

# Trader Behavior Analysis Report using Bitcoin Fear & Greed Index

## Objective:

- To analyze how traders behave under different market sentiments — fear vs. greed.
- To discover trends and patterns in trade size, frequency, and profitability with respect to sentiment.
- To visualize the impact of sentiment on trading decisions

## Data Sources:

- **Sentiment Data:** Bitcoin Fear & Greed Index over time.
- **Trader Data:** Anonymized data containing timestamps, trade sizes, profit/loss status, etc.

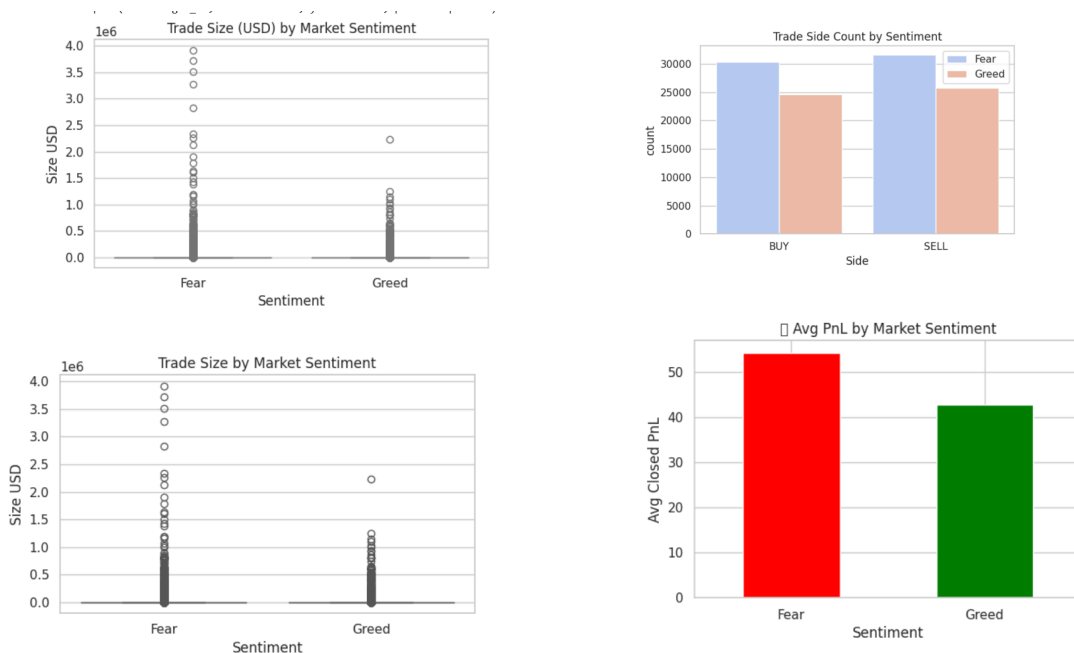
Both datasets were obtained via public Google Drive links and loaded using Pandas

## Preprocessing:

- Checked for missing values
- Merged the datasets on timestamp after rounding or aligning to the same granularity.
- Created a new column Sentiment:  
0 = Fear (index < 50)  
1 = Greed (index ≥ 50)

## Exploratory Data Analysis (EDA):

- Boxplot: Trade Size vs Sentiment
- Countplot: Number of Trades under Fear/Greed
- Histogram: Trade size distribution by sentiment



**Observations:**

- Trade sizes are generally larger during *Greed*.
- Number of trades increases during *Fear*, suggesting panic-driven behavior.
- Profitability tends to be inconsistent during extreme fear.

**Insights:**

- Fear leads to more frequent, smaller trades
- Could be used to build better trading signals or detect irrational trader behavior
- Greed-driven markets encourage larger but fewer trades.