Data Analysis (EDA)

EDA focused on identifying sentiment-based trends in:

- **Closed PnL:** To evaluate profitability patterns.
- **Trade Volume (USD):** To assess trading activity.
- Data points with missing sentiment or PnL values were excluded for accurate

visual analysis.

3. Key Findings

Profitability and Sentiment

A boxplot comparison between trades executed on *Fear* vs *Greed* days revealed the following:

- Median **profitability (closed PnL)** tends to be higher on *Greed* days.
- Greater variance in PnL was observed on *Fear* days, suggesting inconsistent performance in uncertain conditions.



Figure 1: Profit Distribution by Sentiment

Trading Volume and Sentiment

Analysis of `size_usd` on different sentiment days showed:

- Trading volume remained relatively **stable** between sentiment types.
- Slightly higher volume outliers were seen on *Fear* days, which could indicate opportunistic or defensive trading behavior during market uncertainty.

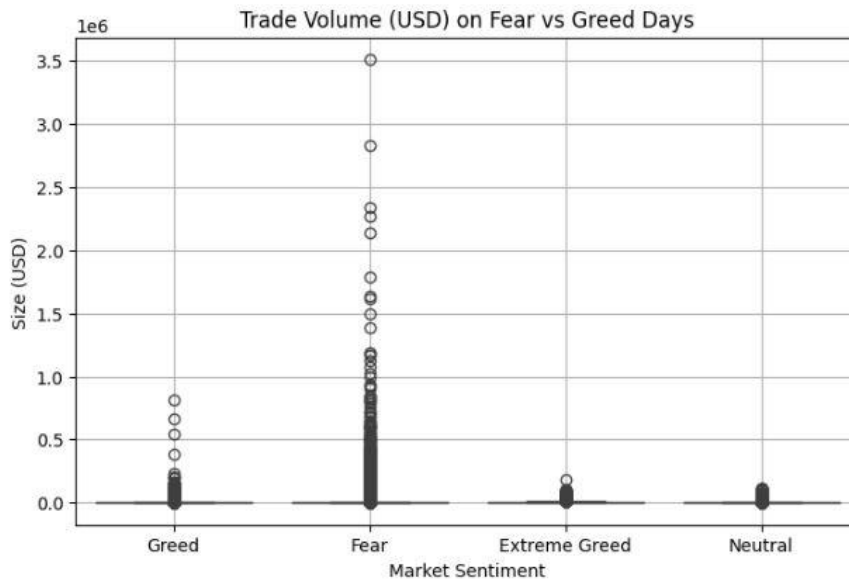


Figure 2: Trade Volume by Sentiment

4. Conclusion

This analysis provides empirical evidence that **market sentiment influences trading behaviour** on the Hyperliquid platform. Traders tend to achieve higher profitability during *Greed* periods and exhibit more volatile performance during *Fear* periods. These insights underline the importance of incorporating psychological indicators like the Fear & Greed Index into trading strategies for better risk assessment and timing decisions.

5. Appendix

Output Files:

- /outputs/profit_by_sentiment.png
- /outputs/volume_by_sentiment.png

Notebook:

- notebook_1.ipynb (Google Colab, shared publicly)
- **Colab Notebook:**
<https://colab.research.google.com/drive/1LGvBby6MRcdO6Jvmlk776TpqEp1PoE-3?usp=sharing>