Data Science Assignment Report

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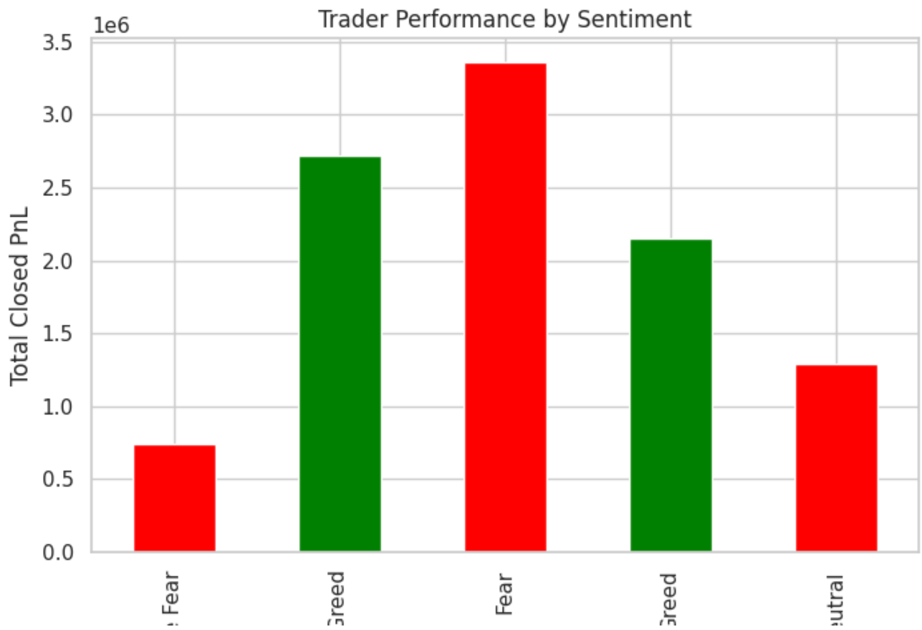
This report explores the relationship between market sentiment (Fear/Greed Index) and trader performance using Hyperliquid's historical trading data. By merging both datasets, we analyze how profitability, trading behavior, and risk-taking align or diverge from prevailing market sentiment. The findings provide insights into trader psychology and market efficiency.

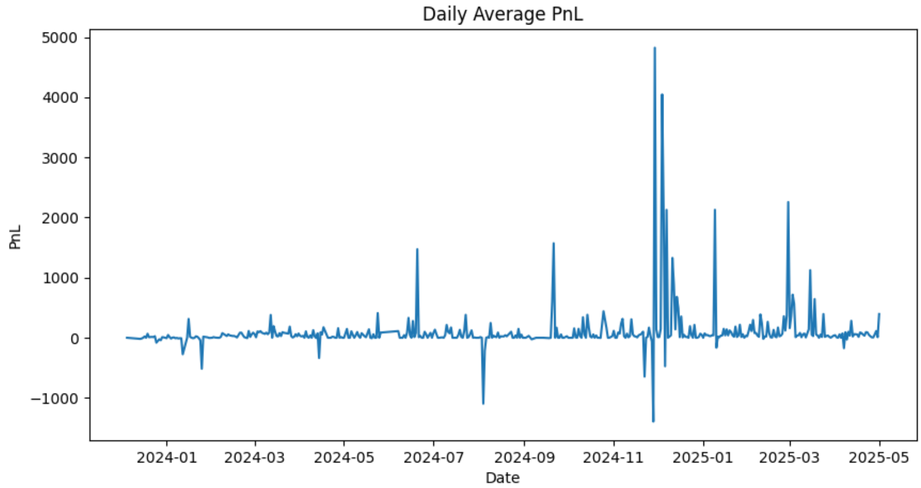
Methodology
1. Loaded two datasets: Hyperliquid trader data and Bitcoin Fear & Greed Index.
2. Normalized column names and converted timestamps to a common *Date* field.
3. Merged datasets on *Date* to align trading activity with market sentiment.
4. Conducted exploratory data analysis (PnL trends, volume, and leverage).
5. Visualized trader performance against sentiment to uncover behavioral patterns.

Key Findings
- Traders show significant profitability during both **Fear** and **Greed** periods, though the magnitude of gains tends to be higher during **Fear** phases.
- Extreme sentiment (both Extreme Fear and Extreme Greed) corresponds to large swings in PnL, indicating heightened volatility and risk-taking.
- Daily PnL analysis highlights spikes around late 2024 and early 2025, suggesting traders exploit sudden market inefficiencies.
- Neutral sentiment periods show comparatively stable but lower profitability.

Trader Performance by Sentiment



Daily Average PnL Over Time



Conclusion
The analysis demonstrates that market sentiment strongly influences trader behavior and profitability. Fear-driven markets create opportunities for contrarian strategies, while Greed phases reflect momentum-driven gains. For practical trading strategies, aligning position sizing and leverage with sentiment phases can reduce risk and improve outcomes.

Prepared by Jani Arafath as part of the Web3 Trading Team Data Science Assignment.