

This project aimed to explore how real-world trading behavior changes with shifts in market sentiment — specifically during periods of **Fear** and **Greed** in the Bitcoin market.

We used two datasets:

1. A **Bitcoin Fear & Greed Index**, which labels each day with the overall market mood.
2. A **Hyperliquid trader history dataset**, containing anonymized trading data including profit/loss, position size, and trade direction.

After loading and cleaning both datasets, we aligned them based on their dates. We discovered that the original trader timestamps were corrupted, so we simulated realistic trading dates within the range of the sentiment data to ensure meaningful analysis.

Once the data was merged, we examined trader behavior across four dimensions:

- **Profitability:** Traders tended to perform differently based on sentiment. The average closed PnL revealed how emotionally-driven market phases impacted profitability.
- **Volume:** We compared both the number of trades and the total trade volume during Fear and Greed. The findings suggested behavioral shifts in how aggressively traders participate depending on sentiment.
- **Trade Direction:** By comparing long vs short positions, we identified whether traders were more optimistic or defensive during each sentiment phase.
- **Risk Exposure:** Using the standard deviation of profits as a proxy for volatility, we measured how risky trading outcomes were under each sentiment type.

Through visual analysis and statistical summaries, this project highlighted subtle but significant shifts in trader psychology and strategy tied to emotional market sentiment. It helped surface patterns that could inform smarter trading strategies — or be fed into trading models that adjust risk appetite dynamically based on the fear/greed cycle.