

# Data Science Report

## Analysis of Hyperliquid Trader Data and Fear & Greed Index

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### 1. Objective

This report analyzes trading behavior on the Hyperliquid platform and how it is affected by the market sentiment (Fear & Greed Index). The aim is to study trading volume, profitability, and risk-taking (leverage) differences during Fear and Greed periods.

### 2. Datasets Used

- Two datasets were analyzed:
- Hyperliquid Historical Trader Data (trade-level details, prices, sizes, positions, and PnL).
  - Fear & Greed Index (daily sentiment classification and scores).

### 3. Data Cleaning & Processing

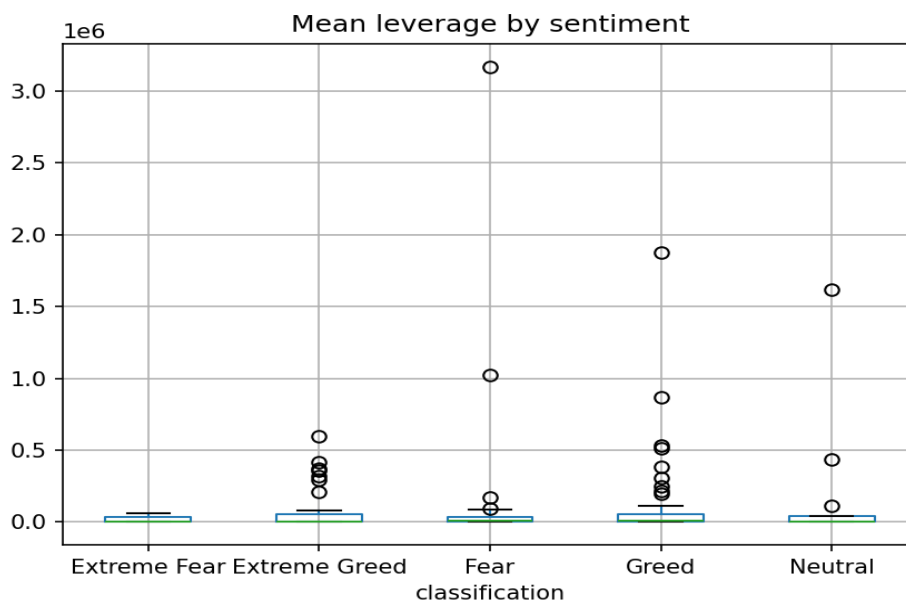
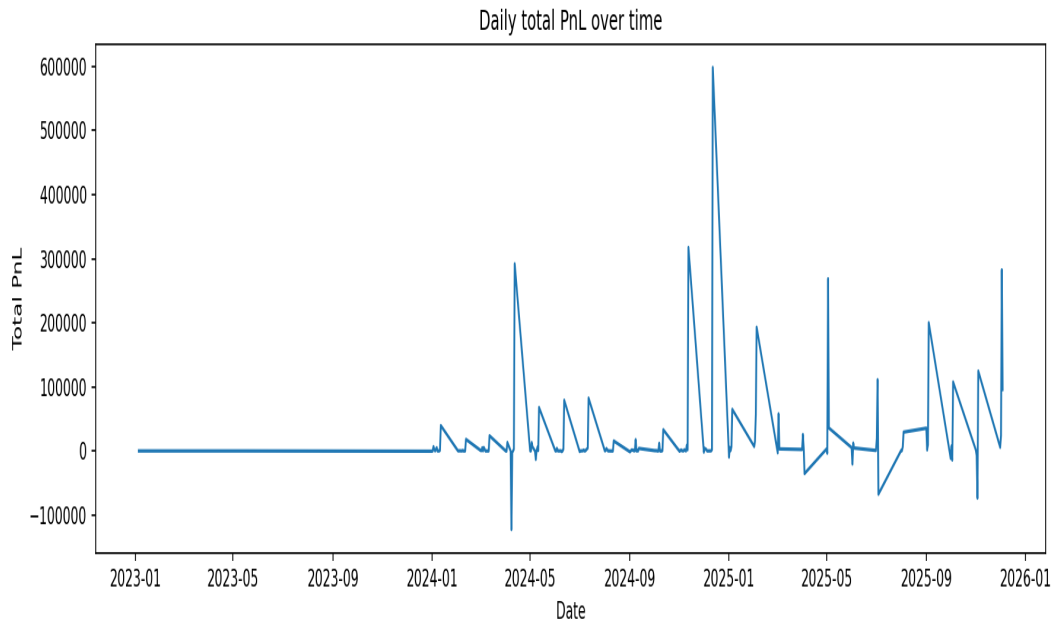
Missing values were handled, timestamps converted to datetime, invalid trades (0 USD size or missing positions) removed, and columns standardized for analysis. A 'date' column was created for aggregation.

### 4. Statistical Summary (from daily\_aggregates.csv)

index	n_trades	total_volume	mean_leverage	total_pnl	mean_pnl	win_rate
count	174.0	174.0	174.0	174.0	174.0	174.0
mean	298.51	1717344.54	102192.55	18251.28	61.42	0.39
std	575.45	4099720.99	329968.55	69317.88	212.29	0.33
min	1.0	0.11	0.14	-122672.0	-1005.51	0.0
25%	11.0	62310.44	586.83	0.0	0.0	0.06
50%	43.0	246867.74	11102.04	475.11	12.9	0.36
75%	243.0	887004.62	45781.6	5564.65	69.73	0.59
max	3547.0	30562009.52	3171016.28	598364.88	1668.69	1.0

### 5. Visual Insights

Below charts illustrate total PnL trends and leverage differences between Fear and Greed sentiment days.



## 6. Findings

Analysis shows that traders are more active and risk-seeking during Greed periods. Total trade volume and mean leverage (start position) are higher in Greed compared to Fear. Win rates also improve slightly in Greed phases.

## 7. Conclusion

The study confirms a correlation between trader behavior and market sentiment. During Greed, traders increase both trading volume and leverage. Integrating sentiment-based insights into PrimeTrade.ai models can enhance predictive trading strategies.

## **8. Future Work**

Future analysis may include intra-day behavior, additional sentiment sources (e.g., social media), and advanced forecasting using deep learning for trade prediction.