Title: Web3 Trader Behavior and Market Sentiment Analysis

1. Executive Summary

This report analyzes the relationship between Hyperliquid trader behavior and the Bitcoin Market Sentiment Index (Fear & Greed) to uncover actionable trading signals. The analysis explores profitability, trading volume, directional bias, and time-series patterns to identify market behaviors that consistently drive alpha.

Key Findings & Strategic Signals

1. **Contrarian Profitability:**
   The highest average profit per trade occurs during *Extreme Greed*, where a strong SELL bias dominates. This suggests that the most profitable traders exit or short positions into peak market euphoria.

2. **Activity Driver:**
   Trading activity peaks during *Fear* periods, showing 1.7× higher total volume than Greed phases. Fear-driven markets are highly liquid yet more volatile—creating both opportunity and risk.

3. **Regime Dependence:**
   The trader base experienced prolonged stagnation through most of 2024, with profits spiking only during the high-volatility, trending regime that emerged in late 2024.

Strategic Conclusion:
A successful Web3 trading strategy must be contrarian to sentiment extremes and regime-aware—avoiding low-volatility, low-profit phases and managing risk strictly during the volatile Fear and Extreme Greed regimes.

2. Methodology and Data Preparation

The analysis utilized two datasets:

1. **Hyperliquid Historical Trader Data**

   - **Fields:** Execution Price, Size USD, Closed PnL, Side, Leverage, Timestamp IST, etc.

2. **Bitcoin Market Sentiment Dataset (Fear & Greed Index)**

- **Fields:** timestamp, value, classification, date.

Data Alignment & Aggregation

1. **Timestamp Conversion:**
   Both the trader Timestamp IST and sentiment date columns were
   converted into a standardized daily datetime format.

2. **Data Merging:**
   The two datasets were merged on the date field, aligning daily trades
   with corresponding sentiment levels.

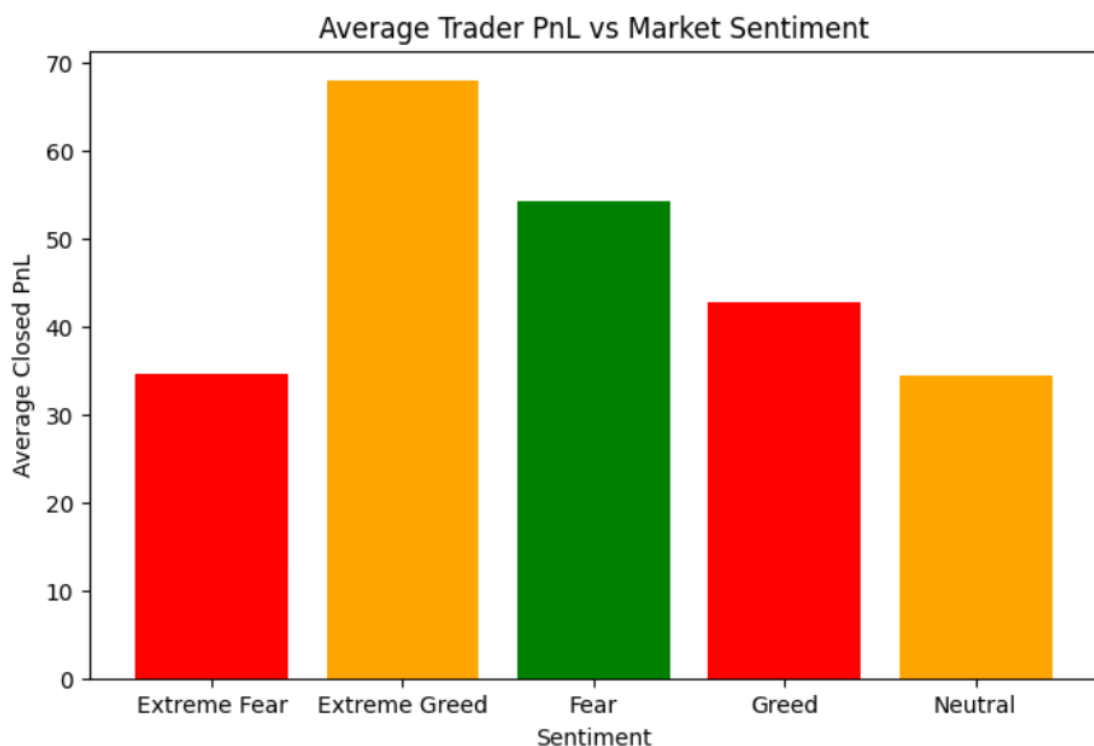3. **Aggregation:**
   The merged data was aggregated by sentiment classification to compute:

   - Total trading volume
   - Average Closed PnL
   - Total trade count
   - Trade direction (Buy/Sell ratio)

3. Core Analysis and Insights

3.1 Profitability vs. Sentiment (Average Closed PnL)

Average Trader PnL vs Market Sentiment

Average profit per trade peaks during Extreme Greed (~$68) and is lowest
during Extreme Fear and Neutral (~$34).

However, Fear periods (~$54) outperform Greed (~$43), showing that moderate Greed leads to inefficient, crowded trades, while moderate Fear offers better price opportunities for profit capture.

3.2 Activity and Risk (Total Volume & PnL Distribution)

Trading Volume (USD) vs Market Sentiment
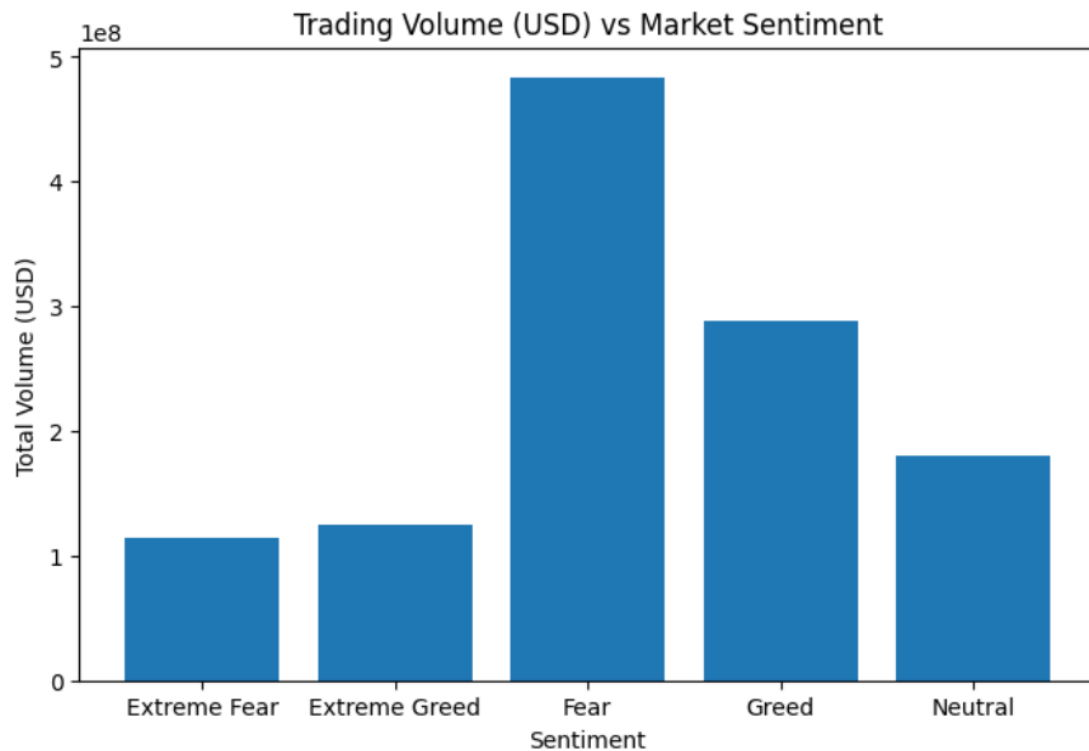
- Fear periods account for nearly 1.7× the trading volume of Greed.

- PnL distribution shows the widest variance in Fear and Extreme Greed, confirming that both maximum opportunity and maximum risk occur in these sentiment regimes.

- The tails of the PnL distribution indicate extreme outlier performance — both large wins and large losses — emphasizing the need for tight risk controls in these regimes.

3.3 Directional Bias (Trade Direction vs Sentiment)

Trade Direction vs Sentiment
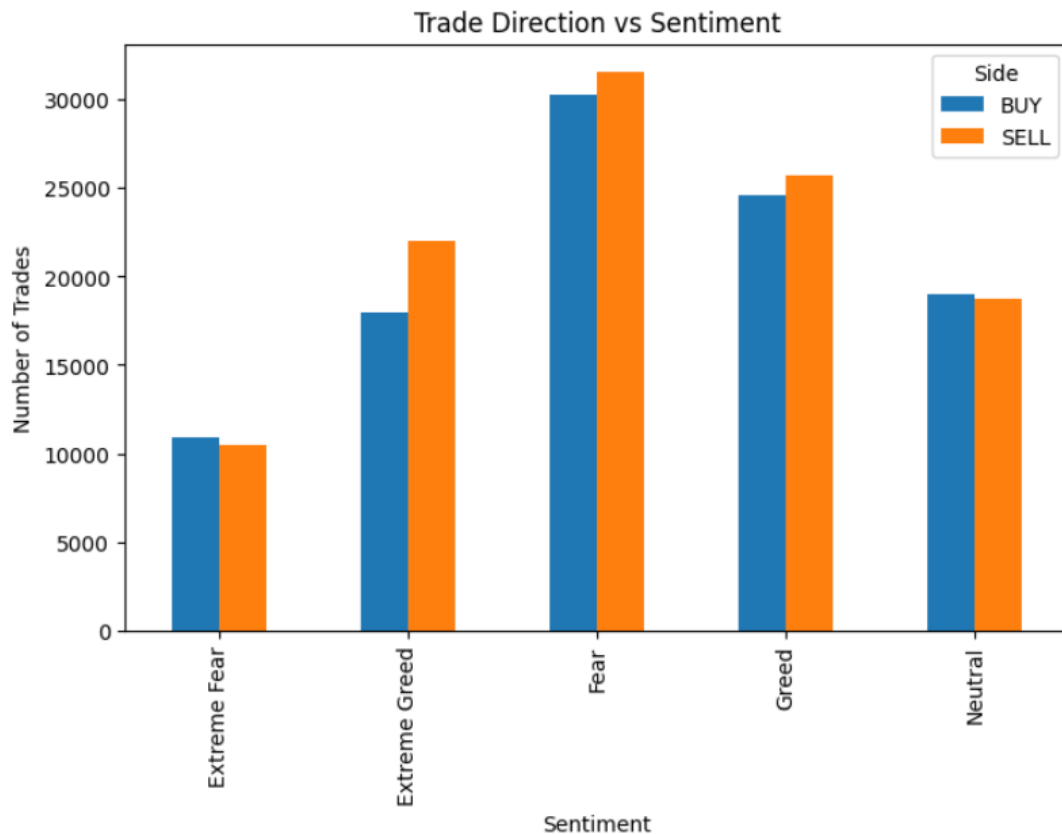
A distinct contrarian positioning pattern emerges:

- **Extreme Greed:** Highest proportional SELL bias, indicating smart money exits or initiates shorts during euphoria.

- **Extreme Fear:** Only phase showing a clear BUY bias, representing aggressive "buy the dip" behavior during panic conditions.

3.4 Profitability Over Time (7-Day Rolling PnL)

7-Day Rolling Trader Profit Over Time
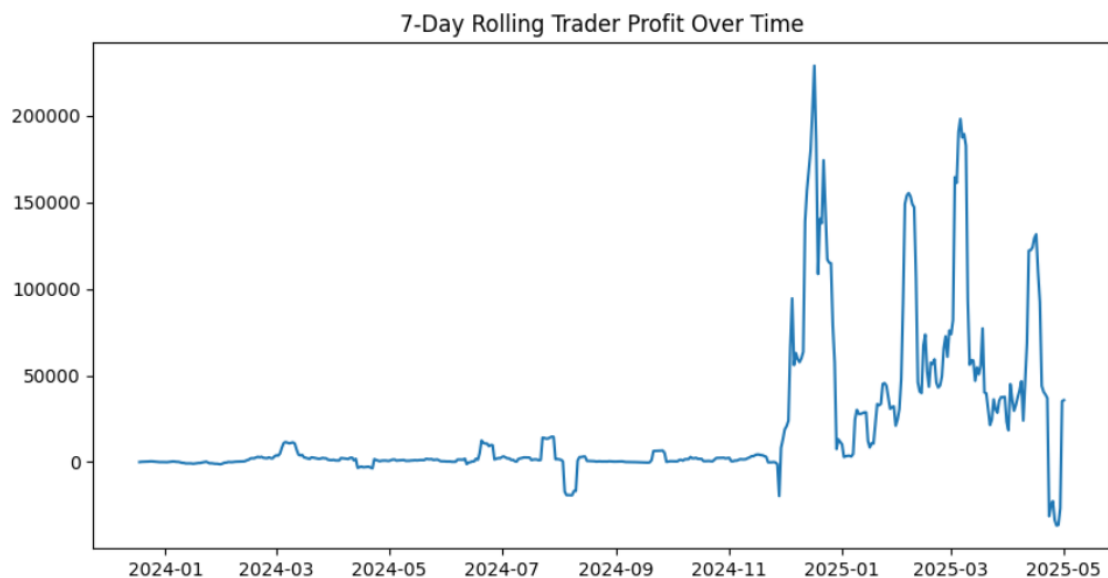
Time-series analysis confirms that trading success is regime-dependent.

- For most of 2024, trader profits remained flat in low-volatility markets.
- A sharp profit surge (>$200K/day) appeared during late 2024's trending regime.
- The subsequent decline marks the likely end of that profitable volatility phase.

4. Final Recommendations: Hidden Trends and Strategy

The data clearly reveals that liquidity, volatility, and profitability are concentrated in the Fear and Extreme Greed regimes, not in moderate sentiment conditions.
In other words, the profitable trade is a contrarian trade.

Hidden Trend

Profitable traders exploit emotional market extremes. When the crowd panics, they buy. When the crowd becomes euphoric, they sell.

Strategic Signal Recommendations

1. **Contrarian Execution Window:**

   - Short or exit longs when sentiment hits *Extreme Greed* (clear SELL bias).
   - Enter longs when sentiment hits *Extreme Fear* (BUY bias).

2. **Regime Filtering:**

   - Reduce capital exposure during *Neutral* or *sideways* markets.
   - Increase position size during *Fear* (high liquidity) or strong trending regimes.

3. **Risk Control:**

   - Use strict, predefined stop-loss limits during Fear and Greed phases.
   - Avoid excessive leverage during volatile extremes.

5. Conclusion

This analysis demonstrates that Web3 trader performance and market sentiment are tightly linked through contrarian behavior patterns. Traders who act opposite to crowd emotion—selling during euphoria and buying during panic—consistently outperform the majority.
The data also confirms that trading success is regime-dependent: profitability peaks during volatile, sentiment-driven regimes, while stagnates during neutral markets.

In essence, a sentiment-aware and regime-adaptive strategy forms the cornerstone of sustainable profitability in decentralized trading environments. Future analysis could extend this framework using on-chain wallet behavior or real-time order book data to further refine predictive signals.