Dataframe

In [1]:
```
import pandas as pd, IPython.display as dp

eq_df = pd.read_csv('earthquakes-1.csv')
fb_2018 = pd.read_csv('fb_stock_prices_2018.csv')

dp.display(fb_2018, eq_df)
```

	date	open	high	low	close	volume
0	2018-01-02	177.68	181.58	177.5500	181.42	18151903
1	2018-01-03	181.88	184.78	181.3300	184.67	16886563
2	2018-01-04	184.90	186.21	184.0996	184.33	13880896
3	2018-01-05	185.59	186.90	184.9300	186.85	13574535
4	2018-01-08	187.20	188.90	186.3300	188.28	17994726
...	...	...	...	...	...	...
246	2018-12-24	123.10	129.74	123.0200	124.06	22066002
247	2018-12-26	126.00	134.24	125.8900	134.18	39723370
248	2018-12-27	132.44	134.99	129.6700	134.52	31202509
249	2018-12-28	135.34	135.92	132.2000	133.20	22627569
250	2018-12-31	134.45	134.64	129.9500	131.09	24625308

251 rows × 6 columns

	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

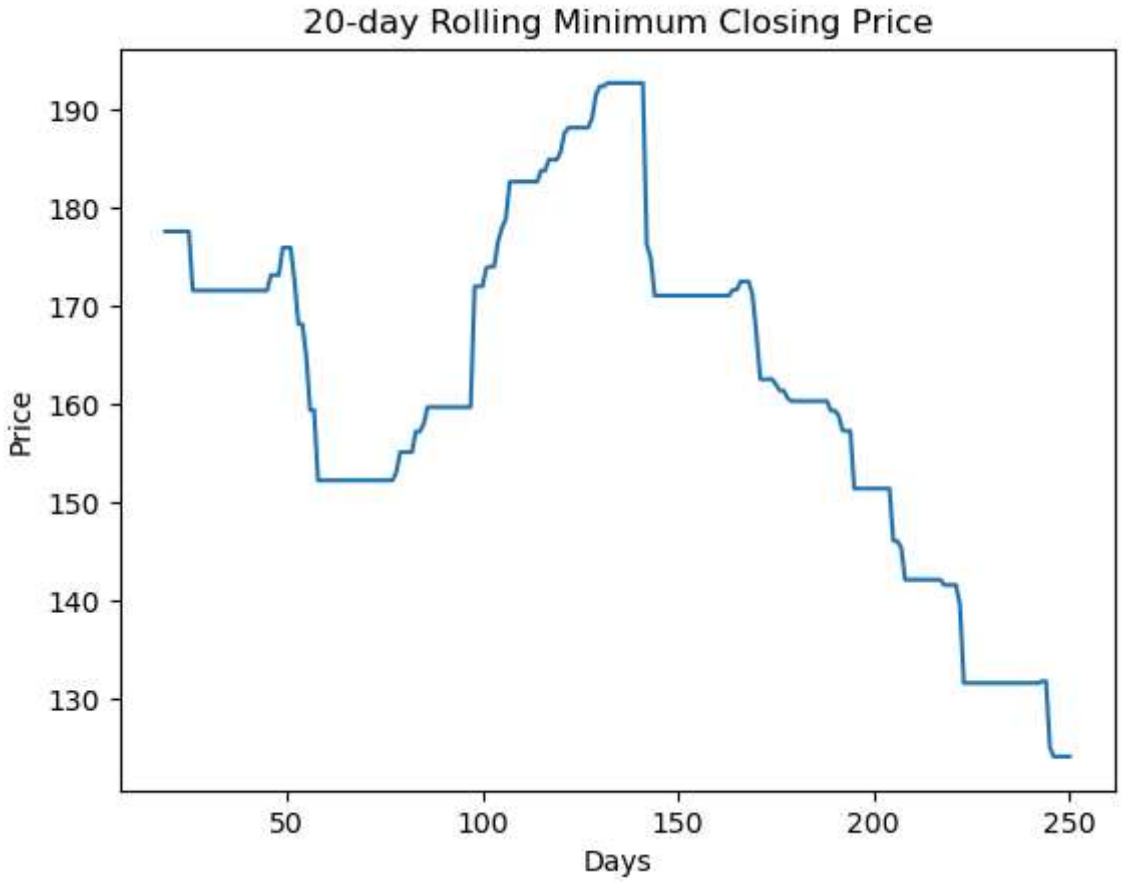
9332 rows × 6 columns

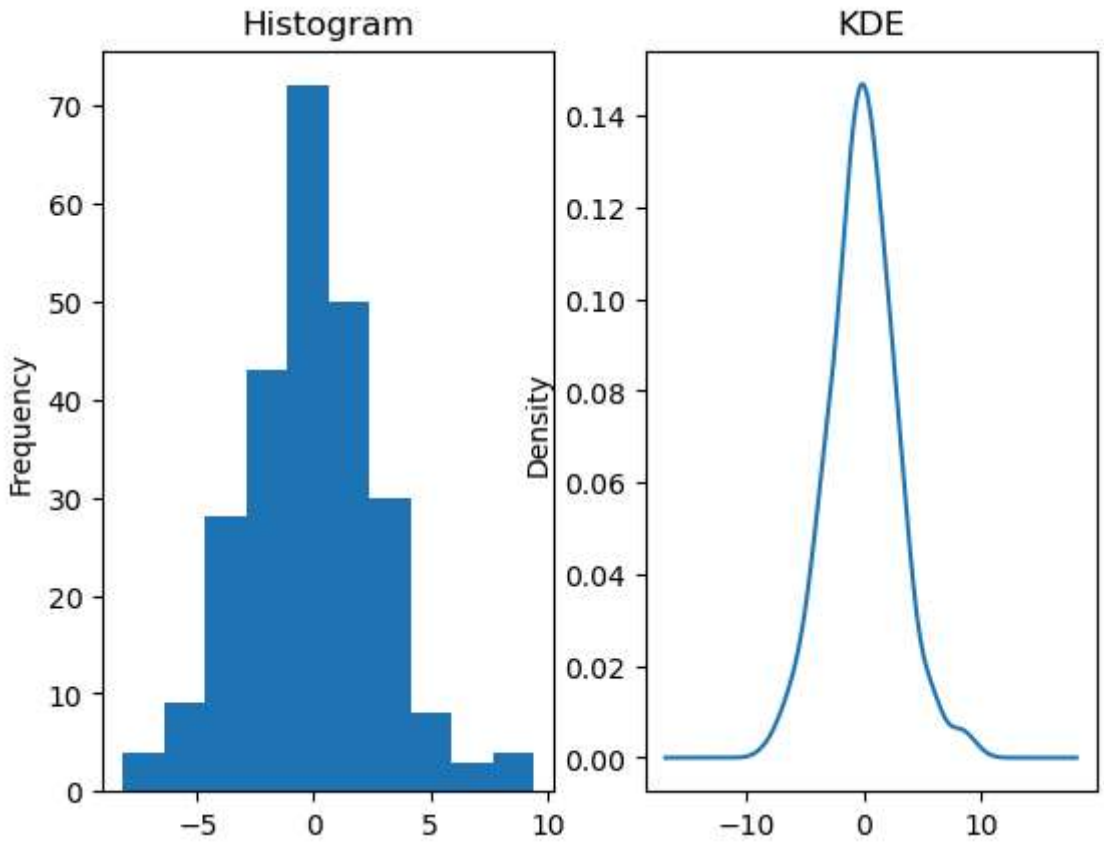
Activity

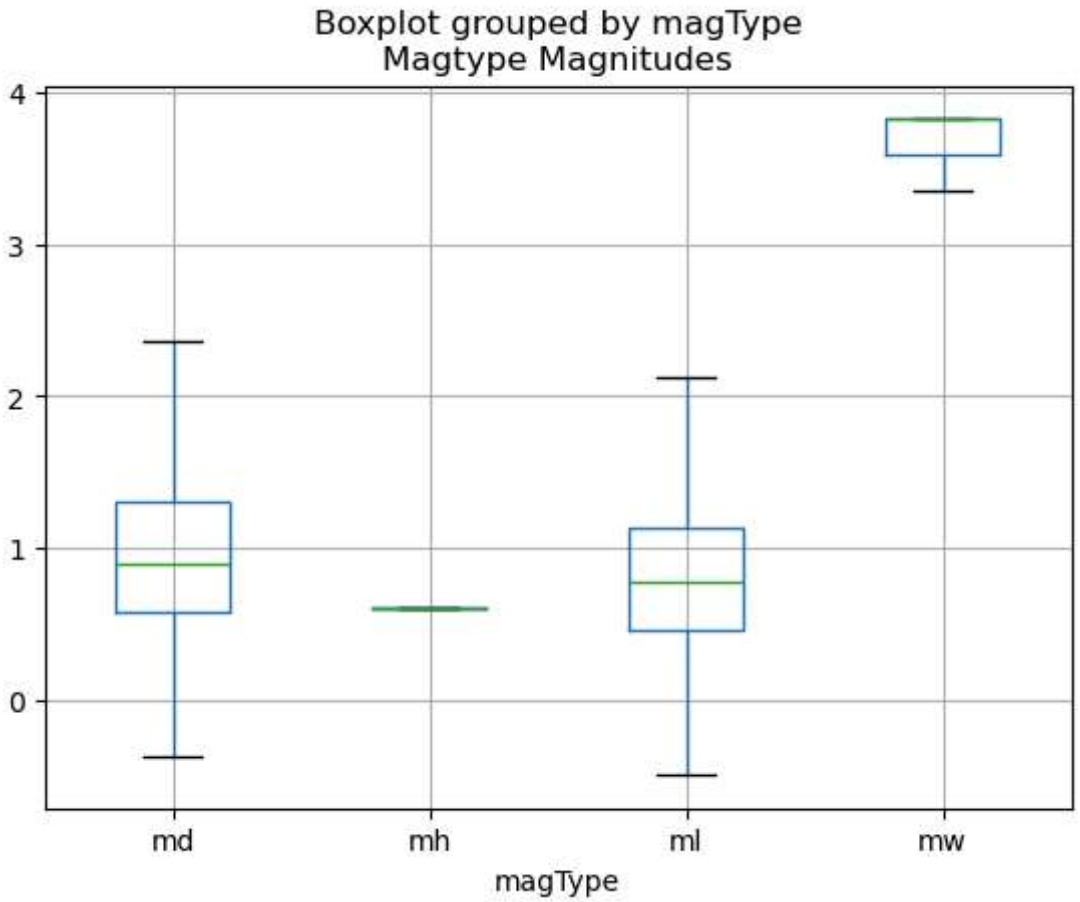
In [3]:
```
import pandas as pd, matplotlib.pyplot as plt

eq_df = pd.read_csv('earthquakes-1.csv')
fb_2018 = pd.read_csv('fb_stock_prices_2018.csv')

# Plot the rolling 20-day minimum of the Facebook closing price with the pandas plo
fig, ax = plt.subplots()
fb_2018['close'].rolling(window=20).min().plot(ax=ax)
ax.set_title('20-day Rolling Minimum Closing Price')
ax.set_xlabel('Days')
ax.set_ylabel('Price')

# Create a histogram and KDE of the change from open to close in the price of Faceb
fig1, (ax1, ax2) = plt.subplots(1, 2)
(fb_2018['open'] - fb_2018['close']).plot(kind='hist', ax = ax1)
ax1.set_title('Histogram')

(fb_2018['open'] - fb_2018['close']).plot(kind='kde', ax = ax2)
ax2.set_title('KDE')

# Box plots for the magnitudes of each magType used in Indonesia
fig2, ax3 = plt.subplots()
eq_df[eq_df['parsed_place'] == 'California'].boxplot(column='mag', by='magType', sh
ax3.set_title('Magtype Magnitudes')
```

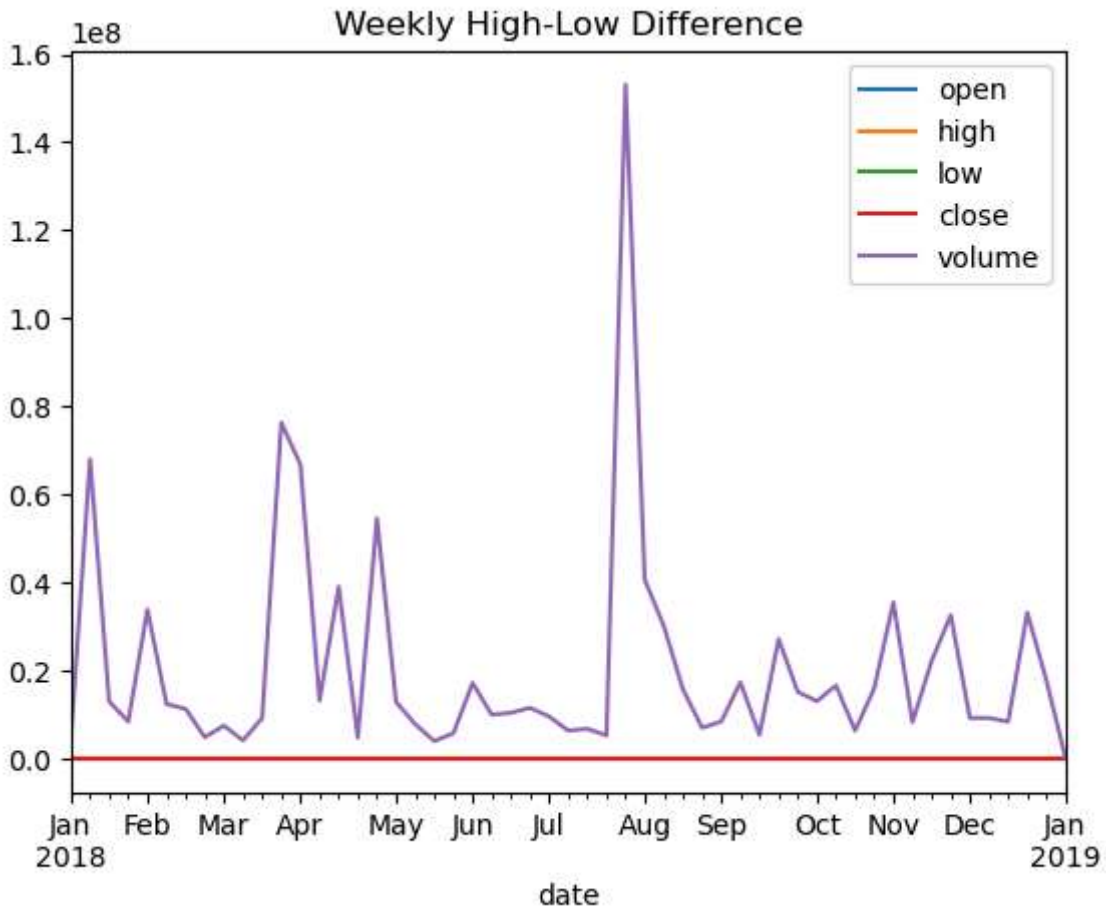
```
# Make a line plot of the difference between the weekly maximum high price and the
print(fb_2018['date'].dtype) # Check for type first
fb_copy = fb_2018.copy() # Make dataframe copy
fb_copy['date'] = pd.to_datetime(fb_copy['date']) # Convert to datetime
fb_copy.set_index('date', inplace = True)

fig3, ax4 = plt.subplots()
(fb_copy.resample('W').max() - fb_copy.resample('W').min()).plot(kind = 'line', ax=
ax4.set_title('Weekly High-Low Difference')

# Using matplotlib and pandas, create two subplots side-by-side showing the effect
'''The first subplot will contain a line plot of the daily difference between that
price (be sure to review the Time series section of Aggregating Pandas DataFrames f
fb_copy2 = fb_2018.copy()
fb_copy2['date'] = pd.to_datetime(fb_copy2['date'])
fb_copy2.set_index('date', inplace = True)

fig4, (ax5, ax6) = plt.subplots(1,2)
(fb_copy2['open'] - fb_copy2['close'].shift(1)).plot(ax=ax5)

# The second subplot will be a bar plot showing the net effect this had monthly, us
monthly_open = fb_copy2['open'].resample('ME').first()
monthly_close = fb_copy2['close'].resample('ME').last()
monthly_difference = (monthly_open - monthly_close.shift(1))

# Bonus #1: Color the bars according to whether they are gains in the stock price (
bar = ['green' if x > 0 else 'red' for x in monthly_difference]
monthly_difference.plot(kind='bar', ax=ax6, color = bar)

# Bonus #2: Modify the x-axis of the bar plot to show the threeletter abbreviation
ax6.set_xticklabels(['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep',

plt.show()
```

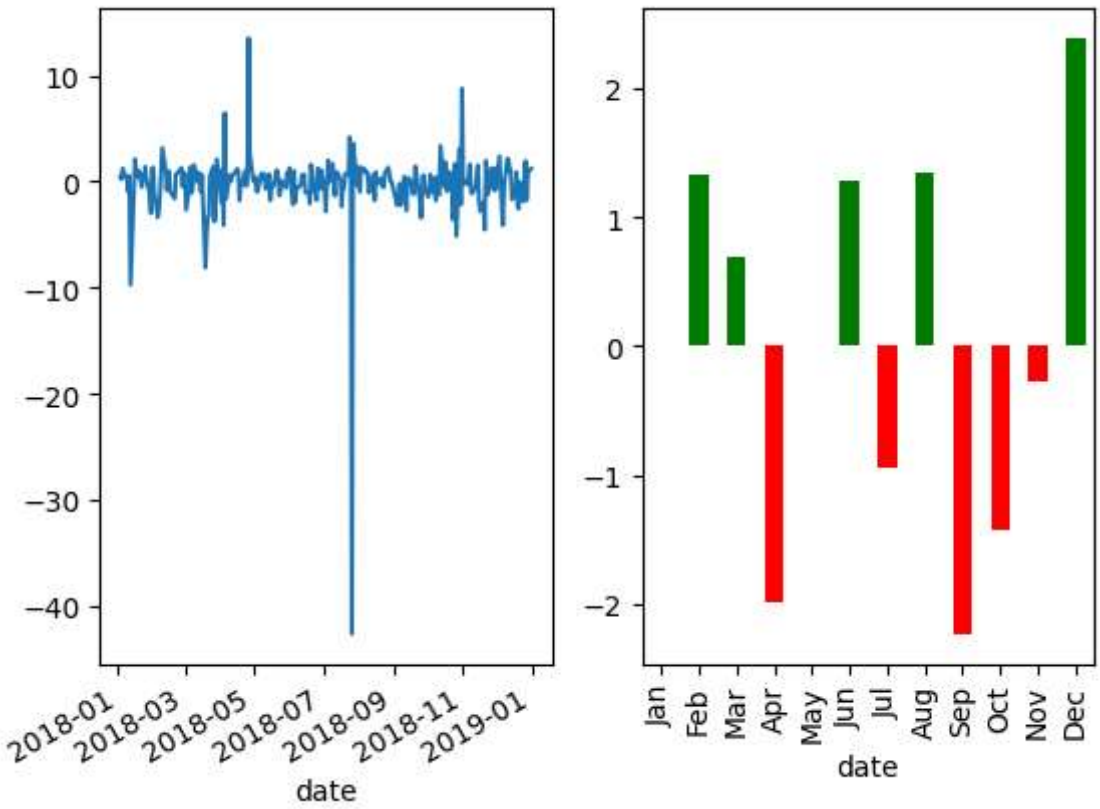
```
object
```


20-day Rolling Minimum Closing Price
Price
Days
190
180
170
160
150
140
130
50
100
150
200
250


Histogram
KDE
Frequency
Density
70
60
50
40
30
20
10
0
−5
0
5
10
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−10
0
10


Boxplot grouped by magType
Magtype Magnitudes
4
3
2
1
0
md
mh
ml
mw
magType


Weekly High-Low Difference
1e8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
open
high
low
close
volume
Jan
2018
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
2019
date



To summarize, this activity taught me that there is probably a method for every niche thing that I'm trying to do. Some examples of this are the shift() and resample() methods. I learned that through experience, I'll get to know more of these niche methods, which makes studying more exciting.