Trader Behavior vs Market Sentiment Analysis

Objective
The objective of this analysis is to study how trader behavior changes under different Bitcoin market sentiment regimes such as Fear, Greed, Extreme Greed, and Neutral. Trader behavior is analyzed using profitability (PnL), trade frequency, and buy/sell decisions.

Datasets Used

1. Bitcoin Market Sentiment Dataset (Fear & Greed Index)
2. Historical Trader Data from Hyperliquid (PnL, leverage, side, timestamps)

1. Trade Activity vs Market Sentiment

The trade count visualization shows a significantly higher number of trades during Fear compared to Greed and other sentiment states. This indicates panic-driven activity where traders actively enter or exit positions during uncertain market conditions.

2. Buy vs Sell Behavior

The buy vs sell proportion remains relatively balanced across sentiments, but Fear and Extreme Greed show a slightly higher selling pressure. This reflects emotional decision-making, where traders tend to sell during fear-driven markets and aggressively reposition during extreme sentiment phases.

3. Profit & Loss (PnL) Distribution

The PnL distribution highlights extreme outliers during Fear sentiment, indicating higher volatility and risk exposure. Greed shows moderate but consistent profit opportunities, while Extreme Greed and Neutral sentiments demonstrate relatively contained PnL ranges.

Key Trader Insights

- Fear-driven markets experience the highest trading activity and volatility.
- Large PnL outliers during Fear suggest panic trading and forced liquidations.
- Buy/Sell behavior stays balanced but leans toward selling during fear phases.
- Greed periods show more controlled risk-taking with fewer extreme losses.
- Sentiment is a strong behavioral signal and should be incorporated into risk management strategies.

Trading Implications

Market sentiment can be effectively used as a risk-adjustment signal. During Fear periods, traders should reduce leverage and position size, while Greed periods can be approached with disciplined risk controls to avoid overconfidence-driven losses.