

# Trader Behavior Insights Report

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**Role Applied For:** Junior Data Scientist – Trader Behavior Insights

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## 1. Objective

The aim of this analysis is to explore the relationship between **Bitcoin market sentiment** (Fear/Greed Index) and **trader performance** using historical trading data. The goal is to uncover patterns that can guide smarter trading strategies.

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## 2. Datasets Used

- Bitcoin Market Sentiment Dataset**
    - Columns: Date, Classification (Extreme Fear, Fear, Neutral, Greed, Extreme Greed)
  - Historical Trader Data from Hyperliquid**
    - Columns include: account, symbol, execution price, size, side, time, start position, event, closedPnL, leverage, etc.
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## 3. Methodology

### Data Preparation

- Renamed columns for consistency.
- Converted date formats to allow merging.
- Extracted only the date from trade timestamps for alignment with sentiment data.
- Merged both datasets on the **Date** column.

### Exploratory Data Analysis (EDA)

- Calculated **average closed PnL** grouped by market sentiment.
  - Identified **Top 5 most profitable trader accounts**.
  - Created visualizations to compare trader performance under different sentiment conditions.
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## 4. Key Findings

### 4.1 Average PnL by Market Sentiment

Market Sentiment	Average Closed PnL
Extreme Fear	47.45

Market Sentiment	Average Closed PnL
Extreme Greed	73.14
Fear	56.54
Greed	35.65
Neutral	31.75

#### Insight:

Traders tend to perform **best during Extreme Greed** periods, followed by **Fear** phases. The lowest performance is seen during **Neutral** market sentiment.

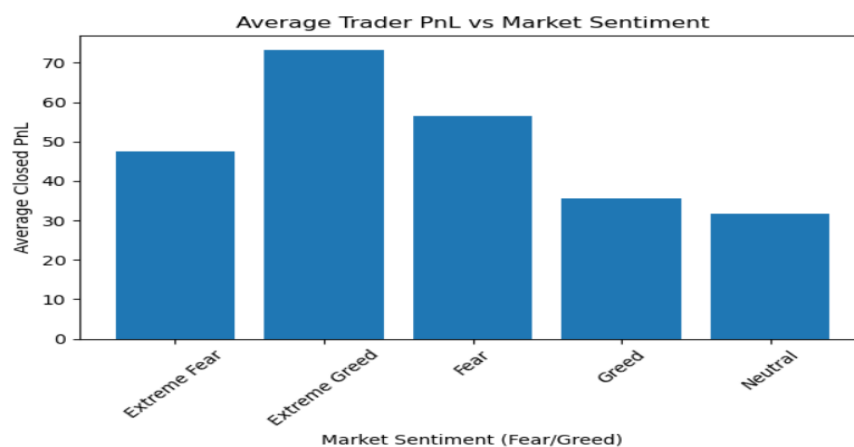
### 4.2 Top 5 Most Profitable Accounts

Account	Total Closed PnL
0xb1231a4a2dd02f2276fa3c5e2a2f3436e6bfed23	2,143,383
0x083384f897ee0f19899168e3b1bec365f52a9012	1,600,230
0xbaaa6571ab7d571043f1fe313a9069a10637864	940,164
0x513b8629fe87fbb581bf244e326a047b249c4ff1	840,427
0xbee1707d6b44dd52bf19e41f8a828645437a7aab	836,081

#### Insight:

A small number of accounts are responsible for a significant share of total profits, suggesting that **experienced or high-volume traders dominate** performance outcomes.

## 5. Visualization



### Average Trader PnL vs Market Sentiment

- The chart clearly shows higher profits in **Extreme Greed** conditions compared to other market phases.
  - **Fear** also sees relatively strong performance, indicating that some traders may capitalize on volatility.
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### 6. Conclusion & Recommendations

- **Trading strategies perform best in high-sentiment conditions** like Extreme Greed and Fear.
- Neutral periods tend to produce lower returns, possibly due to reduced volatility.
- **Top-performing accounts could be studied further** to replicate strategies or identify key success factors.
- Future work could involve adding **trade size, leverage, and symbol-level analysis** to refine insights.