202507012106

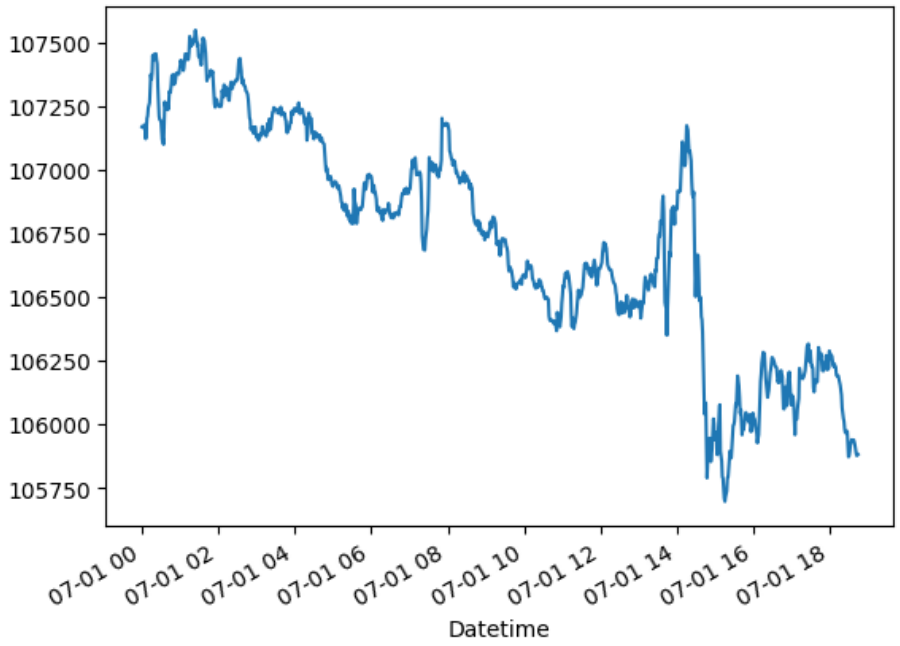
Maurizio Gardini

01 luglio 2025

```
#import os
#os.system('echo password | su -c "apt install ta-lib"')
#os.system('pip install ta-lib')
#os.chdir('/home/mrz/tmp/')

import yfinance as yf
import matplotlib
import pandas as pd
import talib

dat1 = yf.Ticker("BTC-USD")

df1 = dat1.history(period='1d', interval='1m')

df1

df1.dtypes

Open            float64
High            float64
Low             float64
Close           float64
Volume            int64
Dividends       float64
Stock Splits    float64
dtype: object
```

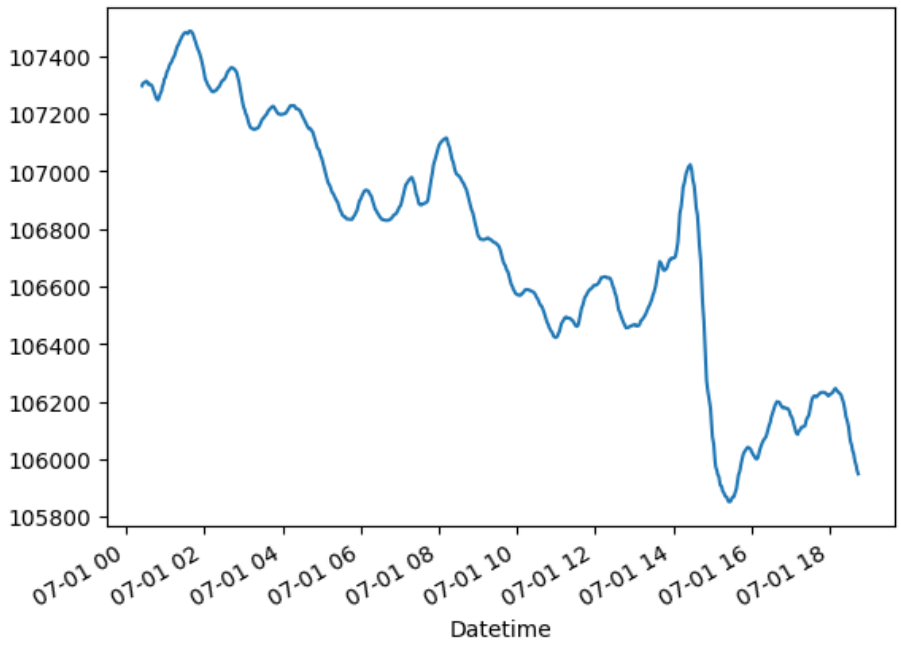
$$\frac{1}{k}\sum_{i=n-k+1}^{n} x_i$$

```
df1['ma'] = talib.MA(df1['Close'], timeperiod=20)

df1['Close'].plot()

<Axes: xlabel='Datetime'>
```




```
df1['ma'].plot()
```

```
<Axes: xlabel='Datetime'>
```



```
df1['buy'] = 0
df1['sell'] = 0
```

If $x > \frac{1}{k}\sum_{i=n-k+1}^{n} x_i$ and $x_{i-1} \leq \frac{1}{k}\sum_{i=n-k+1}^{n} x_i$ buy

```
for x in range(0,891):
    if df1['Close'].iloc[x] > df1['ma'].iloc[x]:
        if df1['Close'].iloc[x-1] <= df1['ma'].iloc[x-1]:
            df1.iloc[x, 8] = 'buy'
```

```
df1
```

```
df1.to_csv('df1.csv', index=False)
```

Email address: mrzgardini@gmail.com

Orcid address: https://orcid.org/0009-0001-5845-55724