

Analyzing Trader Behavior During Fear and Greed Cycles

Data Science Internship Project Report

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1. Introduction

Financial markets are strongly influenced by human emotions. This project analyzes how traders behave during different market sentiment phases — Fear and Greed.

2. Objective

To study how market sentiment influences trader behavior and profitability.

3. Tools & Technologies Used

- Python
- Pandas
- Matplotlib
- Google Colab
- CSV Dataset

4. Dataset Details

Two datasets were used:

1. Trader dataset (trade activity: time, size, leverage, profit)
2. Fear & Greed Index dataset (market sentiment scoring)

5. Data Preparation & Cleaning

Key preprocessing performed:

- Timestamp converted into datetime
- Extracted Date from timestamp
- Renamed columns ('Size Tokens' → leverage, 'Size USD' → size)
- Merged both datasets on Date

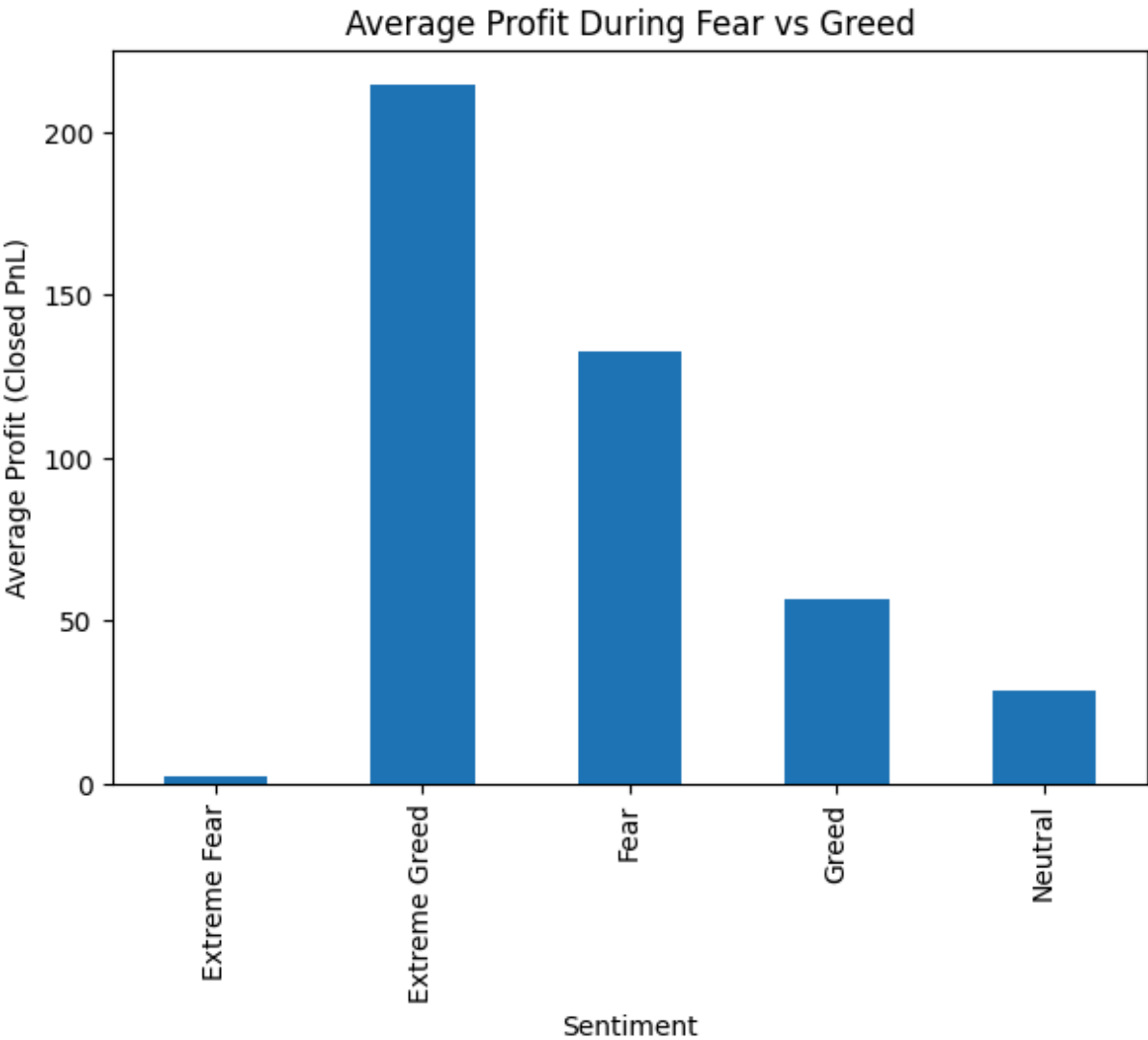
Key merging code:

```
trader['time'] = pd.to_datetime(trader['time'])
trader['Date'] = trader['time'].dt.date
sentiment['Date'] = pd.to_datetime(sentiment['Date']).dt.date
merged_df = pd.merge(trader, sentiment, on='Date', how='inner')
```

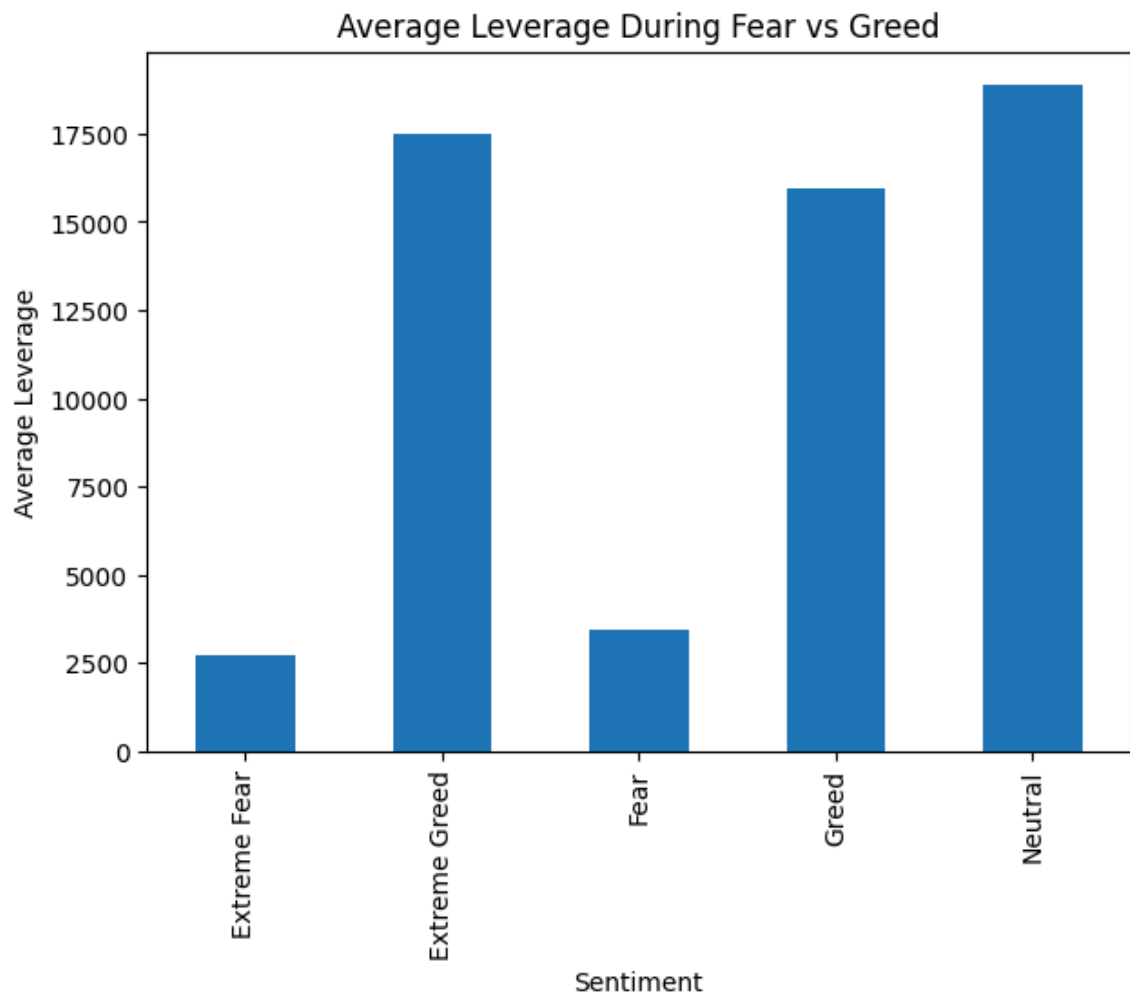
6. Visualizations

Charts generated:

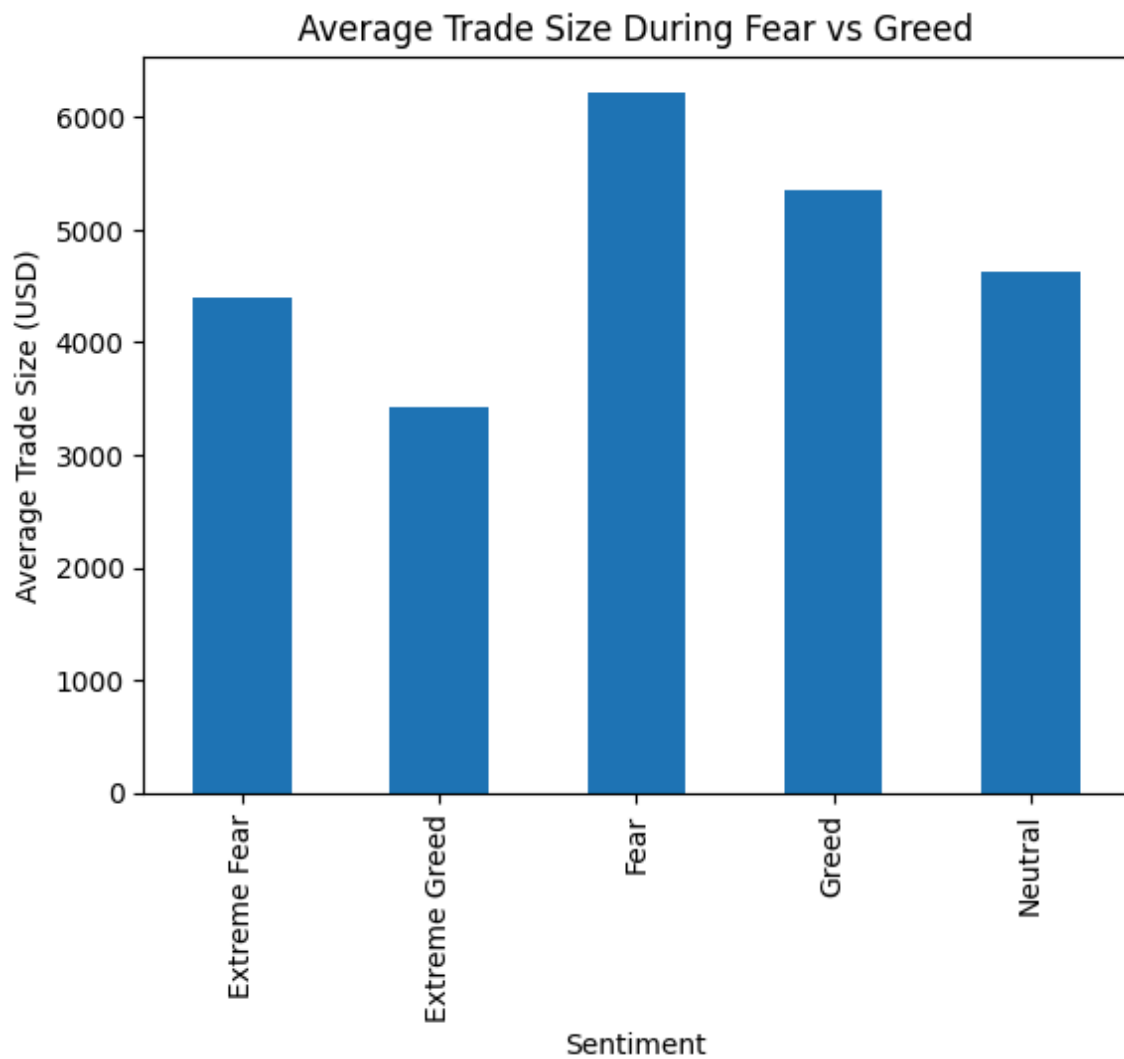
- Average Profit vs Sentiment



- **Average Leverage vs Sentiment**



- **Average Trade Size vs Sentiment**



7. Key Insights

- **Greed phase** → Higher profit, higher leverage, larger trade size
- **Fear phase** → Lower profit, lower leverage, smaller trade size

8. Conclusion

Market sentiment strongly influences trader behavior. During Greed phases, traders increase leverage and trade size, resulting in higher profits. During Fear phases, traders reduce exposure and trade cautiously.

9. Deliverables

1. Jupyter Notebook (.ipynb)
2. Merged Dataset (merged_data.csv)
3. Project Report (ds_report.pdf)
4. README.md