

Data Science Report: Trader Behaviour & Market Sentiment

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1. Executive Summary

This report analyses the relationship between Bitcoin market sentiment, measured using the Fear & Greed Index, and historical trader behaviour on the Hyperliquid platform. The primary objective is to understand how market sentiment influences trader profitability and trading volume, and to identify actionable insights that can support smarter trading strategies.

2. Methodology

- **Data Sources:**
Two primary datasets were used:
 - Bitcoin Fear & Greed Index
 - Historical Trader Data from the Hyperliquid platform
 - **Preprocessing:**
The datasets were cleaned and standardized by aligning date formats across both sources, including handling the DD-MM-YYYY format found in trader logs. The datasets were then merged using a common daily date key.
 - **Compliance & Environment:**
All analysis was performed in Google Colab. Results were organized using a standardized directory structure consisting of:
 - csv_files/
 - outputs/
 - [notebook_1.ipynb](#)
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3. Key Findings & Insights

Based on the analysis conducted in notebook_1.ipynb, the following trends were identified:

Profitability vs. Sentiment

- **Fear / Extreme Fear:**
Average closed pNL tends to be higher during periods of Fear. This suggests that traders who hold or initiate positions during pessimistic market conditions may benefit from subsequent price recoveries.
- **Greed / Extreme Greed:**
During periods of Greed, average profitability often stabilizes or declines. This behavior is commonly associated with overcrowded trades and late market entries.

Trading Volume (size usd)

- Trading volume generally increases during Extreme Greed phases, indicating heightened market participation.
 - Larger trade sizes during these periods may reflect increased risk-taking as sentiment peaks.
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4. Strategy Recommendations

1. Use Sentiment as a Contrarian Indicator

Extreme Fear can serve as a potential signal for strategic entry points, as historical data shows higher average PnL during these phases.

2. Enhanced Risk Management During Greed

Since higher trade sizes combined with lower average profitability are observed during Greed periods, traders should consider reducing leverage or tightening stop-loss levels when the Fear & Greed Index exceeds 75.

5. Final Checklist for Submission

To ensure the application meets submission requirements, confirm the following:

Requirement	Status
Root Directory	Named ds_Rupam_Mete
Google Colab Link	Set to "Anyone with the link can view"
Output Folder	Contains pnl_vs_sentiment_chart
CSV Folder	Contains all raw data files
GitHub Repository	Matches the required directory structure