Market Sentiment & Trader Performance Analysis

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1. Introduction

Objective: Explore how trader performance (PnL, trade volume, win rates)
relates to market sentiment, measured by the Fear & Greed Index.

Datasets:
- historical_data.csv: Trade-level dataset (accounts, executions, PnL, etc.)
- fear_greed_index.csv: Daily sentiment values (0 = Extreme Fear, 100 = Extreme Greed).

2. Methodology
- Data Cleaning & Preprocessing: normalized columns, parsed timestamps, numeric conversion, duplicate removal.
- Daily Aggregation & Merge: aggregated trades per day, merged with Fear & Greed Index.
- Exploratory Analysis & Visualization: distributions, scatter plots, boxplots, time-series.
- Statistical Testing: Kruskal–Wallis + pairwise Mann–Whitney U.
- Account-Level Analysis: per-account PnL, win rate, performance by sentiment.

3. Key Results
- Market-level: Kruskal–Wallis p-value < 0.05 $\rightarrow$ daily mean PnL differs significantly across sentiment groups.
- Trader Activity: average trades per day higher in [insert Fear or Greed].
- Account-level: some accounts thrive in Greed, others in Fear.

4. Limitations
- Only daily data (intraday effects not captured).
- Only Fear & Greed index considered (ignores BTC price/volatility).
- Differences are statistical, not causal proof.

5. Next Steps
- Add market features (volatility, price trends).
- Build predictive models for next-day PnL.
- Compute risk-adjusted metrics (Sharpe-like ratios).
- Deploy interactive dashboards.

6. Conclusion

Market sentiment influences trader performance at both market and account levels.
This project combined data cleaning, visualization, statistical testing, and account-level insights.
Findings highlight sentiment’s role in trading and open paths for predictive modeling.