```
from google.colab import files

uploaded = files.upload()
```

Choose Files historical_data.csv

- **historical_data.csv**(text/csv) - 47516935 bytes, last modified: 7/10/2025 - 100% done

```
from google.colab import files

uploaded = files.upload()
```

Choose Files fear_greed_index.csv

- **fear_greed_index.csv**(text/csv) - 90801 bytes, last modified: 7/10/2025 - 100% done

```
import pandas as pd

trader_df = pd.read_csv('historical_data.csv')

sentiment_df = pd.read_csv('fear_greed_index.csv')

print("Trader Data:")
print(trader_df.head())
print("\nSentiment Data:")
print(sentiment_df.head())
```

```
Trader Data:
                                      Account  Coin  Execution Price  \
0  0xae5eacaf9c6b9111fd53034a602c192a04e082ed  @107           7.9769
1  0xae5eacaf9c6b9111fd53034a602c192a04e082ed  @107           7.9800
2  0xae5eacaf9c6b9111fd53034a602c192a04e082ed  @107           7.9855
3  0xae5eacaf9c6b9111fd53034a602c192a04e082ed  @107           7.9874
4  0xae5eacaf9c6b9111fd53034a602c192a04e082ed  @107           7.9894

   Size Tokens  Size USD Side     Timestamp IST  Start Position Direction  \
0       986.87   7872.16  BUY  02-12-2024 22:50        0.000000       Buy
1        16.00    127.68  BUY  02-12-2024 22:50      986.524596       Buy
2       144.09   1150.63  BUY  02-12-2024 22:50     1002.518996       Buy
3       142.98   1142.04  BUY  02-12-2024 22:50     1146.558564       Buy
4         8.73     69.75  BUY  02-12-2024 22:50     1289.488521       Buy

   Closed PnL                                   Transaction Hash     Order ID  \
0         0.0  0xec09451986a1874e3a980418412fcd0201f500c95bac...  52017706630
1         0.0  0xec09451986a1874e3a980418412fcd0201f500c95bac...  52017706630
2         0.0  0xec09451986a1874e3a980418412fcd0201f500c95bac...  52017706630
3         0.0  0xec09451986a1874e3a980418412fcd0201f500c95bac...  52017706630
4         0.0  0xec09451986a1874e3a980418412fcd0201f500c95bac...  52017706630

   Crossed       Fee      Trade ID     Timestamp
0     True  0.345404  8.950000e+14  1.730000e+12
1     True  0.005600  4.430000e+14  1.730000e+12
2     True  0.050431  6.600000e+14  1.730000e+12
3     True  0.050043  1.080000e+15  1.730000e+12
4     True  0.003055  1.050000e+15  1.730000e+12

Sentiment Data:
    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
```

```
print(trader_df.info())
print(sentiment_df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 211224 entries, 0 to 211223
Data columns (total 16 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    211224 non-null  object 
 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        211224 non-null  float64
dtypes: bool(1), float64(8), int64(1), object(6)
memory usage: 24.4+ MB
None
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2644 entries, 0 to 2643
Data columns (total 4 columns):
 #   Column          Non-Null Count  Dtype 
---  ------          --------------  ----- 
 0   timestamp       2644 non-null   int64 
 1   value           2644 non-null   int64 
 2   classification  2644 non-null   object
 3   date            2644 non-null   object
dtypes: int64(2), object(2)
memory usage: 82.8+ KB
None
```

```
print("Trader Columns:", trader_df.columns.tolist())
print("Sentiment Columns:", sentiment_df.columns.tolist())
```

```
Trader Columns: ['Account', 'Coin', 'Execution Price', 'Size Tokens', 'Size USD', 'Side', 'Timestamp IST', 'Start Position', 'Direction'
Sentiment Columns: ['timestamp', 'value', 'classification', 'date']
```

```
trader_df['time'] = pd.to_datetime(trader_df['Timestamp IST'], dayfirst=True)
sentiment_df['Date'] = pd.to_datetime(sentiment_df['date'])


sentiment_df['Date'] = pd.to_datetime(sentiment_df['date'])
trader_df['trade_date'] = trader_df['time'].dt.date
sentiment_df['sentiment_date'] = sentiment_df['Date'].dt.date


merged_df = pd.merge(
    trader_df,
    sentiment_df[['sentiment_date', 'classification']],
    left_on='trade_date',
    right_on='sentiment_date',
    how='left'
)

merged_df.rename(columns={'classification': 'sentiment'}, inplace=True)


merged_df.groupby('sentiment')['Closed PnL'].describe()
```

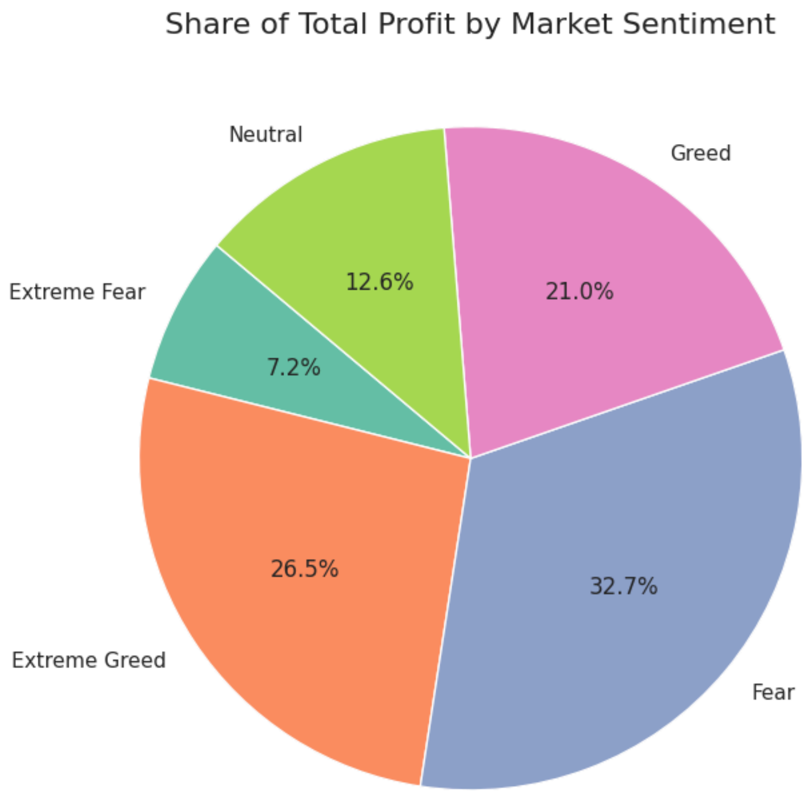
	count	mean	std	min	25%	50%	75%	max
sentiment								
Extreme Fear	21400.0	34.537862	1136.056091	-31036.69194	0.0	0.0	5.635032	115287.00000
Extreme Greed	39992.0	67.892861	766.828294	-10259.46800	0.0	0.0	10.028709	44223.45187
Fear	61837.0	54.290400	935.355438	-35681.74723	0.0	0.0	5.590856	135329.09010
Greed	50303.0	42.743559	1116.028390	-117990.10410	0.0	0.0	4.944105	74530.52371
Neutral	37686.0	34.307718	517.122220	-24500.00000	0.0	0.0	3.995795	48504.09555

```
import os
os.makedirs('ds_tina/outputs', exist_ok=True)
```

Exploring Profitability vs Sentiment

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

```
sns.set_theme(style="whitegrid")
sns.set_palette("Set2")
plt.rcParams['figure.figsize'] = (10, 6)


profit_sum = merged_df.groupby('sentiment')['Closed PnL'].sum()

plt.figure(figsize=(7, 7))
colors = sns.color_palette("Set2")

plt.pie(profit_sum, labels=profit_sum.index, autopct='%1.1f%%', startangle=140, colors=colors)
plt.title('Share of Total Profit by Market Sentiment', fontsize=16)
plt.tight_layout()
plt.savefig('ds_tina/outputs/pie_profit_by_sentiment.png')
plt.show()
```


Share of Total Profit by Market Sentiment

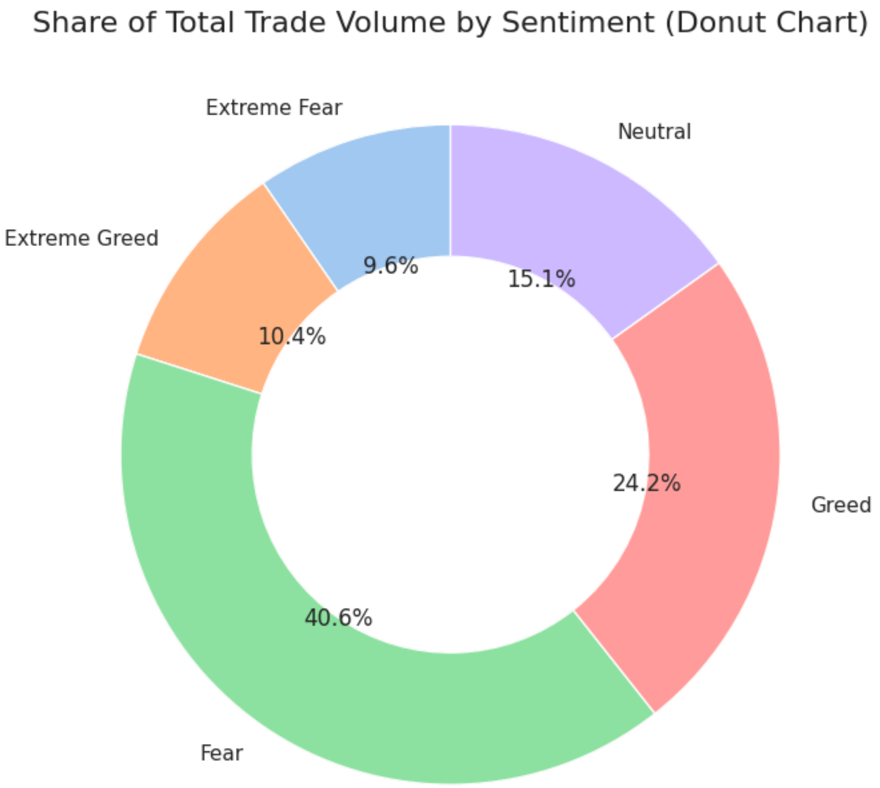
Exploring Volume vs Sentiment

```
merged_df.groupby('sentiment')['Size USD'].describe()
```

sentiment	count	mean	std	min	25%	50%	75%	max
Extreme Fear	21400.0	5349.731843	22306.826180	0.01	282.4825	766.150	2329.9700	1120971.60
Extreme Greed	39992.0	3112.251565	11061.998403	0.00	106.7575	500.050	1882.8375	665771.71
Fear	61837.0	7816.109931	51914.859249	0.00	235.6300	735.960	2499.9700	3921430.72
Greed	50303.0	5736.884375	30533.418602	0.00	184.1300	555.000	2100.7000	2227114.71
Neutral	37686.0	4782.732661	37461.883466	0.01	175.5400	547.655	1994.2050	3641180.84

```
volume_sum = merged_df.groupby('sentiment')['Size USD'].sum()

plt.figure(figsize=(7, 7))
colors = sns.color_palette("pastel")
```

```
plt.pie(volume_sum, labels=volume_sum.index, autopct='%1.1f%%', startangle=90, colors=colors, wedgeprops={'width': 0.4})
plt.title('Share of Total Trade Volume by Sentiment (Donut Chart)', fontsize=16)
plt.tight_layout()
plt.savefig('ds_tina/outputs/donut_volume_by_sentiment.png')
plt.show()
```

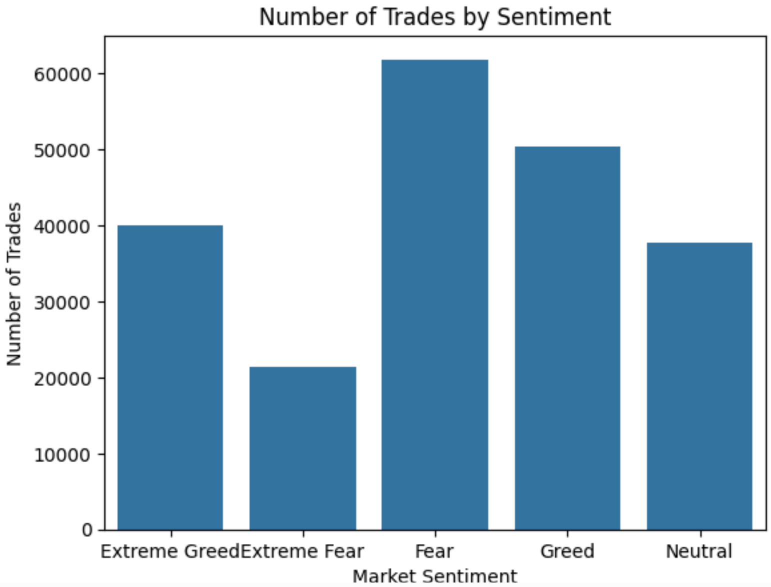


Count of Trades

```
merged_df['sentiment'].value_counts()
```

sentiment	count
Fear	61837
Greed	50303
Extreme Greed	39992
Neutral	37686
Extreme Fear	21400

```
sns.countplot(x='sentiment', data=merged_df)
plt.title('Number of Trades by Sentiment')
plt.xlabel('Market Sentiment')
plt.ylabel('Number of Trades')
plt.savefig('ds_tina/outputs/trade_count_by_sentiment.png')
plt.show()
```

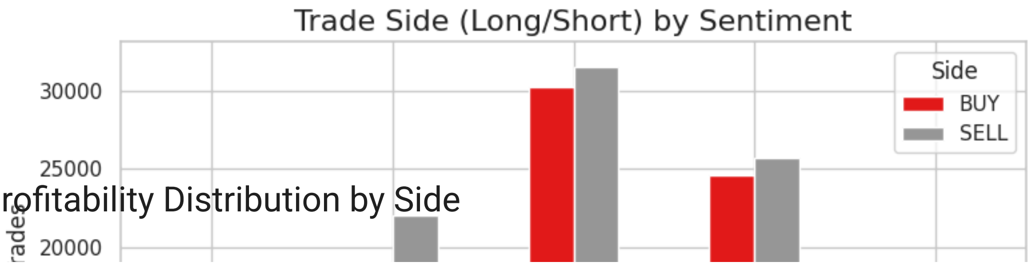


Side vs Sentiment (Long vs Short behavior)

```
side_sentiment = merged_df.groupby(['sentiment', 'Side']).size().unstack().fillna(0)
print(side_sentiment)
```

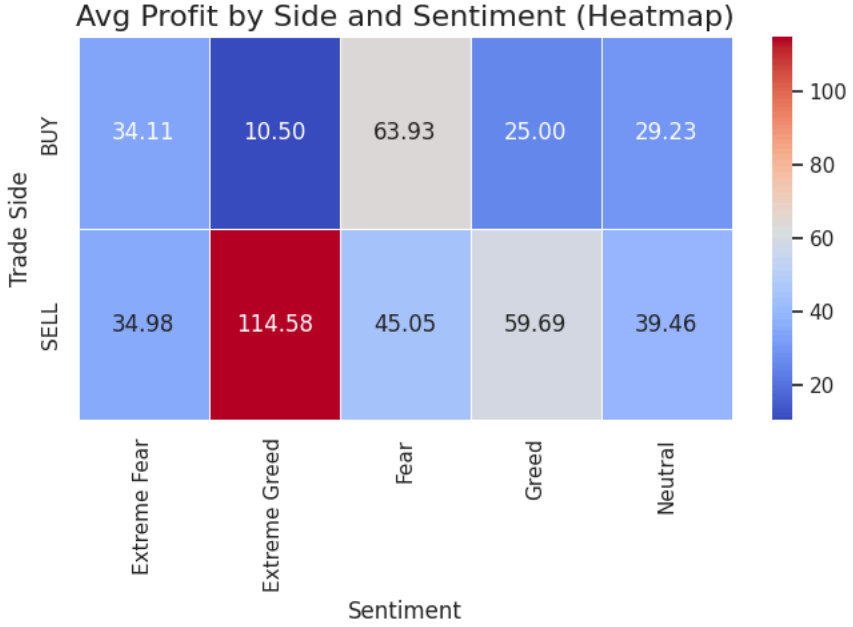
```
Side              BUY   SELL
sentiment                   
Extreme Fear    10935  10465
Extreme Greed   17940  22052
Fear            30270  31567
Greed           24576  25727
Neutral         18969  18717
```

```
side_sentiment = merged_df.groupby(['sentiment', 'Side']).size().unstack().fillna(0)
side_sentiment.plot(kind='bar', stacked=False, colormap='Set1', figsize=(8, 6))

plt.title('Trade Side (Long/Short) by Sentiment', fontsize=16)
plt.xlabel('Sentiment', fontsize=12)
plt.ylabel('Number of Trades', fontsize=12)
plt.legend(title='Side')
plt.tight_layout()
plt.savefig('ds_tina/outputs/side_vs_sentiment.png')
plt.show()
```



Profitability Distribution by Side

```
heatmap_data = merged_df.pivot_table(index='Side', columns='sentiment', values='Closed PnL', aggfunc='mean')

plt.figure(figsize=(7, 5))
sns.heatmap(heatmap_data, annot=True, fmt=".2f", cmap="coolwarm", linewidths=0.5)
plt.title("Avg Profit by Side and Sentiment (Heatmap)", fontsize=16)
plt.xlabel("Sentiment", fontsize=12)
plt.ylabel("Trade Side", fontsize=12)
plt.tight_layout()
plt.savefig('ds_tina/outputs/heatmap_profit_by_side_and_sentiment.png')
plt.show()
```



Cleaned Data

```
merged_df.to_csv('merged_data.csv', index=False)
```

Start coding or generate with AI.

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