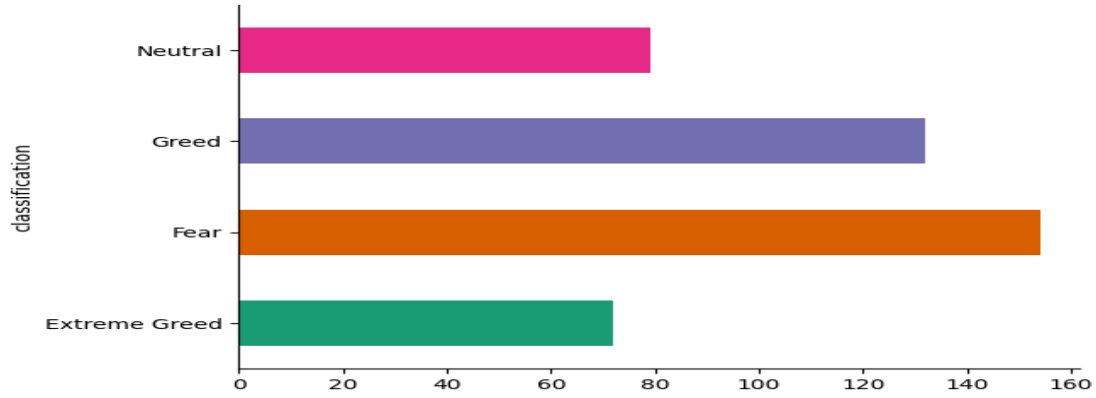
TRADER BEHAVIOR VS MARKET SENTIMENT ANALYSIS

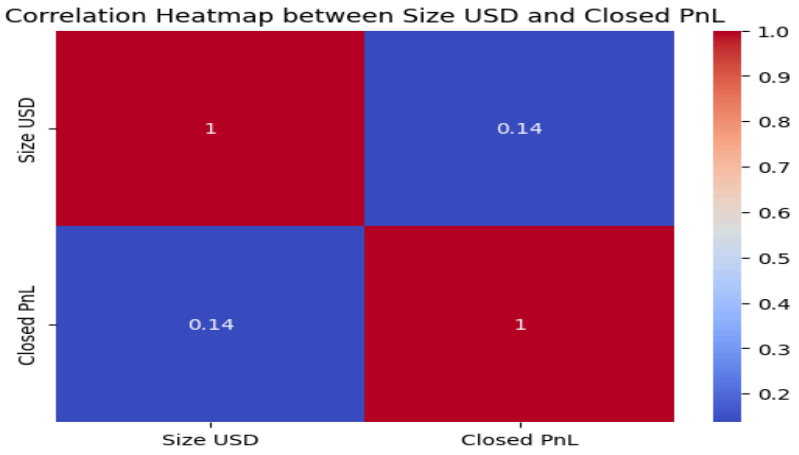
1. **OBJECTIVE :** To analyze how trading behavior (profitability, risk, volume, leverage) aligns or diverges from overall market sentiment (fear vs greed) and to identify hidden trends or signals that could influence smarter trading strategies.

2. **METHODOLOGY :**
    - Two CSV datasets were loaded for analysis: the Historical Trader Data and the Fear & Greed Index.
    - The datasets were merged using an inner join. The join key was established by converting the respective timestamp and date columns to a standardized datetime format.
    - To address the absence of a “leverage” column as specified in the objective, the “Size USD” column was used as a proxy for trader risk and position volume.
    - The core analysis was performed by grouping the data by the “classification” column. The mean of “Closed PnL” and “Size USD” was then calculated for each sentiment group to identify trends.
3. **KEY FINDINGS AND VISUALIZATIONS :**

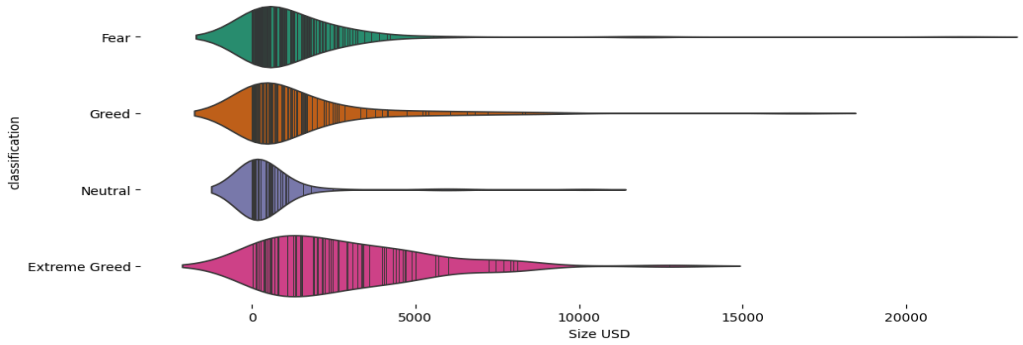
    - TOTAL TRADES VS. SENTIMENTS : First, let's understand *when* traders are most active. Our analysis shows that the highest number of trades occurs during periods of 'Fear,' suggesting that market volatility is the primary driver of trading activity.



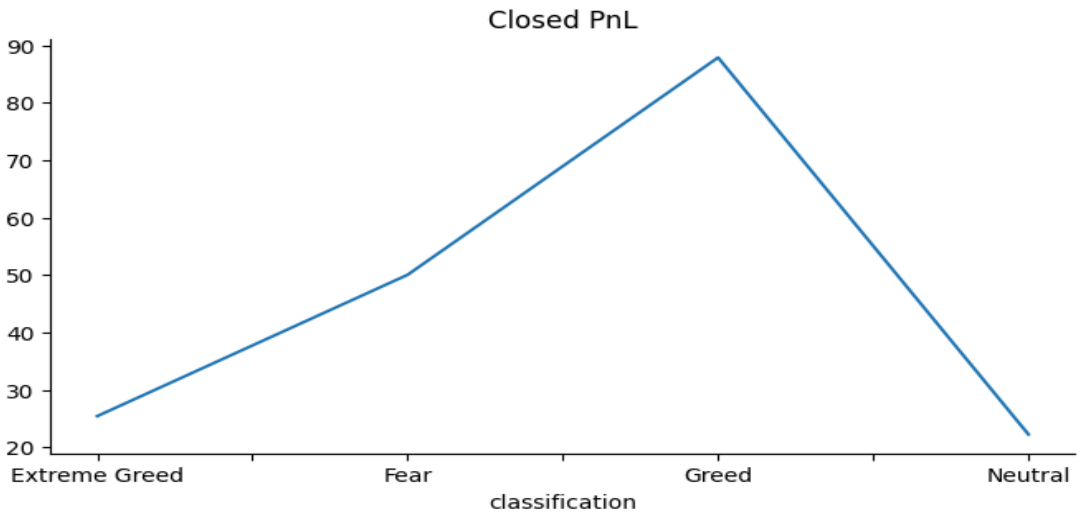
- SIZE USD VS. CLOSED PnL CORRELATION : Before analyzing risk-taking, we must establish a baseline: is taking bigger risks inherently more profitable? The data shows a very weak correlation between position size and profitability, proving that a simple 'bigger is better' strategy is ineffective.

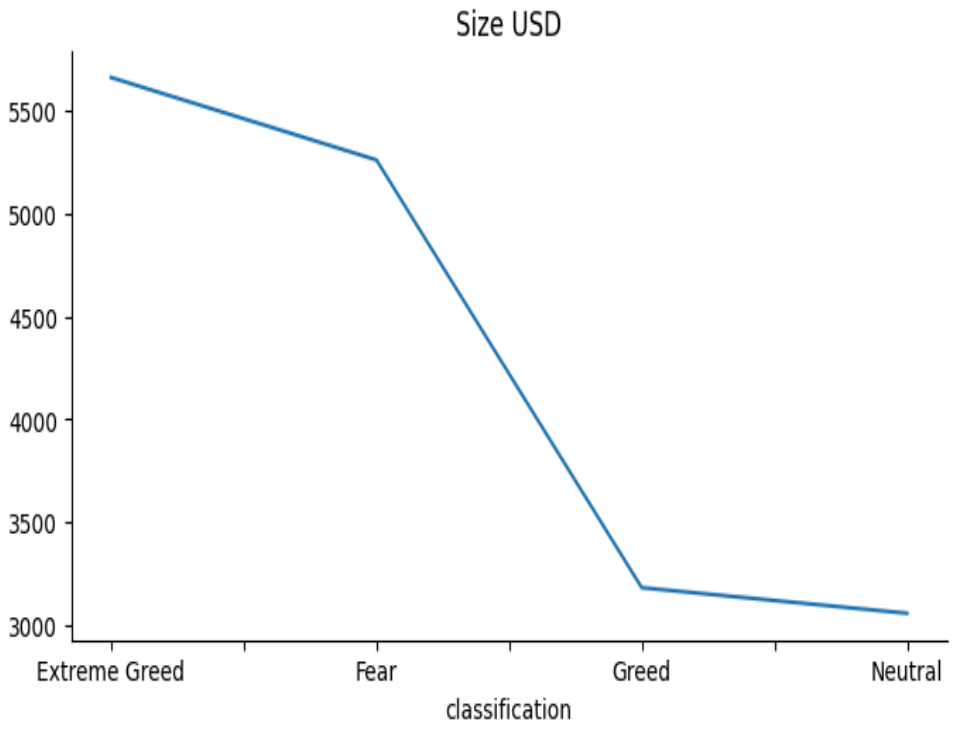


- SIZE USD DISTRIBUTION: While most trades are small, we see that the largest, most significant bets are placed during times of high emotion like 'Fear' and 'Greed'. Traders are most conservative when the market is 'Neutral'.



- THE OVERCONFIDENCE SIGNAL : This brings us to our core finding. We see that traders take on their largest average positions during 'Extreme Greed'. However, this is precisely when their average profitability drops significantly. This inverse relationship reveals a classic pattern of market overconfidence.




Size USD
5500
5000
4500
4000
3500
3000
Extreme Greed
Fear
Greed
Neutral
classification