

Data Science Mini Project

Market Sentiment vs Trading Performance

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Course: BCA (Big Data Analytics)

1. Introduction

This project analyzes the relationship between market sentiment and trading performance. Market sentiment data is combined with historical trading data to understand how emotions such as fear and greed influence profitability and trading behavior.

2. Objective

- To analyze trading performance under different market sentiment conditions.
- To calculate average profit, trade count, and trade size by sentiment.
- To visualize insights using charts and statistical summaries.

3. Datasets Used

1. Historical Trading Data (historical_data.csv)
2. Fear & Greed Index Data (fear_greed_index.csv)

4. Data Preprocessing

- Converted date columns to datetime format.
- Standardized column names.
- Merged datasets based on date.
- Removed missing and invalid values.

5. Exploratory Data Analysis

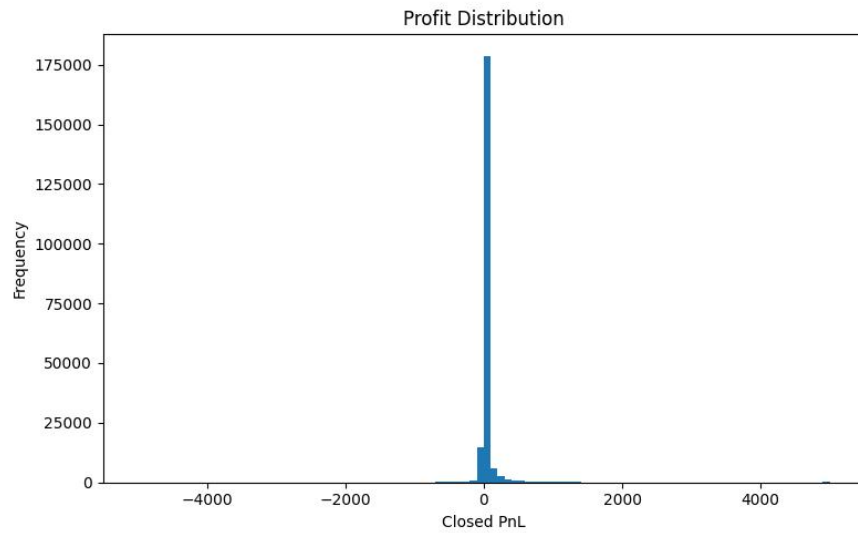
Exploratory analysis was conducted to understand profit distribution, trading behavior, and sentiment impact. Summary statistics were generated to examine central tendency and variability.

6. Methodology

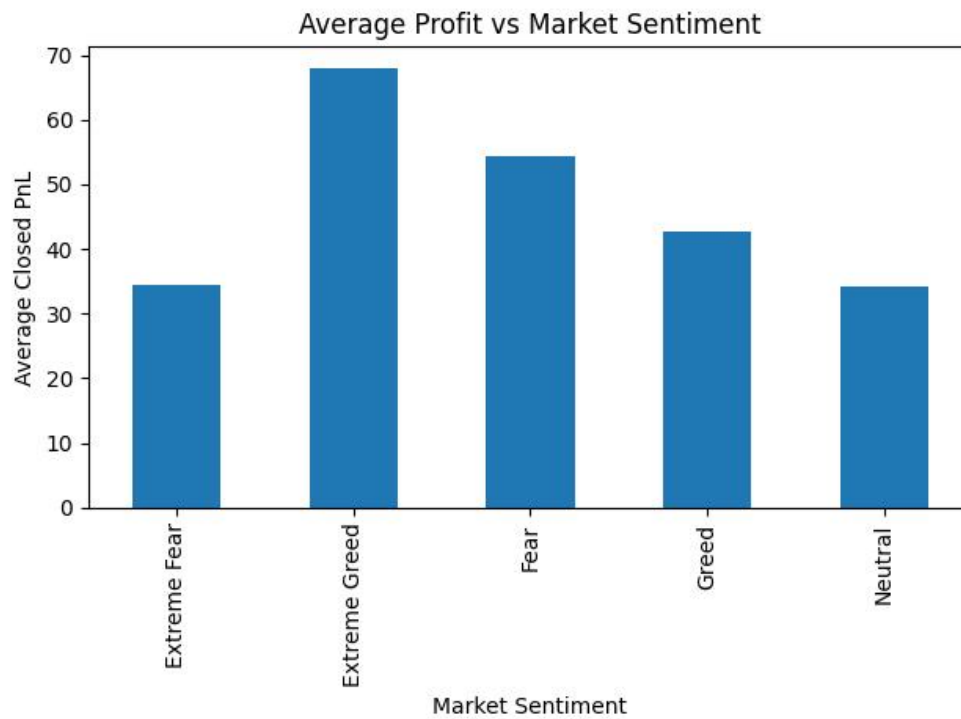
1. Collected historical trading and sentimental datasets
2. Cleaned and standardized data
3. Merged datasets using date column
4. Performed statistical analysis
5. Created visualizations to interpret results

7. Visualizations

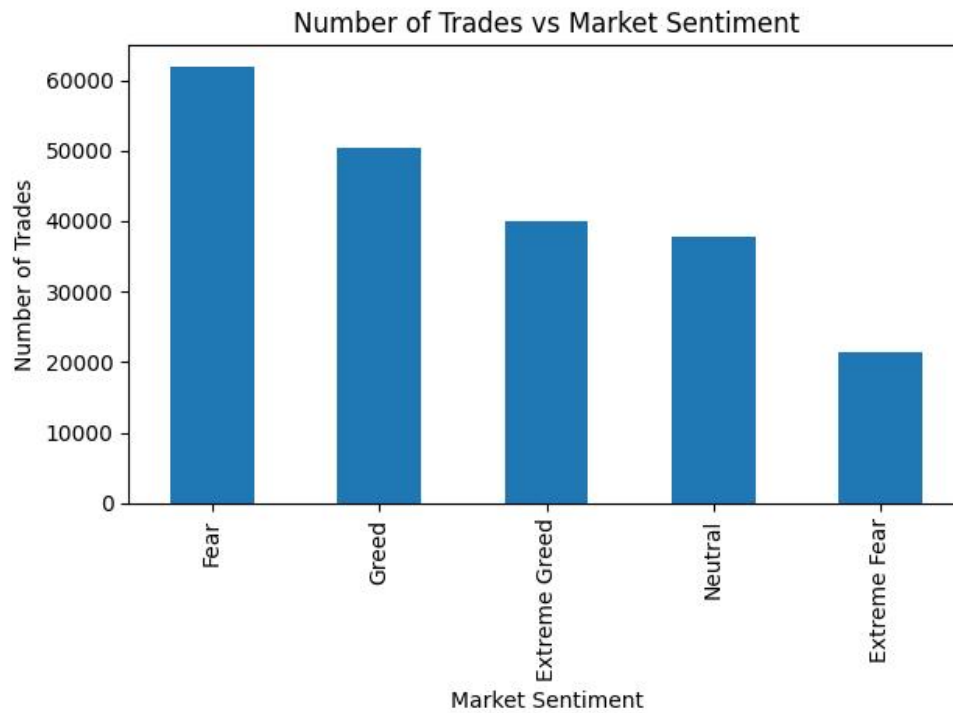
profit distribution



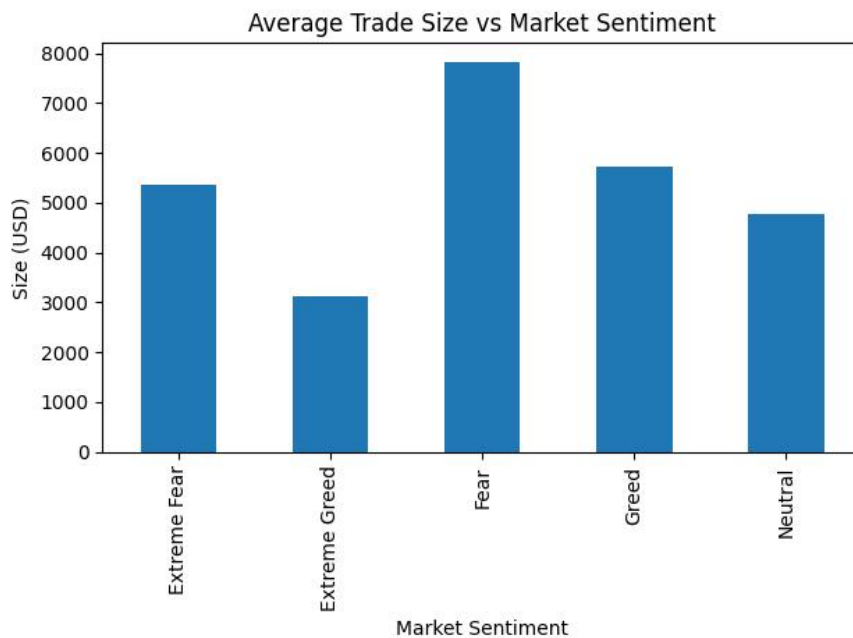
- Average Profit vs Market Sentiment



- Trade Count vs Market Sentiment



- Average Trade Size vs Market Sentiment



7. Tools & Technologies Used:

1. Python

2.Panda

3.Mathplotlib

4.Google collab

5.Csv datasets

8. Key Findings

- Highest average profits were observed during Extreme Greed sentiment.
- Fear and Neutral sentiments showed moderate profitability.
- Trade volume increased significantly during high sentiment phases.
- Profit distribution indicates presence of outliers.

9. Conclusion

The analysis demonstrates a clear relationship between market sentiment and trading performance. Understanding sentiment-driven behavior can help traders and analysts make informed decisions.