

Data Science Assignment

Web3 Trading Team

Candidate Name: Shreya Gilda

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1. Objective

The goal of this analysis is to explore the relationship between trader behavior and overall market sentiment. By comparing historical trader data with the Bitcoin Fear & Greed Index, we aim to identify how trading strategies, profitability, leverage usage, and trading volume align or diverge from prevailing market sentiment. The insights derived from this analysis can help optimize trading decisions and improve risk management strategies.

2. Dataset Overview

Two datasets were used in this assignment: 1. **Bitcoin Market Sentiment Dataset** • Columns: Date, Classification (Fear / Greed) • Purpose: Understand overall market mood and trends. 2. **Historical Trader Data** • Columns: account, symbol, execution price, size, side, time, start position, event, closedPnL, leverage, etc. • Purpose: Analyze trader positions, profitability, and risk-taking behavior.

3. Methodology

The analysis was conducted in the following steps: 1. Imported datasets into Google Colab and performed data cleaning. 2. Converted dates to proper datetime formats and handled missing values. 3. Conducted exploratory data analysis (EDA) to understand sentiment trends and trader behavior. 4. Merged datasets to align trader activities with market sentiment. 5. Generated visualizations for insights on profitability, leverage, volume, and correlations. 6. Summarized findings in this report.

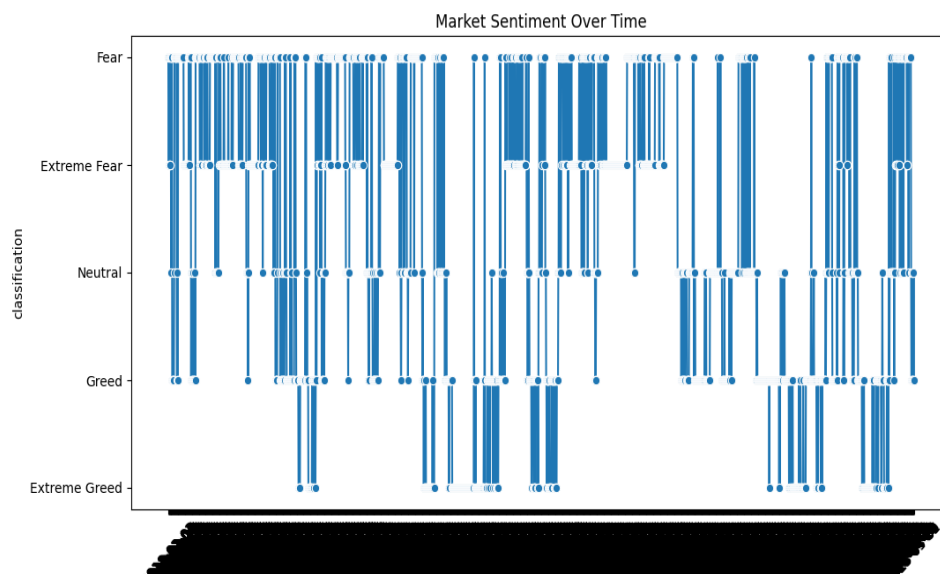
4. Key Findings & Visualizations

The following visualizations summarize the key insights discovered during the analysis:

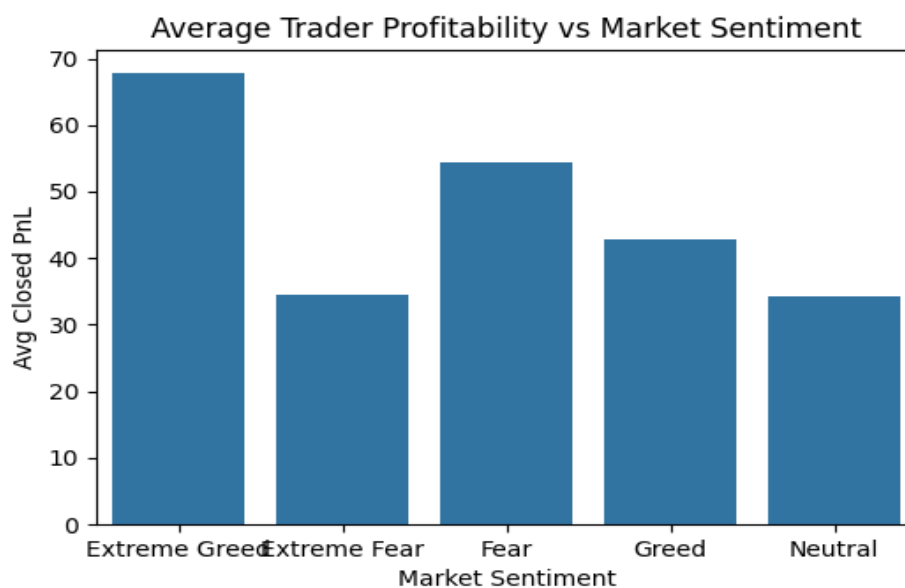
Total Trading Volume vs Market Sentiment



Market Sentiment Over Time



Average Trader Profitability vs Market Sentiment



5. Conclusion & Recommendations

From the analysis, we observed how market sentiment significantly influences trading behavior. Key recommendations include:

- Monitor sentiment trends closely when planning trades.
- Avoid excessive leverage during periods of extreme fear or greed.
- Use historical sentiment and trader behavior insights to refine trading strategies.

These insights can help traders make informed decisions and better manage portfolio risks.