

DATA SCIENCE PROJECT REPORT

PROJECT TITLE:

Bitcoin Sentiment vs Trade Performance Analysis

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1. PROJECT OBJECTIVE

To explore and quantify how the Bitcoin Fear/Greed Index relates to trading performance using historical trade data from Hyperliquid. The goal is to identify sentiment zones that influence profitability.

2. DATA SOURCES

- Bitcoin Market Sentiment Dataset:

Columns: Date, Classification (Fear/Greed)

- Historical Trader Data from Hyperliquid

Columns: account, symbol, execution price, size, side, time, start position, event, closedPnL, leverage, etc.

3. EXPLORATORY DATA ANALYSIS (EDA)

1. Closed PnL Distribution

→ Most trades are near zero profit/loss; few extreme values.

2. Sentiment Classification Distribution

→ More trades happen during Greed/Extreme Greed.

3. Boxplot of PnL by Sentiment

→ Greed zones have higher profit spread.

4. Scatter: Sentiment Value vs Closed PnL

→ Profitable trades cluster in high sentiment values.

5. Volume Category vs Profitability

→ Higher volume trades often yield better outcomes.

6. Correlation Heatmap

→ Weak but positive correlation between sentiment and PnL.

7. Win Rate by Sentiment Class

→ Greed-related zones have 60–70% win rates.

8. Average PnL by Sentiment

→ Profits highest during Extreme Greed.

4. KEY INSIGHTS

- Greed sentiments strongly align with better profitability.
- Extreme Fear signals high risk/low returns.
- Volume can be a secondary filter to improve trading outcomes.
- Sentiment analysis can enhance trading decisions.

6. TOOLS & LIBRARIES

- Python, Pandas, NumPy, Matplotlib, Seaborn
- Google Colab

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