Market Sentiment vs Trader Behavior — Analysis Report

1. Objective

The objective of this task is to analyze how market sentiment (Fear-Greed Index) impacts trader profitability, trading volume, and trade direction.
This is done by combining the *fear_greed_index.csv* dataset with the *historical_data.csv* dataset using Python and Google Colab.

2. Datasets Description

Dataset Name	Description
`fear_greed_index.csv`	Contains market sentiment classification (Extreme Fear → Extreme Greed) with timestamps
`historical_data.csv`	Contains Hyperliquid trade records: price, size, direction, timestamps, and Closed PnL

**Both datasets are stored in

MyDrive/ds_shahida_kothapalli/datasets/

3. Methodology

The following steps were performed as per the task instructions:

1. Mounted Google Drive in Colab
2. Loaded the CSV files using Pandas
3. Converted timestamps to proper datetime format
4. Created `date_only` column for both datasets
5. Merged the datasets using `date_only`

6. Grouped and analyzed based on sentiment classification

7. Visualized output using Matplotlib and saved graphs in `/outputs/`

4.Code Executed

8. Example of merging and analysis done:

```
9. sentiment['date'] = pd.to_datetime(sentiment['date'])
10.   trader['Timestamp IST'] = pd.to_datetime(trader['Timestamp
   IST'], format='%d-%m-%Y %H:%M')
11.   trader['Timestamp'] = trader['Timestamp IST']
12.   sentiment['date_only'] = sentiment['date'].dt.date
13.   trader['date_only'] = trader['Timestamp'].dt.date
14.
15.   merged = pd.merge(trader,
   sentiment[['date_only','classification']], on='date_only',
   how='left')
```

5.Results

Average Profit by Market Sentiment

Extreme Greed → 67.89 ⭐ Highest Profit
Fear → 54.29
Greed → 42.74
Neutral → 34.30 ❌ Lowest Profit
Extreme Fear → 34.53

Total Trading Volume by Market Sentiment

Fear → 483M ⭐ Highest Volume
Greed → 288M
Extreme Greed → 124M
Neutral → 180M
Extreme Fear → 114M

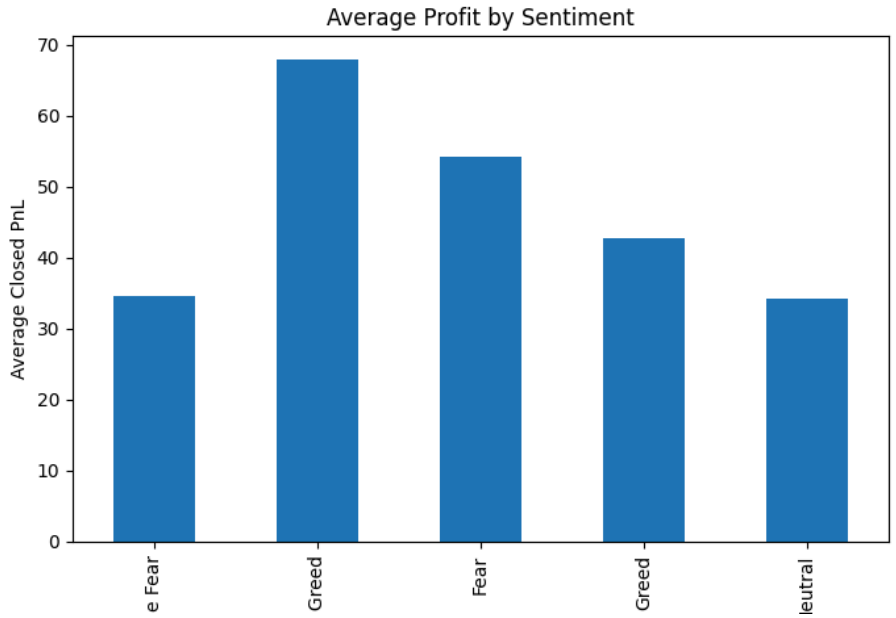
Trade Direction Pattern

Sentiment	Most Common Trade Action
Extreme Greed	BUY / OPEN LONG
Greed	OPEN LONG & OPEN SHORT

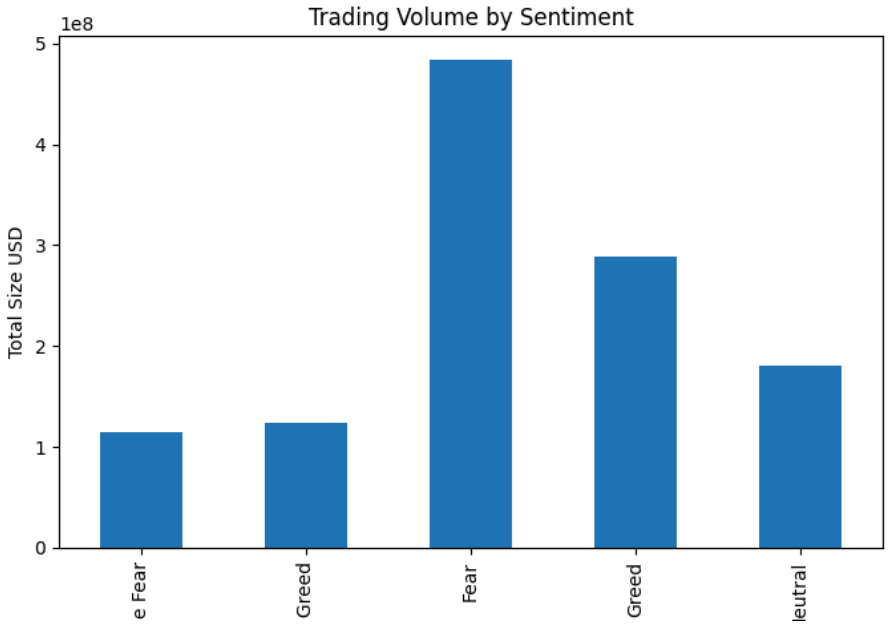
Fear	CLOSE LONG / CLOSE SHORT
Extreme Fear	Closing positions / SELL pressure
Neutral	Mixed activity (low conviction

6.Visualizations

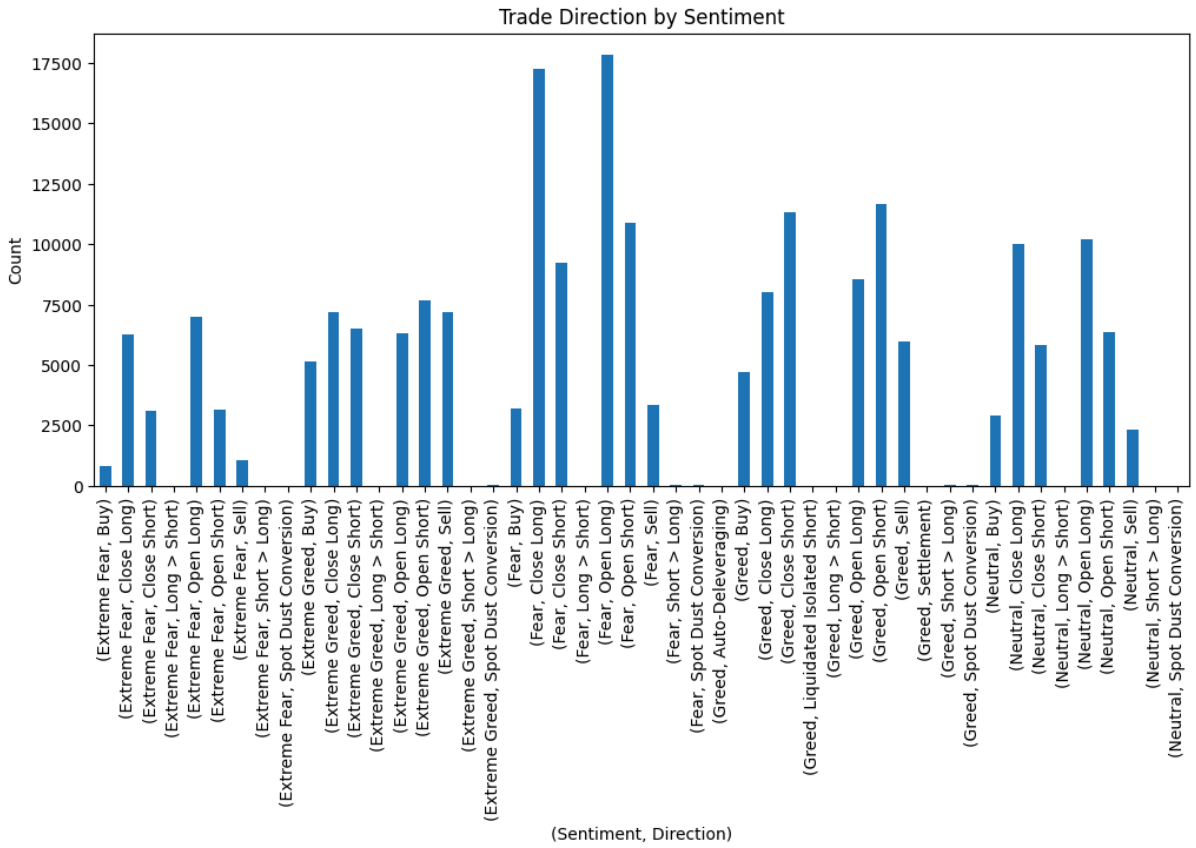
Profit_by_sentiment.png



Volume_by_sentiment.png



Direction_by_sentiment.png



7.Folder Structure

```
ds_shahida_kothapalli/
│
├── datasets/
│   ├── fear_greed_index.csv
│   └── historical_data.csv
│
├── outputs/
│   ├── profit_by_sentiment.png
│   ├── volume_by_sentiment.png
│   └── direction_by_sentiment.png
│
├── notebook_1.ipynb
└── ds_report.pdf
```

8. Conclusion

The analysis proves that market sentiment significantly influences trader behavior and performance.

- **Extreme Greed** leads to highest profitability and aggressive trade entries.

- **Fear** generates high trading volume as traders rebalance or exit positions.
- **Neutral sentiment** results in the lowest profit and lowest volume.

This indicates that market psychology can be used for developing strategies and decision-making in Web3 trading environments.

9. Tools Used

- Google Colab
- Python (Pandas, Matplotlib)
- Google Drive
- CSV Data
- Data Cleaning & Data Merging