Internship Analysis Report

Project Title: Trader Behavior vs. Market Sentiment Analysis

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1. Introduction

In this project, we explore how trader behavior, particularly profitability, correlates with broader market sentiment as captured by the Bitcoin Fear and Greed Index. This report merges individual trade outcomes with daily sentiment scores to detect patterns in profitable vs. unprofitable trades under different sentiment conditions.

2. Datasets Used

a. Fear & Greed Index Dataset

Source: Alternative.me

Fields:
- timestamp
- value
- value_classificati

b. Historical Trader Data

Fields:
- entry_time
- exit_time
- closed_pnl
- symbol

3. Methodology

1. Preprocessing Steps: Converted timestamps to datetime, handled time zone offsets, cleaned missing values.
2. Data Merging: Rounded exit_time to nearest day, merged with sentiment data on the date.
3. Analysis Performed: Descriptive statistics, boxplots, trade frequency vs. sentiment classification, and mean PnL per sentiment class.

4. Key Observations

1. Trade Volume vs. Sentiment: Majority of trades occurred during neutral to greedy sentiment levels.
2. Profitability vs. Sentiment: Average closed_pnl during greedy market states was higher.
3. Risk Profile: Fearful periods saw more consistent, though smaller, profits.

5. Visual Insights

Suggested Plots:
- Boxplot: closed_pnl by Sentiment
- Histogram: Trade Frequency
- Line Graph: Average Profit vs. Sentiment Score

6. Conclusion

This analysis suggests that trader profitability is influenced by overall market sentiment. Greedy markets provide high-reward opportunities, while fearful markets support smaller, more consistent gains.

7. Future Scope

- Include volume and leverage data
- Analyze individual trader strategies
- Use ML models for predictions