```
import os
os.makedirs("outputs", exist_ok=True)
```

```
from google.colab import files
uploaded = files.upload()
```

Choose Files 2 files

- **historical_data.csv**(text/csv) - 47516935 bytes, last modified: 7/27/2025 - 100% done
- **fear_greed_index.csv**(text/csv) - 90801 bytes, last modified: 7/27/2025 - 100% done

```
Saving historical_data.csv to historical_data.csv
Saving fear_greed_index.csv to fear_greed_index.csv
```

```
import pandas as pd
trader_df = pd.read_csv('historical_data.csv')
sentiment_df = pd.read_csv('fear_greed_index.csv')
```

```
trader_df.head()
sentiment_df.head()
```

	timestamp	value	classification	date
0	1517463000	30	Fear	2018-02-01
1	1517549400	15	Extreme Fear	2018-02-02
2	1517635800	40	Fear	2018-02-03
3	1517722200	24	Extreme Fear	2018-02-04
4	1517808600	11	Extreme Fear	2018-02-05

Next steps: Generate code with sentiment_df | View recommended plots | New interactive sheet

```
print(trader_df.columns.tolist())
print(sentiment_df.columns.tolist())
```

```
['Account', 'Coin', 'Execution Price', 'Size Tokens', 'Size USD', 'Side', 'Timestamp IST', 'Start Position', 'Direction', 'Closed PnL',
['timestamp', 'value', 'classification', 'date']
```

```
trader_df.columns = trader_df.columns.str.strip().str.lower()
sentiment_df.columns = sentiment_df.columns.str.strip().str.lower()
```

```
trader_df['timestamp ist'] = pd.to_datetime(trader_df['timestamp ist'], errors='coerce')
trader_df['date'] = trader_df['timestamp ist'].dt.date

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

```
merge_df = pd.merge(trader_df, sentiment_df, on='date', how='left')
```

```
merge_df[['account', 'coin', 'closed pnl', 'side', 'classification']].head(100)
```

	account	coin	closed pnl	side	classification
0	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	0.000000	BUY	Greed
1	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	0.000000	BUY	Greed
2	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	0.000000	BUY	Greed
3	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	0.000000	BUY	Greed
4	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	0.000000	BUY	Greed
...	...	...	...	...	...
95	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	101.447367	SELL	Extreme Greed
96	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	120.841353	SELL	Extreme Greed
97	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	120.928211	SELL	Extreme Greed
98	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	101.193105	SELL	Extreme Greed
99	0xae5eacaf9c6b9111fd53034a602c192a04e082ed	@107	100.930641	SELL	Extreme Greed

100 rows × 5 columns

```
merge_df.to_csv('clean_trader_sentiment.csv', index=False)
```

```
merge_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 211224 entries, 0 to 211223
Data columns (total 20 columns):
 #   Column            Non-Null Count   Dtype
---  ------            --------------   -----
 0   account           211224 non-null  object
 1   coin              211224 non-null  object
 2   execution price   211224 non-null  float64
 3   size tokens       211224 non-null  float64
 4   size usd          211224 non-null  float64
 5   side              211224 non-null  object
 6   timestamp ist     79225 non-null   datetime64[ns]
 7   start position    211224 non-null  float64
 8   direction         211224 non-null  object
 9   closed pnl        211224 non-null  float64
 10  transaction hash  211224 non-null  object
 11  order id          211224 non-null  int64
 12  crossed           211224 non-null  bool
 13  fee               211224 non-null  float64
 14  trade id          211224 non-null  float64
 15  timestamp_x       211224 non-null  float64
 16  date              79225 non-null   object
 17  timestamp_y       35864 non-null   float64
 18  value             35864 non-null   float64
 19  classification    35864 non-null   object
dtypes: bool(1), datetime64[ns](1), float64(10), int64(1), object(7)
memory usage: 30.8+ MB
```

```
merge_df.isnull().sum().sort_values(ascending = False)
```

	0
timestamp_y	175360
value	175360
classification	175360
timestamp ist	131999
date	131999
execution price	0
coin	0
account	0
size tokens	0
size usd	0
side	0
start position	0
order id	0
transaction hash	0
closed pnl	0
direction	0
timestamp_x	0
trade id	0
fee	0
crossed	0

dtype: int64

```
merge_df_clean = merge_df.dropna(subset = ['classification', 'closed pnl', 'coin', 'side'])
```

```
merge_df_clean.duplicated().sum()
```

```
np.int64(0)
```

```
merge_df_clean.describe()
```

	execution price	size tokens	size usd	timestamp ist	start position	closed pnl	order id	fee	trade id
count	35864.000000	3.586400e+04	3.586400e+04	35864	3.586400e+04	35864.000000	3.586400e+04	35864.000000	3.586400e+04
mean	7596.431745	1.004709e+04	4.920359e+03	2024-11-29 15:03:36.594914560	2.701678e+04	101.070948	5.844251e+10	1.028091	5.619946e+14
min	0.000005	5.630000e-06	0.000000e+00	2023-01-05 01:06:00	-1.050000e+07	-117990.104100	1.732711e+08	-1.175712	0.000000e+00
25%	3.245975	2.588700e+00	1.665300e+02	2024-09-12 12:47:00	-2.638983e+02	0.000000	5.240387e+10	0.012518	2.780000e+14
50%	16.390000	2.820000e+01	5.979050e+02	2025-01-05 07:06:00	7.010137e+01	0.000000	6.815193e+10	0.084384	5.620000e+14
75%	172.590000	1.990000e+02	2.220243e+03	2025-03-04 13:18:00	1.090053e+04	10.735428	7.641909e+10	0.398132	8.460000e+14
max	103265.000000	1.582244e+07	1.190250e+06	2025-05-02 23:59:00	3.050948e+07	71535.716740	9.014923e+10	212.298921	1.130000e+15
std	23547.203213	2.060973e+05	2.203314e+04	NaN	4.308246e+05	1364.610762	2.240666e+10	4.937482	3.262737e+14

```
merge_df_clean['classification'].value_counts()
```

classification	count
Fear	13869
Greed	11292
Extreme Greed	5621
Neutral	2756
Extreme Fear	2326

dtype: int64

```
merge_df_clean['side'].value_counts()
```

side	count
SELL	19301
BUY	16563

dtype: int64

```
merge_df_clean['coin'].value_counts().head(10)
```

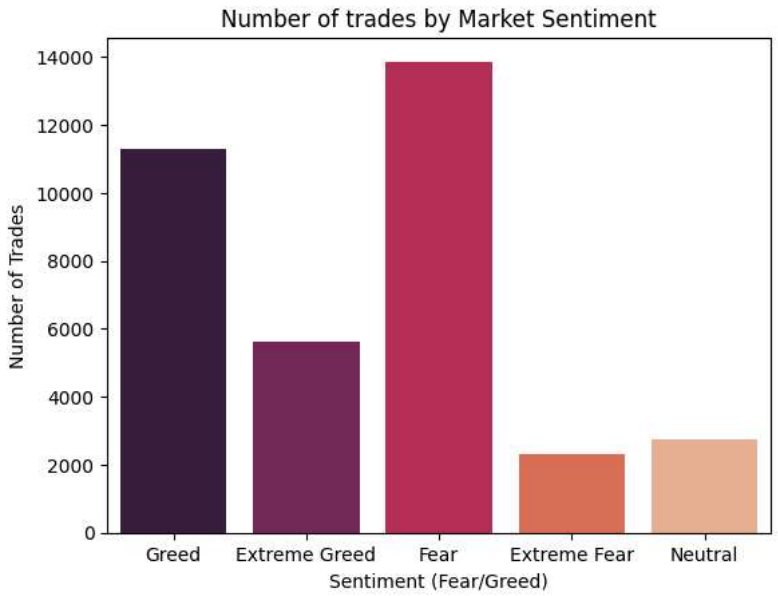
coin	count
HYPE	7302
@107	6908
ETH	4757
BTC	3162
SOL	1720
PURR/USDC	539
FTT	437
WLD	414
FARTCOIN	412
@4	391

dtype: int64

```
merge_df_clean = merge_df.dropna(subset=['classification', 'closed pnl', 'coin', 'side'])
```

```
merge_df_clean = merge_df_clean.drop_duplicates()
```

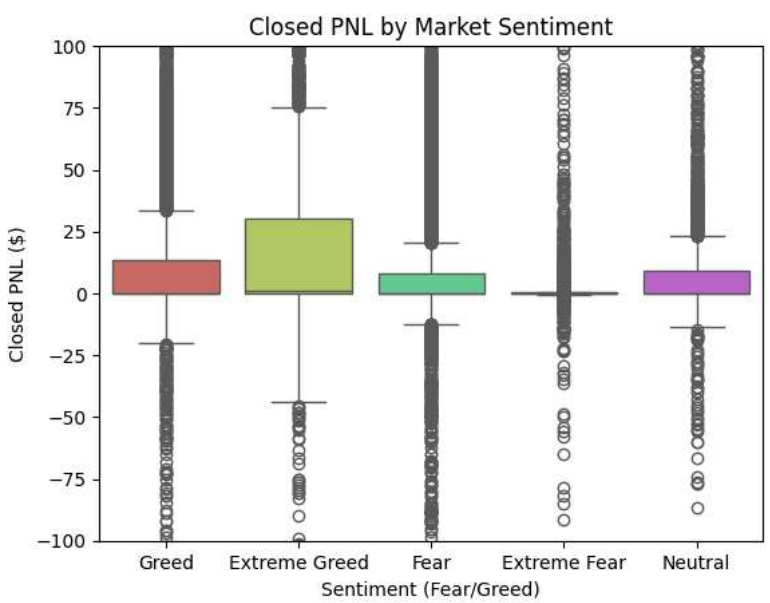
```
import seaborn as sns
import matplotlib.pyplot as plt

sns.countplot(data = merge_df_clean, x = 'classification', palette = 'rocket',hue='classification')
plt.title("Number of trades by Market Sentiment")
plt.xlabel("Sentiment (Fear/Greed)")
plt.ylabel("Number of Trades")
plt.show()
plt.savefig("outputs/trades_by_Sentiment.png")
```




```
<Figure size 640x480 with 0 Axes>
```

Double-click (or enter) to edit

```
sns.boxplot(data = merge_df_clean, x = 'classification', y = 'closed pnl', palette = 'hls',hue='classification')
plt.title("Closed PNL by Market Sentiment")
plt.xlabel("Sentiment (Fear/Greed)")
plt.ylabel("Closed PNL ($)")
plt.ylim(-100,100)
plt.show()
plt.savefig("outputs/pnl_by_sentiment.png")
```




```
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```
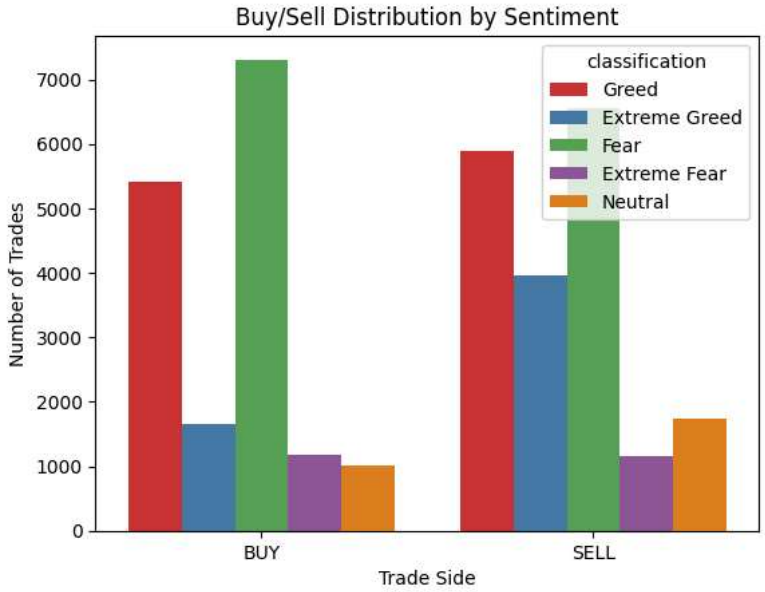
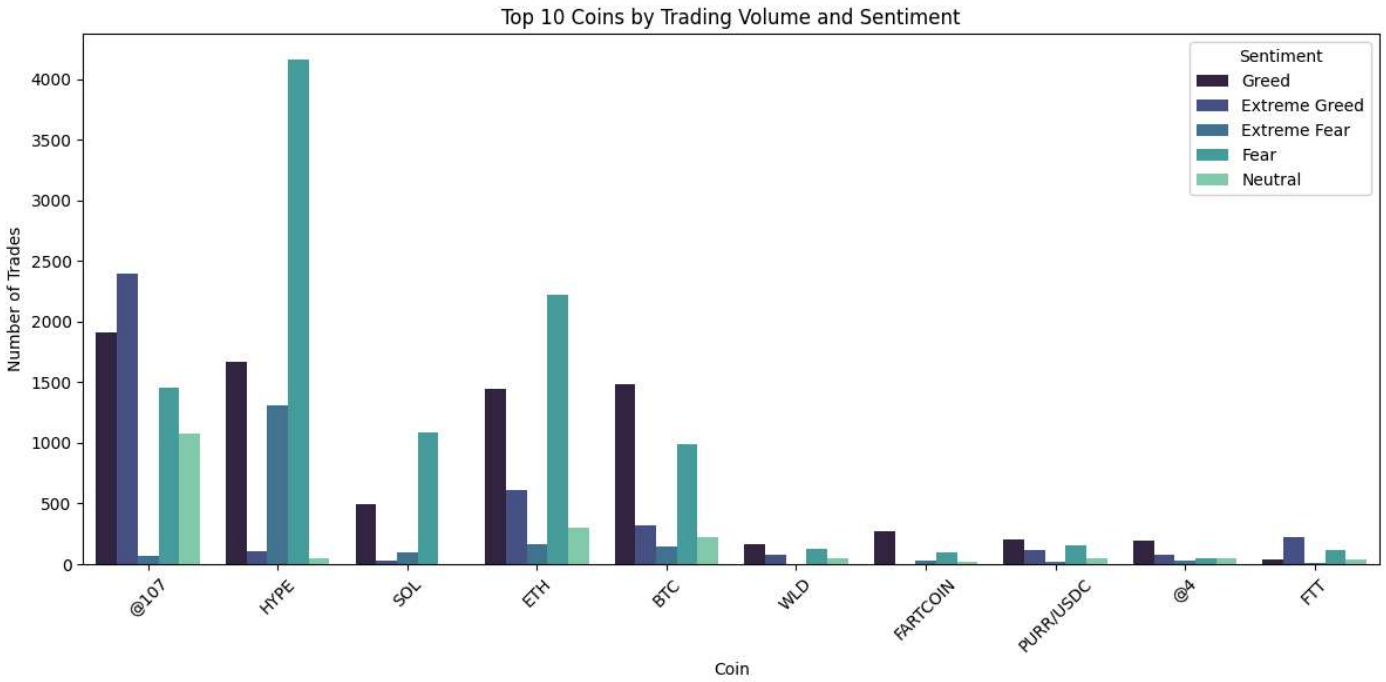

```
sns.countplot(data = merge_df_clean, x = 'side', hue ='classification', palette = 'Set1')
plt.title("Buy/Sell Distribution by Sentiment")
plt.xlabel("Trade Side")
plt.ylabel("Number of Trades")
plt.show()
plt.savefig("outputs/Side_by_Sentiment.png")
```




```
<Figure size 640x480 with 0 Axes>
```

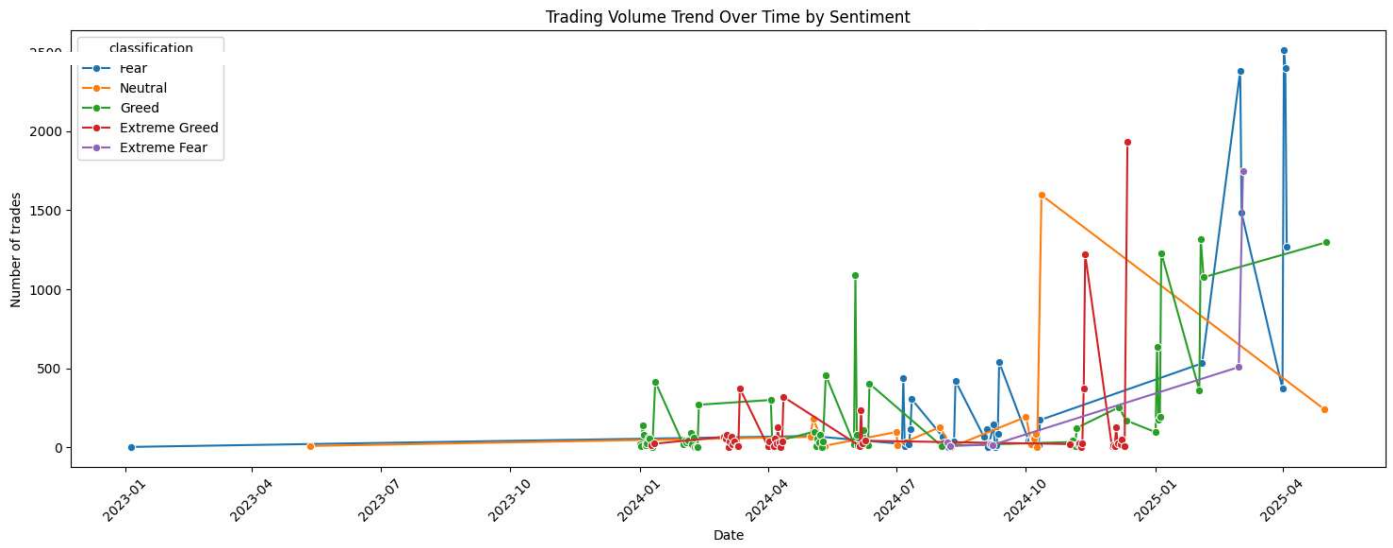
```
top_coins_overall = ( merge_df_clean['coin'].value_counts().head(10).index)
filtered = merge_df_clean[merge_df_clean['coin'].isin(top_coins_overall)]

plt.figure(figsize=(12,6))
sns.countplot(data = filtered, x='coin', hue='classification', palette = 'mako')
plt.xticks(rotation = 45)
plt.title("Top 10 Coins by Trading Volume and Sentiment")
plt.xlabel("Coin")
plt.ylabel("Number of Trades")
plt.tight_layout()
plt.legend(title = 'Sentiment')
plt.show()
plt.savefig("outputs/Top10_Coins_Volume_by_Sentiment.png")
```




```
<Figure size 640x480 with 0 Axes>
```

```
trend_df = merge_df_clean.groupby(['date','classification']).size().reset_index(name = 'trade_count'
```

```
plt.figure(figsize = (18,6))
sns.lineplot(data = trend_df, x = 'date', y = 'trade_count', hue = 'classification', marker='o')
plt.title("Trading Volume Trend Over Time by Sentiment")
plt.xlabel("Date")
plt.ylabel("Number of trades")
plt.xticks(rotation = 45)
plt.show()
```




```
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```

```
top_pnl_coins = ( merge_df_clean['coin'].value_counts().head(10).index)

coin_pnl = (merge_df_clean[merge_df_clean['coin'].isin(top_pnl_coins)].groupby(['coin', 'classification'])['closed pnl'].mean().unstack().fi

plt.figure(figsize =(10,6))
sns.heatmap(coin_pnl, annot = True, cmap = 'magma', fmt = '.1f', linewidth = 0.5)
plt.title("Average Closed PNL by Coin and Sentiment")
```