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Supplementary

```
%matplotlib inline
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
import seaborn as sns

fb = pd.read_csv(
    'fb_stock_prices_2018.csv', index_col='date', parse_dates=True
)
eq = pd.read_csv('earthquakes-1.csv')
```

```
eq = pd.read_csv('earthquakes-1.csv')
eq
```



	mag	magType	time	place	tsunami	parsed_place	
0	1.35	ml	1539475168010	9km NE of Aguanga, CA	0	California	
1	1.29	ml	1539475129610	9km NE of Aguanga, CA	0	California	
2	3.42	ml	1539475062610	8km NE of Aguanga, CA	0	California	
3	0.44	ml	1539474978070	9km NE of Aguanga, CA	0	California	
4	2.16	md	1539474716050	10km NW of Avenal, CA	0	California	
...	...	...	...	...	...	...	
9327	0.62	md	1537230228060	9km ENE of Mammoth Lakes, CA	0	California	
9328	1.00	ml	1537230135130	3km W of Julian, CA	0	California	
9329	2.40	md	1537229908180	35km NNE of Hatillo, Puerto Rico	0	Puerto Rico	
9330	1.10	ml	1537229545350	9km NE of Aguanga, CA	0	California	
9331	0.66	ml	1537228864470	9km NE of Aguanga, CA	0	California	

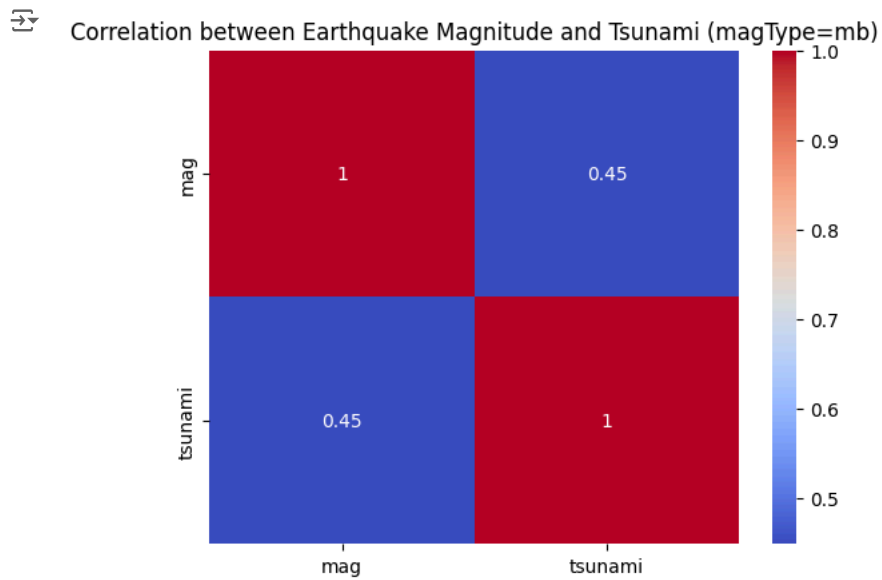
9332 rows × 6 columns

Next steps: [View recommended plots](#)

```
eq_mb = eq[(eq['magType'] == 'mb')]

correlation_matrix = eq_mb[['mag', 'tsunami']].corr()

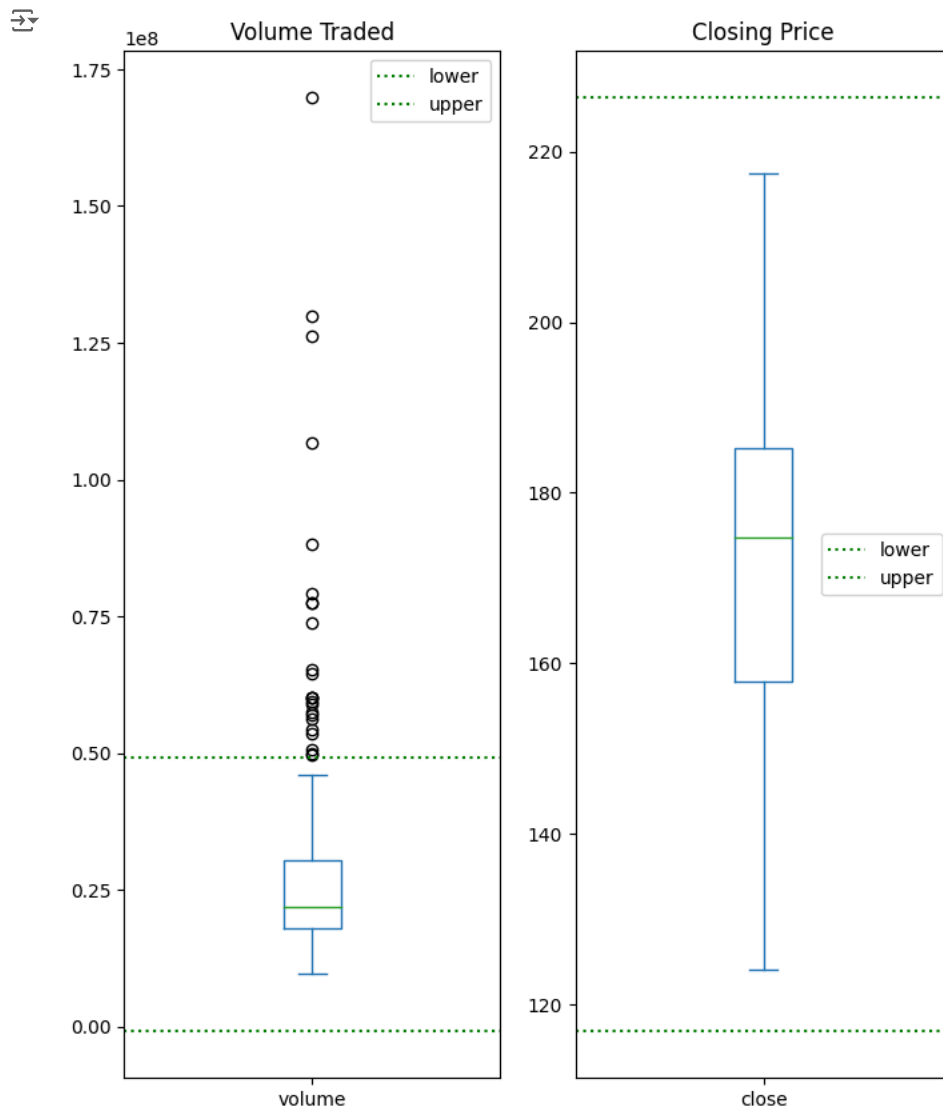
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm')
plt.title('Correlation between Earthquake Magnitude and Tsunami (magType=mb)')
plt.show()
```



```
Vol = ['volume', 'close']
gra = fb[Vol]
qtl = gra.quantile([0.25, 0.75])
qtl.loc['iqr',:] = qtl.loc[0.75,:] - qtl.loc[0.25,:]

A = gra.plot(
    kind='box',
    subplots=True,
    figsize=(8, 10),
    title=['Volume Traded', 'Closing Price'])

for ax, col in zip(A, Vol):
    stats = qtl[col]
    lower = stats.loc[0.25] - 1.5 * stats['iqr']
    upper = stats.loc[0.75] + 1.5 * stats['iqr']
    for bound, name in zip([lower, upper], ['lower', 'upper']):
        ax.axhline( bound, color='green', linestyle='dotted', label=name )
    ax.legend()
```



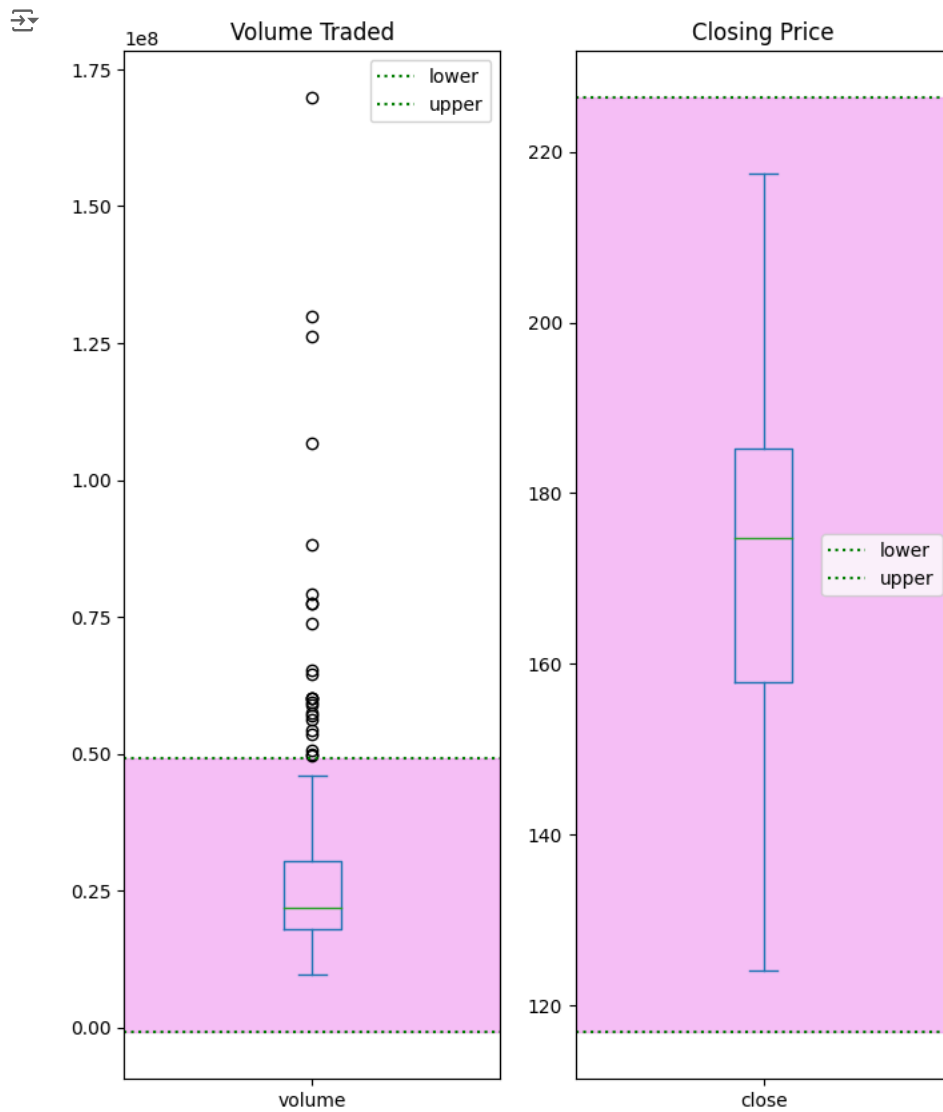
```

volum = ['volume', 'close']
graph = fb[volum]
qtl = graph.quantile([0.25, 0.75])
qtl.loc['iqr',:] = qtl.loc[0.75,:] - qtl.loc[0.25,:]

L = graph.plot(
    kind='box',
    subplots=True,
    figsize=(8, 10),
    title=['Volume Traded', 'Closing Price'])

for ax, col in zip(L, volum):
    stats = qtl[col]
    lower = stats.loc[0.25] - 1.5 * stats['iqr']
    upper = stats.loc[0.75] + 1.5 * stats['iqr']
    for bound, name in zip([lower, upper], ['lower', 'upper']):
        ax.axhline( bound, color='green', linestyle='dotted', label=name )
        ax.legend()
    ax.axhspan(lower, upper, color='violet', alpha=0.5)

```

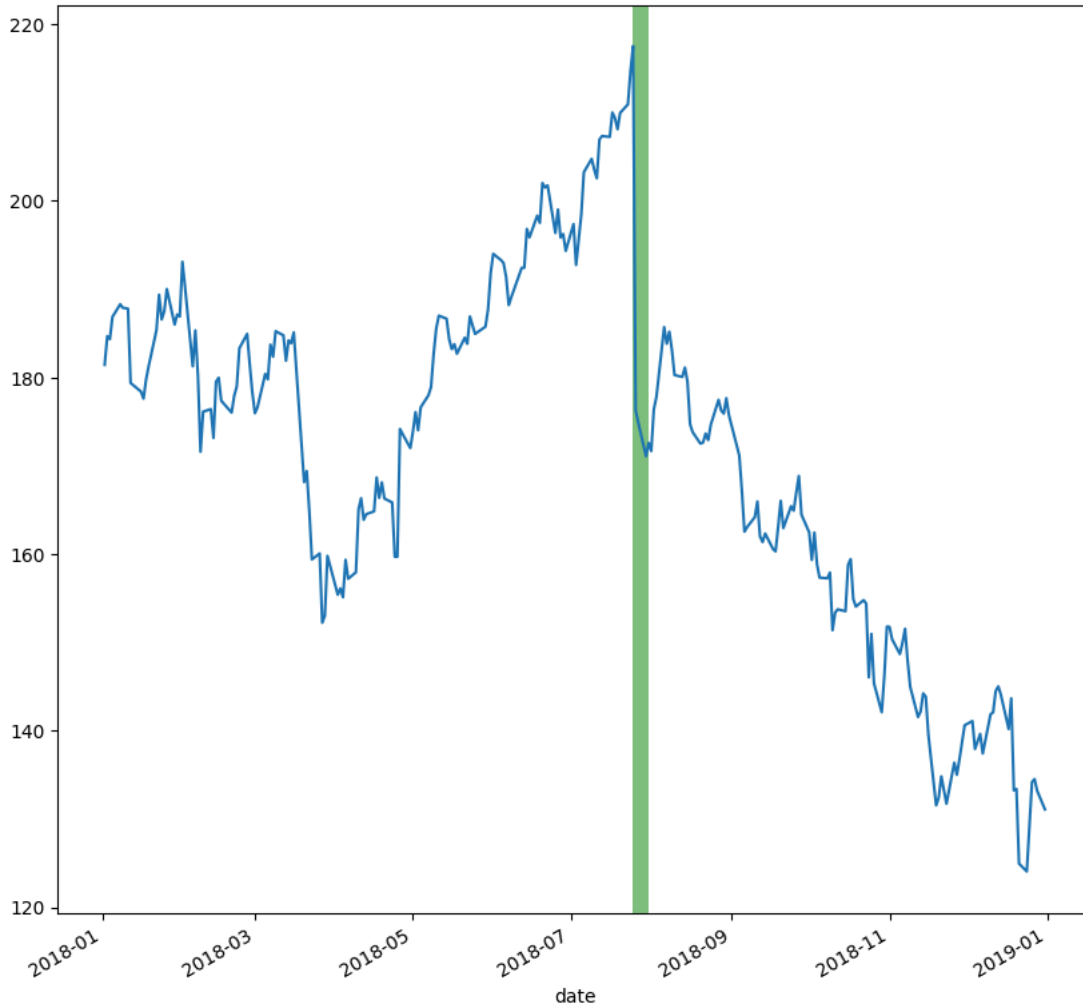


```
fb = pd.read_csv('fb_stock_prices_2018.csv')
fb['date'] = pd.to_datetime(fb['date'])
fb.set_index('date', inplace = True)
```

```
start = '2018-07-25'
end = '2018-07-31'
```

```
fb.close.plot(figsize = (10,10))
plt.axvspan(start, end, facecolor = 'green', alpha = 0.5)
```

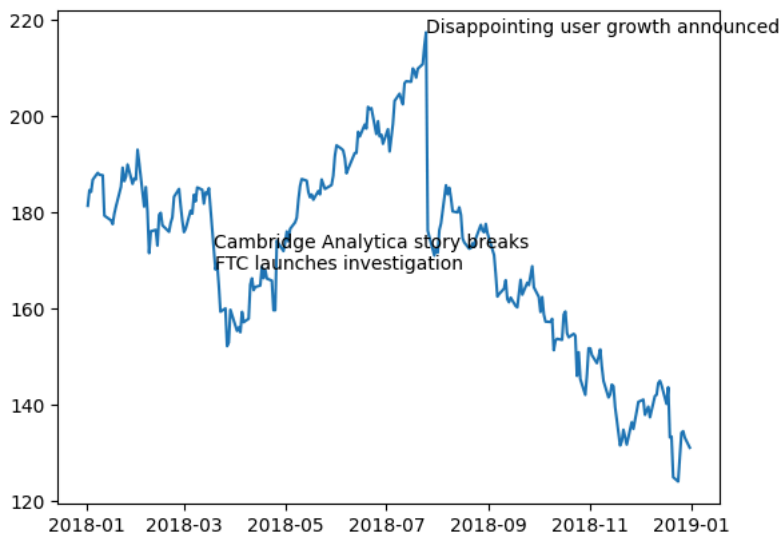
 <matplotlib.patches.Polygon at 0x791db106cb50>



```
import matplotlib.dates as plt_date
```

```
plt.plot(fb.close)
plt.annotate('Disappointing user growth announced',
            xy=(plt_date.date2num(pd.to_datetime('2018-07-25')), fb.loc['2018-07-25', 'close']))
plt.annotate('Cambridge Analytica story breaks',
            xy=(plt_date.date2num(pd.to_datetime('2018-03-19')), fb.loc['2018-03-19', 'close']))
plt.annotate('FTC launches investigation',
            xy=(plt_date.date2num(pd.to_datetime('2018-03-20')), fb.loc['2018-03-20', 'close']))
```

 Text(17610.0, 168.15, 'FTC launches investigation')



```
import itertools

def reg_resid_plots(data):
```