

TRADER BEHAVIOUR & MARKET SENTIMENT ANALYSIS

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1. Introduction

This project analyses the relationship between market sentiment and trader performance. The objective is to understand how emotions such as fear and greed influence trading profitability and behaviour.

2. Dataset Description

Two datasets were used in this analysis:

1. Historical Trading Data: Contains information about trader activity, profit/loss, leverage, and timestamps.
2. Fear-Greed Index Data: Provides daily market sentiment classifications.

These datasets were merged using date as the common key.

3. Methodology

The following steps were followed in this project:

- Data loading using Pandas.
- Handling missing values and date conversion.
- Data merging based on date.
- Exploratory Data Analysis (EDA).

- Visualization using Matplotlib and Plotly.
- Insight generation based on trends.

All analysis was performed using Python in Google Colab.

4. Key Insights

1. Trading during **Extreme Greed** periods shows the highest average profit, indicating strong market momentum benefits traders.
2. **Neutral** and **Extreme Fear** periods result in lower average profit, suggesting uncertainty reduces trading efficiency.
3. The highest number of trades occurs during **Fear** periods, showing increased activity during uncertain market conditions.
4. Although trading volume is high during Fear, profitability is higher during Greed phases, indicating emotional trading may increase risk.
5. Profit trends fluctuate over time, showing that market sentiment has a strong impact on short-term trading performance.

5. Data Visualization

The following visualizations were created to support the analysis:

- Bar Chart: Average Profit by Sentiment
- Horizontal Bar Chart: Trade Count by Sentiment
- Line Chart: Daily Profit Trend
- Pie Chart: Market Sentiment Distribution
- Animated Scatter Plot: Profit vs Sentiment Over Time

These charts help in understanding the relationship between sentiment and performance.

6. Conclusion

This analysis shows that market sentiment plays a significant role in trading performance. Positive sentiment periods such as Greed and Extreme Greed lead to higher profitability. Traders should consider sentiment indicators before making trading decisions to improve performance and reduce risk.

7. Future Scope

Future work can include:

- Machine learning models for profit prediction.
- Deeper risk analysis.
- Trader behaviour classification.
- Real-time sentiment monitoring.

8. References

- Historical Trading Dataset
- Fear-Greed Index Dataset
- Python Libraries: Pandas, Matplotlib, Plotly