

Data Science Internship Assignment Report

Candidate Details:

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- **GitHub Repository:** https://github.com/aqsa-stats/ds_Aqsa_Chivelkar.git

Summarized insights and explanations

1. Trading Activity (Total Trades and Volume)

- **Observation:**
The total number of trades and total trading volume tend to be **higher during Greed sentiment** days compared to Fear days.
- **Interpretation:**
Traders are generally more active and confident in the market when sentiment is optimistic (Greed), leading to increased participation and larger volumes traded. During Fear, trading activity slows down.

2. Profitability (Win Rate and Average Closed PnL)

- **Observation:**
The average win rate and average closed profit and loss (PnL) are **higher on Greed days** relative to Fear days.
- **Interpretation:**
Traders tend to be more profitable when market sentiment is optimistic. The higher win rate suggests better trade outcomes during Greed phases, possibly reflecting favorable market conditions or momentum.

3. Trade Size and Execution Price

- **Observation:**
Average trade size and execution price show **some variation between Fear and Greed**, but differences are generally less pronounced than volume or profitability.
- **Interpretation:**
While traders may adjust their position sizes somewhat based on sentiment, their trade sizes do not shift as dramatically as overall volume or profitability.

4. Correlation between Sentiment and Trader Metrics

- **Observation :**
Correlation coefficients confirm:

- Positive correlation between sentiment (Greed) and total trades, total volume, win rate, and average closed PnL.
- This means as market sentiment shifts to Greed, these trader behavior metrics tend to increase.
- **Interpretation :**
Market mood significantly impacts trader behavior and outcomes. Trader activity and success metrics align positively with optimistic sentiment.

5. Temporal Trends (Win Rate vs Sentiment over Time)

- **Observation:**
Time series plots reveal that daily win rate often **increases during periods of Greed** and falls during Fear.
- **Interpretation:**
There is a clear temporal alignment where trader profitability improves during bullish market sentiment phases, which can be used as a signal for timing trades or managing risk.

Overall Conclusion:

- Trader behavior and profitability strongly **align with market sentiment**.
- During periods of **Greed**, traders tend to trade more actively, with higher volume and better profitability.
- During **Fear**, trading activity and profitability decline, indicating more cautious or reactive trading behavior.
- These insights can help develop **smarter trading strategies** that adapt position sizing, risk management, and trade timing based on prevailing sentiment signals.