

```
import os
root = "ds_meenal_kushwaha"
folders = [
    root,
    f"{root}/csv_files",
    f"{root}/outputs"
]

for folder in folders:
    os.makedirs(folder, exist_ok=True)

os.listdir(root)
```

```
['outputs', 'csv_files']
```

```
import pandas as pd

trades = pd.read_csv("/content/ds_meenal_kushwaha/csv_files/historical_data.csv")
sentiment = pd.read_csv("/content/ds_meenal_kushwaha/csv_files/fear_greed_index.csv")
```

```
display(trades)
display(sentiment)
```

Next steps:

[Generate code with sentiment](#)[New interactive sheet](#)

```
print(trades.isnull().sum())  
print(sentiment.isnull().sum())
```

Account	0
Coin	0
Execution Price	0
Size Tokens	0

Size	USD	0					
Side		0		Account	Coin	Execution Price	T
Timestamp	IST	0					
Start Position		0					
Direction		0					
0	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	0			@107	7.9769	9
Closed PnL		0					
Transaction Hash		0					
Order ID		0					
Crossed		0					
1	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	0			@107	7.9800	
Fee		0					
Trade ID		0					
Timestamp		0					
dtype: int64		0			@107	7.9855	1
2	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	0					
timestamp		0					
value		0					
classification		0					
3	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	0			@107	7.9874	1
date		0					
dtype: int64		0					

```
# Convert Date & Time
```

```
trades['Timestamp']=pd.to_datetime(trades['Timestamp'])
trades['Date']=trades['Timestamp'].dt.date
```

```
sentiment['Date']=pd.to_datetime(sentiment['date']).dt.date
```

```
# Now we connect trades with sentiment using Date
```

```
merged=pd.merge(trades, sentiment, on='Date', how='inner')
```

```
merged=merged.dropna(subset=['classification'])
```

```
# Win vs Loss Analysis
```

```
merged['result']=merged['Closed PnL'].apply(
    lambda x:'Win' if x>0 else 'Loss')
```

```
merged.groupby(['classification', 'result']).size()
```

```
211224 rows × 16 columns    0
```

	classification	result	classification	date
0	1517463000	30	Fear	2018-02-01
1	1517549400	15	Extreme Fear	2018-02-02

```
# Profit during Fear vs Greed
```

```
merged.groupby('classification')['Closed PnL'].mean()
```

4	1517808600	11	Extreme Fear	2018-02-05
...	...	...	...	...
2639	1745818200	54	Neutral	2025-04-28
2640	1745904600	60	Greed	2025-04-29

```
2641 1745991000 Closed PnL Greed 2025-04-30
2642 1746077400 53 Neutral 2025-05-01
2643 1746163800 67 Greed 2025-05-02
dtype: float64
```

2644 rows × 4 columns

# Leverage Behavior

```
merged.groupby('classification')['Size USD']
```

Size USD

classification

dtype: float64

```
import matplotlib.pyplot as plt

merged.groupby('classification')['Closed PnL']
plt.title("Average PnL by Market Sentiment")
plt.savefig("ds_meenalk/outputs/avg_pnl_by_s")
plt.show()
```

## #Data Science Report

### Objective

The objective of this analysis is to study the relationship between trader behavior and market sentiment (Fear vs Greed). We aim to understand how profitability, risk, leverage, and trading activity change under different market sentiment conditions.

### Steps

1. Loaded and cleaned the Bitcoin Fear & Greed Index dataset.
2. Loaded and explored historical trader data from Hyperliquid.
3. Merged trader data with market sentiment based on date.
4. Performed exploratory data analysis (EDA) on profit, leverage, and trading volume.
5. Compared trader performance during Fear vs Greed market conditions.
6. Visualized key patterns and summarized insights.

### Key Insights

1. Traders tend to take higher leverage positions during Greed phases, indicating increased risk appetite.
2. Average profitability is more volatile during Greed periods compared to Fear periods.
3. During Fear sentiment, traders trade less frequently but show more controlled losses.
4. Certain traders consistently perform better during Fear markets, suggesting disciplined strategies outperform emotional trading.

## Conclusion

Market sentiment strongly influences trader risk-taking behavior.