Analysis of Bitcoin Trader Perfomance vs Market Sentiment

Introduction :

- Objective: Study the effect of Bitcoin market sentiment on trader performance.
- Use trader historical trade data + Bitcoin Fear/Greed index.
- Goal: Identify patterns, profitability trends, and actionable insights for smarter trading.

Data Description :

Datasets:

1. **Trader Historical Data :**

- Columns: Account, Coin, Execution Price, Size (Tokens/USD), Side, Time, Start Position, Closed PnL, Fee, Trade ID.
- Contains details of trades executed by multiple traders.

2.Bitcoin Market Sentiment (Fear/Greed Index) :

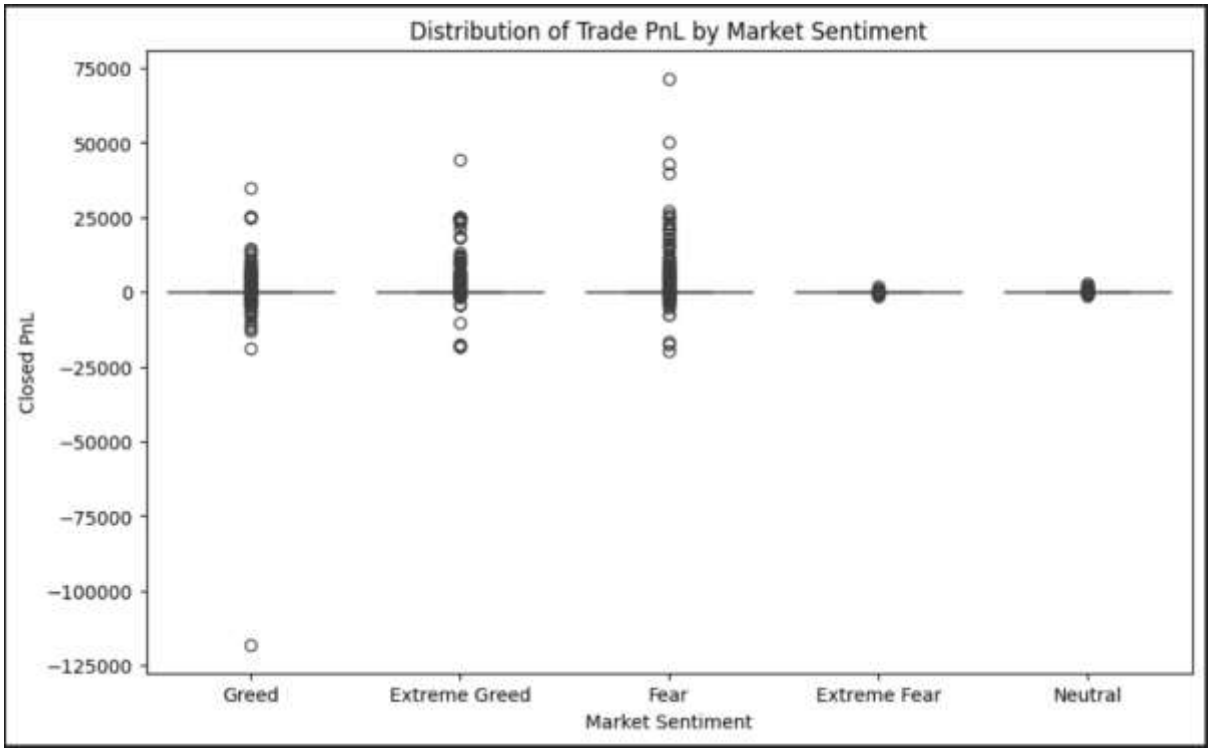
- Columns: Date, Classification (Fear, Greed, etc.)
- Provides daily market sentiment, showing investor fear or greed.

Data Preprocessing & Cleaning :

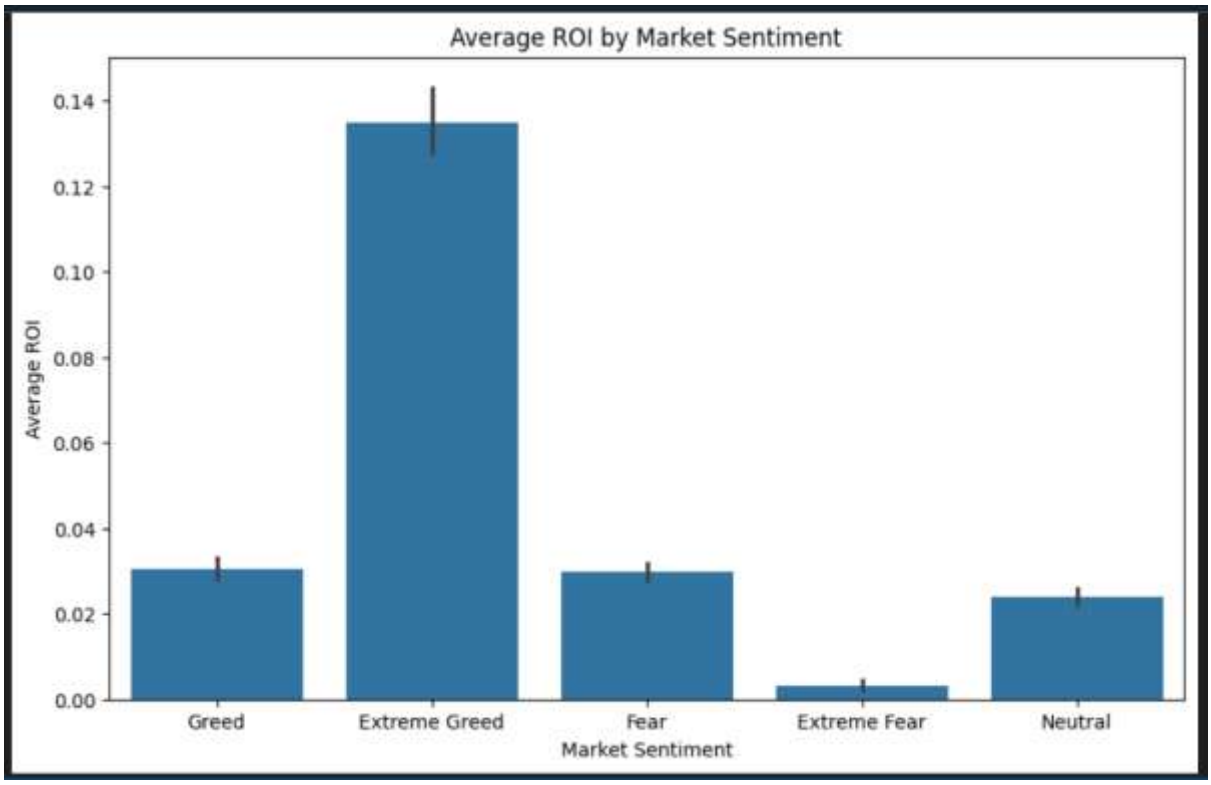
- Converted timestamps to datetime objects.
- Renamed columns for consistency (Closed PnL, Timestamp, etc.).
- Filled missing values or dropped rows with missing PnL.
- Created new features:
    - is_profitable → True if trade PnL > 0
    - sentiment_score → numeric mapping for sentiment (Extreme Fear=-2 … Extreme Greed=2)
- Merged trader data with sentiment data on date.

Exploratory Data Analysis (EDA) :

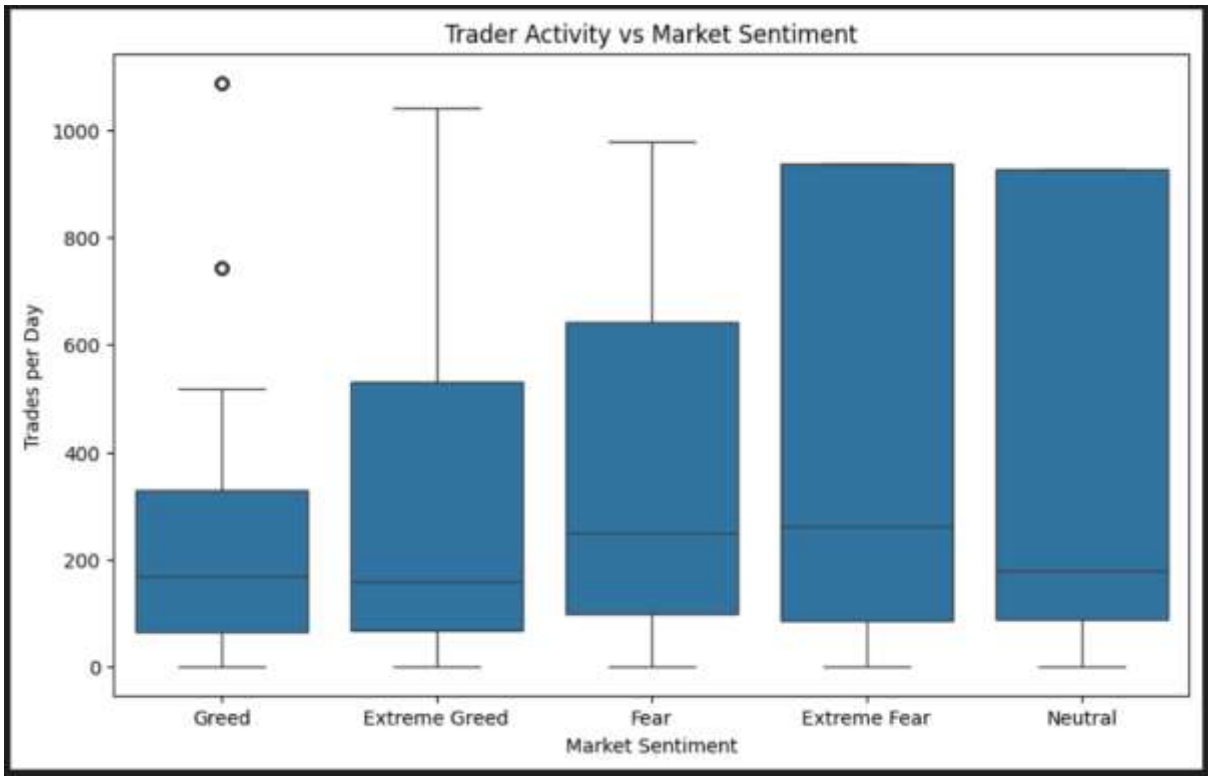
1.Distribution of trade PnL by market Sentiment :



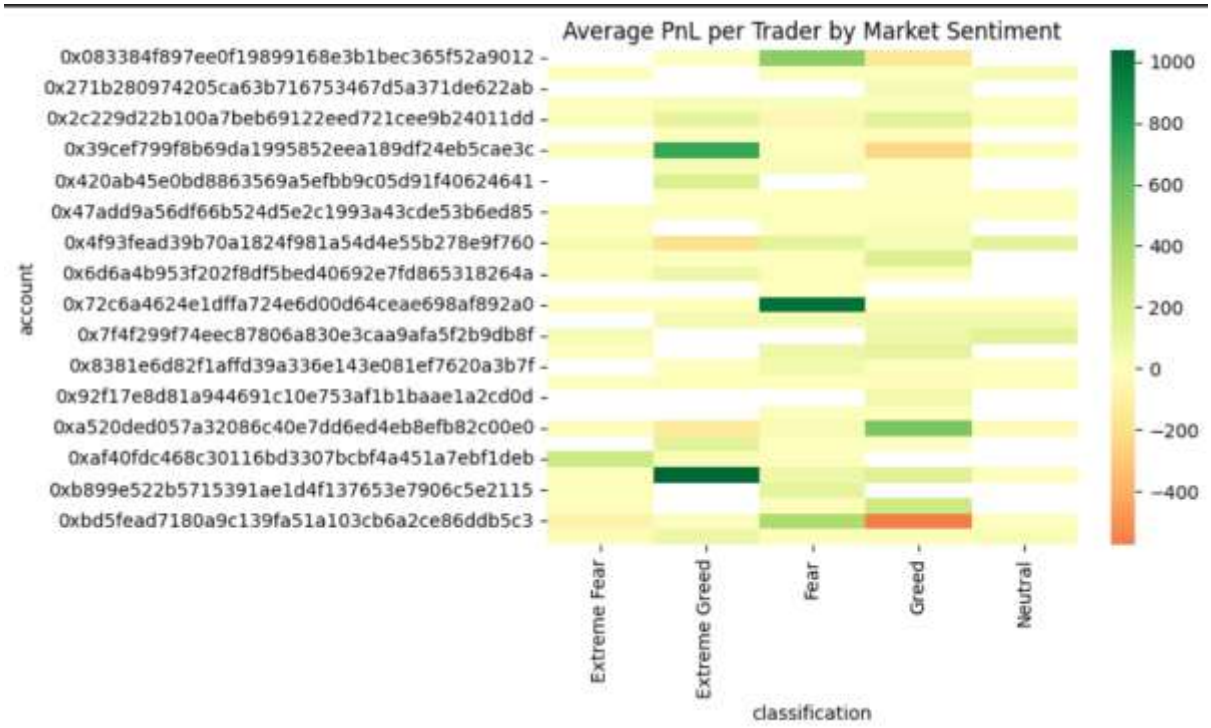
2.Average ROI by Sentiment :



3.Trade Activity vs Market Sentiment :



4. Average PnL per Trade by Market Sentiment:



Recommendations :

- Trade more in Greed periods, avoid Extreme Fear.
- Use sentiment as a feature for trading strategy or predictive models.
- Monitor trade frequency to reduce fees and risk.
- Optional: Integrate into automated trading for sentiment-aware decisions.

Conclusion :

- Market sentiment significantly impacts trader performance.
- Extreme Fear → low win rate & negative PnL.
- Extreme Greed → highest profitability & win rate.
- Insight can guide smarter, sentiment-informed trading strategies