

Title: Analysis of Trade Activity and Market Sentiment

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1. Introduction:

The purpose of this project is to analyse how **market sentiment** (Fear, Greed, Neutral, Extreme Greed, and Unknown) influences trading activity over time.

The analysis combines **historical trading data** with a **fear-greed index** sentiment dataset, and generates visualizations that highlight trade behavior under different sentiment conditions.

2. Datasets Used:

- **historical_data.csv**: Contains trading data (trade date, trade ID, and other details).
- **fear_greed_index.csv**: Contains daily sentiment values (Fear, Greed, etc.).
- These datasets were merged on date to attach a **daily sentiment label** to each trade.

3. Methodology:

Data Cleaning

- Standardized column names and converted dates to datetime.
- Removed missing values where possible.

Merging Datasets

- Joined **historical_data.csv** with **fear_greed_index.csv** on date.
- Each trade was assigned a **daily_sentiment**.

Analysis & Visualization

- Trade volume was grouped by sentiment.
- Daily trade activity was plotted over time to identify patterns.

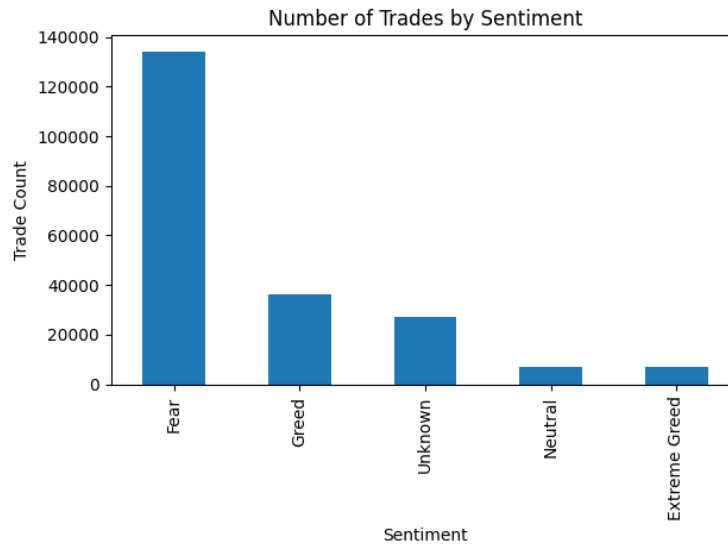
4. Results & Insights

4.1 Number of Trades by Sentiment

- **Fear sentiment dominates** trading activity, with ~135,000 trades.
- **Greed and Unknown** sentiments come next (~30–40k trades).
- **Neutral and Extreme Greed** have the least activity (~7–8k trades).

Interpretation:

Traders are more active during *Fear periods*, possibly due to market volatility and panic-driven decision-making. Lower activity in *Extreme Greed* suggests cautious positioning despite optimistic sentiment.

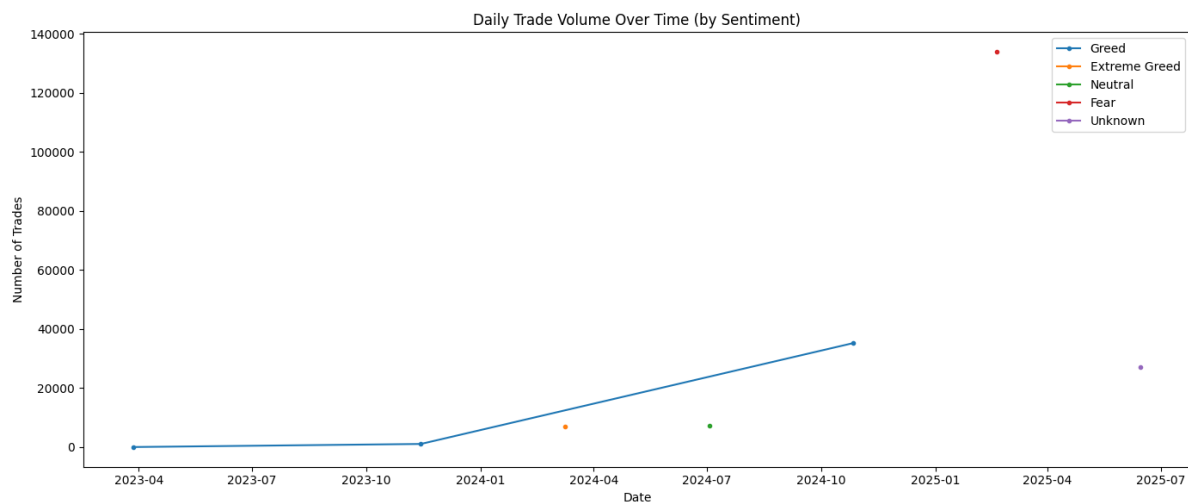


4.2 Daily Trade Volume Over Time (by Sentiment)

- Trade spikes are **not evenly distributed** across time.
- Noticeable **peak during Fear sentiment** around late 2024–early 2025.
- Greed-related trades appear more spread out, while Extreme Greed and Neutral are rare and occur only at specific points.

Interpretation:

Market sentiment shifts directly impact trading activity. Fear triggers sudden bursts of trading, while Greed-related trades are steadier and less clustered.



5. Limitations

- No leverage or PnL data was available, so profitability and risk analysis could not be performed.
- Data primarily reflects **trade volume**, not trade outcomes.
- Unknown sentiment periods need clarification (could be missing index data).

6. Conclusion

- **Fear sentiment is strongly correlated with high trade volume**, suggesting traders are most reactive during uncertain conditions.
- **Greed sentiment shows moderate but consistent activity**, while **Extreme Greed and Neutral** contribute very little to trade counts.
- Future work could include profitability analysis, risk (leverage) evaluation, and rolling averages to smooth daily noise.

7. References

- Fear and Greed Index Dataset.
- Historical Trading Data.