Financial Sentiment Analysis

Author: Kashish Yadav
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Importing the necessary libraries

Imported Pandas, Matplotlib and Seaborn libraries.

Exploring and Cleaning the data

Using head function to look at the raw data.

Using the info function to:

1. Check the total number of rows: 211224 rows in trades dataset and 2644 rows in sentiment dataset

2. Detecting any null values: No null values present

3. Checking the datatypes of each column to see if any need correction: Date data needs its datatype changed for further use

Split the Date and Time data to different columns for further use in analysis

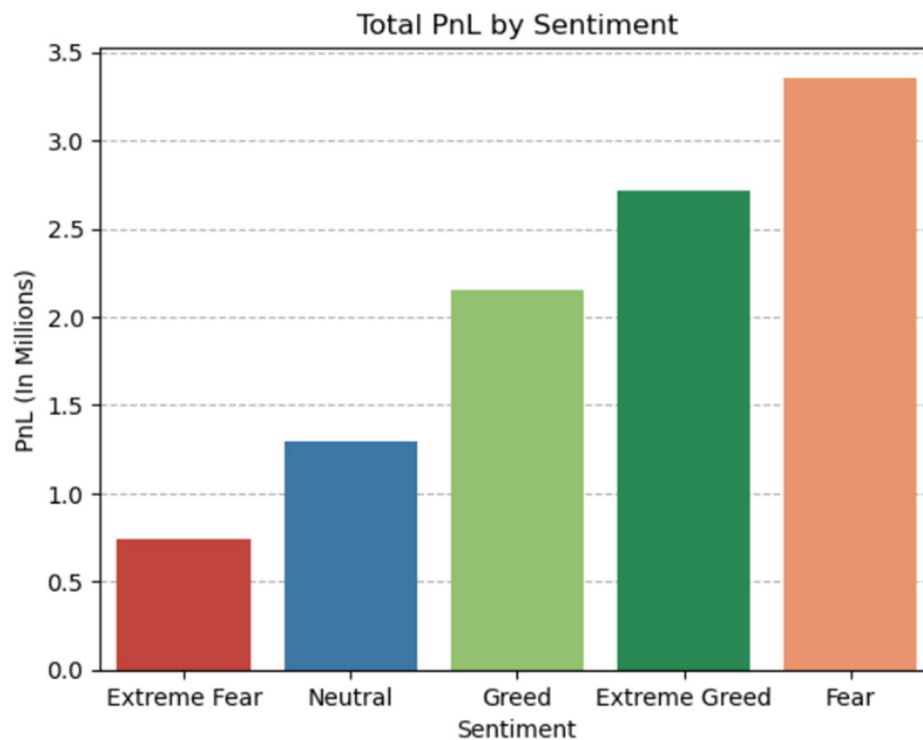# Changed the datatype of Date data in both datasets to Date datatype.

Merged the 2 datasets on the Date column to utilize data from both datasets.

Created a palette dictionary to use uniform colors for sentiments in each visualization.

EDA

1. Trader Performance (Sum of Closed PnL) vs Sentiment

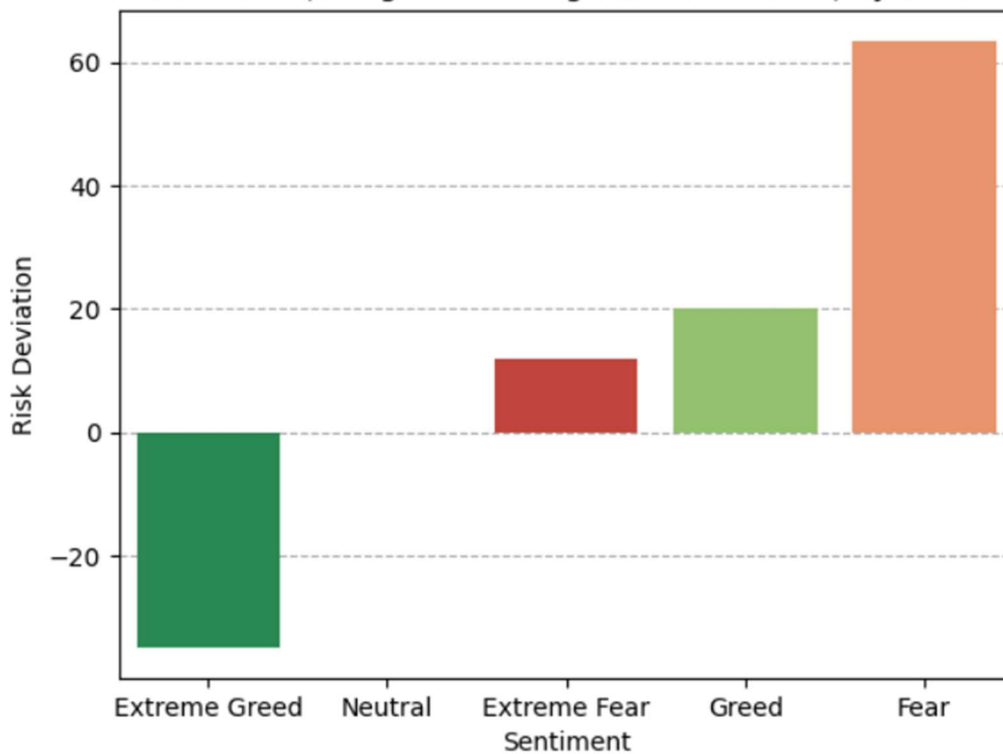|	classification	Closed PnL	pnl_contribution%
0	Extreme Fear	7.391102e+05	7.21
1	Extreme Greed	2.715171e+06	26.48
2	Fear	3.357155e+06	32.74
3	Greed	2.150129e+06	20.97
4	Neutral	1.292921e+06	12.61

Total PnL by Sentiment

Insight: Trading performance is highest during Fear periods, contributing 32.74% of total PnL, followed by Extreme Greed at 26.48%. Conversely, Extreme Fear periods generate the lowest PnL, contributing only 7.21%.

2. Avg Risk (Size) vs Sentiment

	classification	Size USD	Deviation%
0	Extreme Fear	5349.73	11.855154
1	Extreme Greed	3112.25	-34.927332
2	Fear	7816.11	63.423610
3	Greed	5736.88	19.949903
4	Neutral	4782.73	0.000000

Risk Deviation (Using Neutral avg size as baseline) by Sentiment
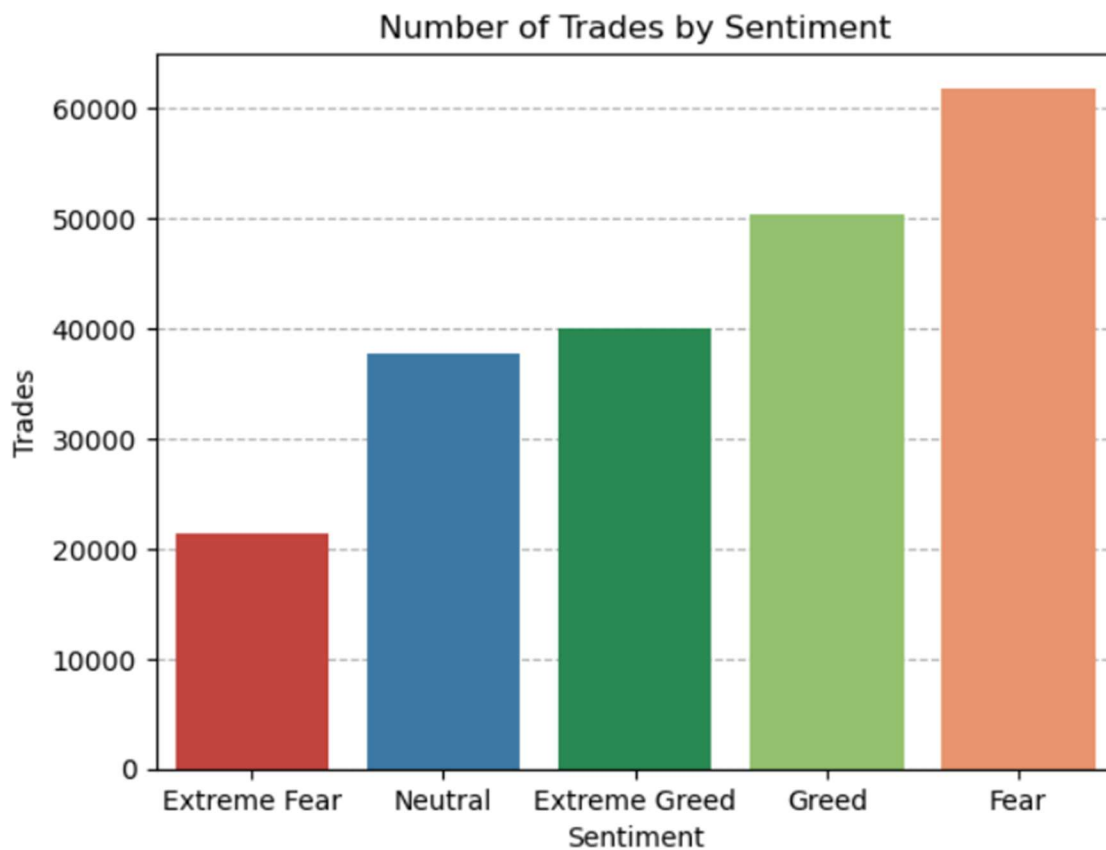

Insight: Using Average Risk during Neutral sentiment, the following insights have been generated:

    a. Average Risk increases by ~63.4% during Fear sentiment.

    b. Average Risk decreased by ~34.9% during Extreme Greed sentiment.

3. Trades Quantity vs Sentiment

	classification	trades	trade%
0	Extreme Fear	21400	10.13
1	Extreme Greed	39992	18.93
2	Fear	61837	29.28
3	Greed	50303	23.82
4	Neutral	37686	17.84

Number of Trades by Sentiment

Insight: Analysis of trade sentiments shows that Fear dominates with 29.28% of total trades (61837 trades), while Extreme Fear is comparatively low at 10.13% (21400 trades).

Recommendations

1. Since Fear periods have high activity, traders could explore **contrarian strategies** — buying undervalued positions when the crowd is fearful.

2. Lower risk-taking during euphoric phases — the drop in average risk suggests traders may over-leverage incorrectly; systems should **cap trade sizes** or **reduce leverage** in such periods.

3. Allocate more capital to strategies tuned for Fear/Extreme Greed periods and reduce allocation during Extreme Fear.