Report: Trader Behaviour vs Market Sentiment

1. Introduction

The purpose of this study is to understand how trader behaviour changes in response to overall market sentiment. Two datasets were analyzed:

- A **Bitcoin Market Sentiment Dataset**, which labels each day as either *Fear* or *Greed*.
- A **Historical Trader Dataset** from Hyper liquid, which includes information about executed trades such as trade size, direction, timestamps, and profit/loss.

The goal is to uncover whether traders behave differently during fearful vs greedy markets, and what patterns might help improve trading strategies.

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2. Data Preparation

The datasets were merged using a common date field so that each trade could be associated with the corresponding sentiment of that day. Additional derived columns were created, such as:

- **Date-only timestamp** (to align with sentiment dataset).
- **Profitability measures** (average PnL, win rate).
- **Trade-level aggregations** (total trades per sentiment, distribution of profits).

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3. Key Findings

3.1 Overall Trading Performance by Sentiment

- During *Greed* phases, traders tended to be more active, with a higher number of trades executed.
- Win rates were slightly higher in greedy markets compared to fearful ones, indicating that optimism in the market may have encouraged more profitable entries.

3.2 Risk and Loss Behaviour

- Losses were deeper on average during *Fear* periods.
- The **largest single loss** also occurred in a fearful market, suggesting that panic-driven decisions or poorly timed exits lead to outsized downside risk.
- Conversely, the **largest single profit** was observed during a greedy market, highlighting that optimism can sometimes reward traders who take larger or more confident positions.

3.3 Trade Size and Profitability

- Larger trades showed a positive relationship with profit, though this came with increased volatility.
- Smaller trades were less likely to produce significant gains or losses, indicating a more conservative approach during uncertain conditions.

3.4 Correlation Insights

- **Trade Size ↔ Profit**: Moderate positive relationship; larger trades sometimes produced higher returns.
- **Execution Price ↔ Profit**: Weak relationship; profit was not strongly tied to entry price alone, meaning sentiment and timing mattered more.
- **Overall Sentiment ↔ Profitability**: Sentiment had a noticeable impact on trader outcomes, shaping not just the number of trades but also their quality.

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4. Strategic Implications

- **Fear-driven periods**: Traders often lose more heavily, suggesting that strategies should include tighter risk management, smaller position sizes, or stop-loss mechanisms when markets are fearful.
- **Greed-driven periods**: While optimism can boost profits, it also increases exposure to overconfidence. Having predefined exit strategies could help lock in gains.
- **General Insight**: Market sentiment serves as an important contextual factor that influences trader psychology and outcomes, and it should not be ignored when designing trading strategies.

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5. Conclusion

This analysis demonstrates that trader performance is closely linked to overall market sentiment. Fear periods increase downside risk, while greed periods open opportunities for higher profits but also risk-taking behaviour. By aligning trading strategies with market sentiment, traders can improve decision-making and potentially enhance long-term returns.