Analysis of Trader Behavior vs. Market Sentiment

Objective: The objective of this analysis was to explore and analyze the relationship between trader behavior and overall market sentiment, as measured by the Fear & Greed Index. The goal was to identify hidden trends or signals by comparing trader profitability (PnL), side (Buy/Sell), and volume (Size USD) against sentiment classifications.
The dataset used here is “**historical_data”** and **“fear_greed_index”**

Solution:

- The first step was to identify a common factor present in both datasets, in this case it was date. This was necessary to match the data from the two datasets on common terms.
- The second step was to merge the two datasets into a single combined dataset.
- The third step was to extract only the required columns and rows, and then visualize them using Matplotlib and Seaborn.

Finding 1: PnL vs. Sentiment

This analysis measured the average closed Profit & Loss (PnL) of traders against the market sentiment on the day of the trade.

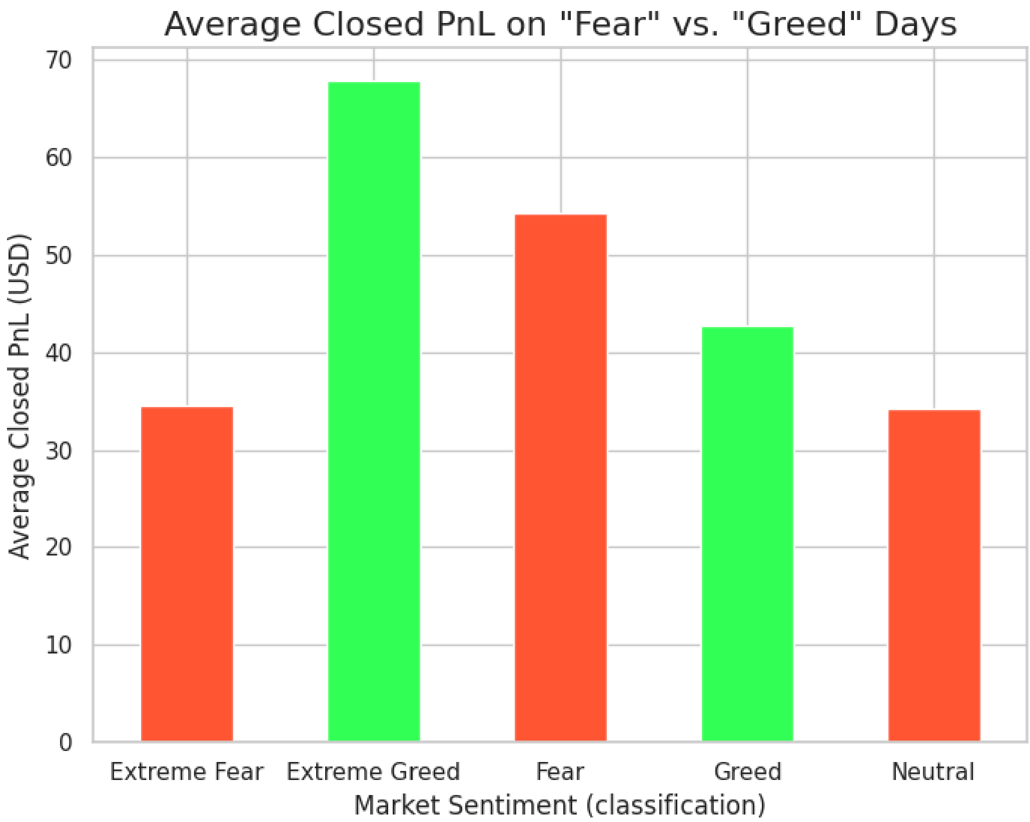

Chart Explanation: The bar chart above illustrates the average PnL (in USD) for trades executed during "Fear" days versus "Greed" days.

Key Finding: Profitability is highest during periods of "Extreme Greed."

Analysis: This chart shows that the average closed PnL was highest (approx. $68) during "Extreme Greed." This suggests that traders who followed the optimistic market trend were the most successful. Whereas, profitability was lowest during "Extreme Fear" and "Neutral" periods (both approx. $34), indicating that trading during high fear or neutral was the least profitable.

Finding 2: Side(Buy or Sell) vs. Sentiment

This analysis explored whether traders were more inclined to 'Buy' or 'Sell' based on market sentiment.

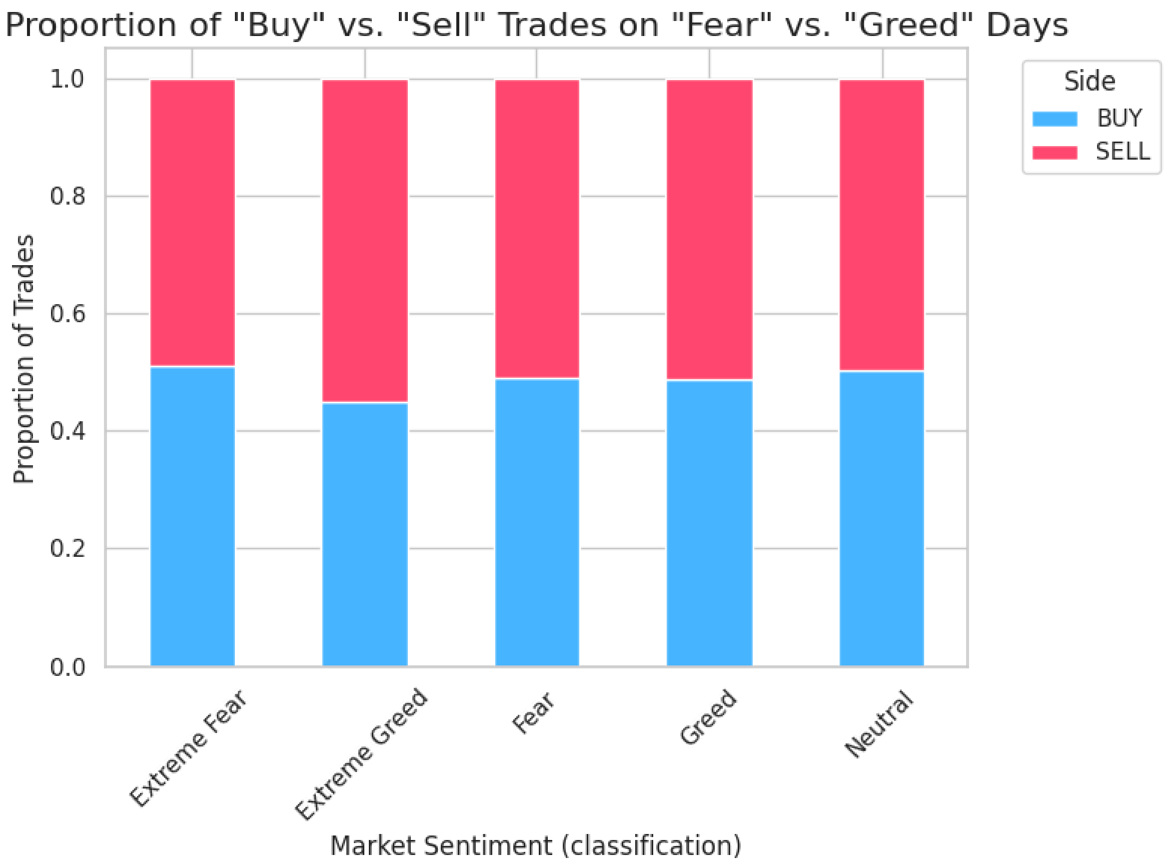

Chart Explanation: The stacked percentage bar chart shows the proportion of 'Buy' (Blue) versus 'Sell' (red) trades, categorized by the five levels of market sentiment.

Key Finding: The ratio of "Buy" to "Sell" trades is almost perfectly balanced (50/50) across *all* sentiment levels.

Analysis: This figure shows that market sentiment has virtually no effect on the overall proportion of buy vs. sell trades. Despite "Extreme Fear" or "Extreme Greed," the market remains balanced, with a buyer for every seller. This suggests that there is no "herd" or "panic" effect strong enough to skew the total ratio of market orders in one direction.

Finding 3: Trade Volume (Size) vs. Sentiment

This analysis measured the average trade volume (in USD) during specific sentiment periods.

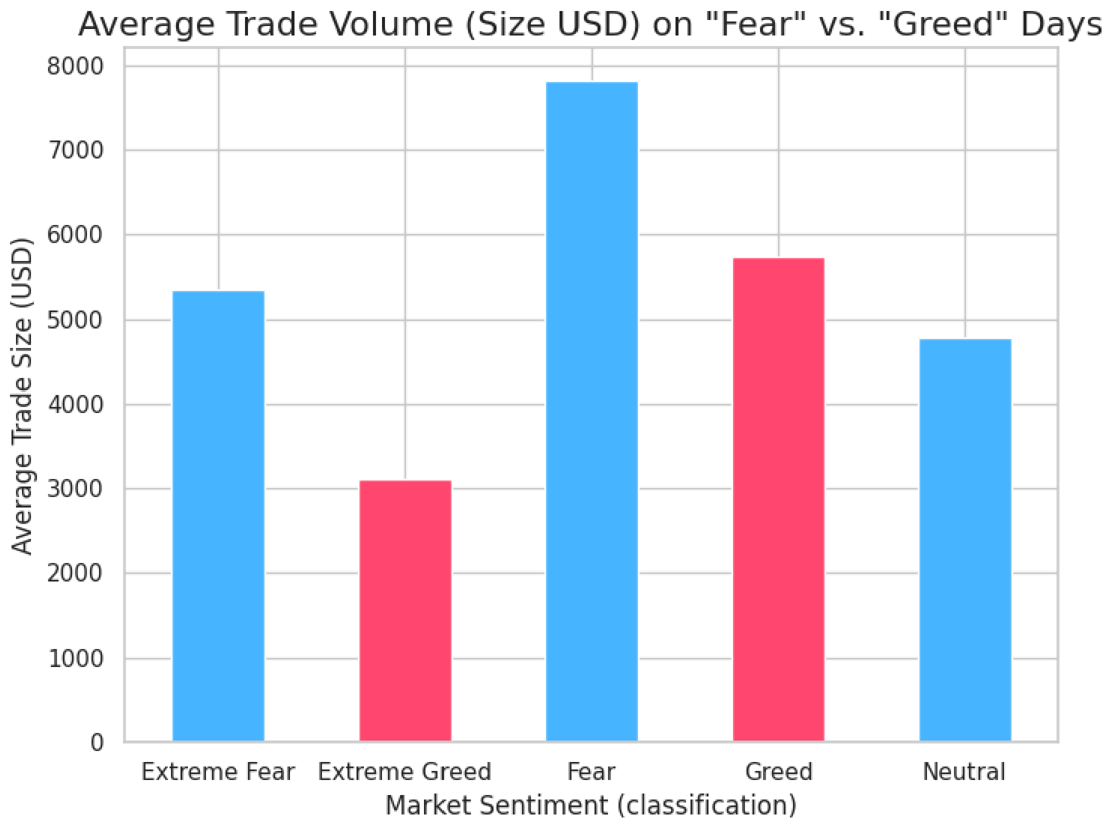

Chart Explanation: The bar chart above compares the average USD size of trades executed during 'Fear' days versus 'Greed' days.

Key Finding: Trade volume is highest during periods of "Fear."

Analysis: This is the most surprising finding. The average trade size (in USD) spikes significantly during "Fear" (approx. $7,800). This implies that traders commit the most capital or are most active when the market is fearful. This could be due to panic selling, liquidations, or larger "whale" traders buying the dip. In contrast, "Extreme Greed"—the most profitable period—has the *lowest* trade volume (approx. $3,100).

Conclusion:

The most significant insight comes from combining all three findings:

- **Profitability** is highest during **"Extreme Greed"** (Figure 1).
- **The Buy/Sell** ratio is ***always* 50/50**regardless of sentiment (Figure 2).
- **Trade volume** is *lowest* during **"Extreme Greed"** (Figure 3).