Data Science Assignment – Web3 Trading Team

Candidate:

Date:

Introduction

The goal of this assignment is to analyze the relationship between trader behavior and market sentiment (Fear vs Greed Index). The objective is to uncover patterns that can support smarter trading strategies.

Dataset Overview

1. Fear & Greed Index
   - 2,644 rows, 4 columns
   - Columns: timestamp, value, classification, date

2. Historical Trader Data
   - 211,224 rows, 16 columns
   - Columns: Account, Coin, Execution Price, Size Tokens, Size USD, Side, Timestamp, Closed PnL, etc.

Methodology

1. Converted timestamps into proper datetime formats.
2. Removed duplicates and handled missing values.
3. Merged trader activity with daily sentiment using date.
4. Analyzed profitability, trade volume, and risk metrics.

Analysis & Results

Profitability vs Sentiment

Average Closed PnL was compared across different sentiment categories.

Trade Volume vs Sentiment

Trade size (USD) was analyzed across Fear vs Greed days.

Risk Metrics

Trade frequency, PnL volatility, and approximate leverage were calculated.

Key Insights

1. Traders take larger positions during Greed, but profitability may not always improve.
2. PnL volatility increases during Extreme Greed, indicating higher uncertainty.
3. Fear days sometimes yield stronger profitability, suggesting contrarian strategies.

Conclusion

This analysis shows how trader behavior aligns with sentiment indicators. Sentiment can provide useful signals for strategy design, although limitations exist. Future work can integrate additional market data and predictive modeling.