075016012024

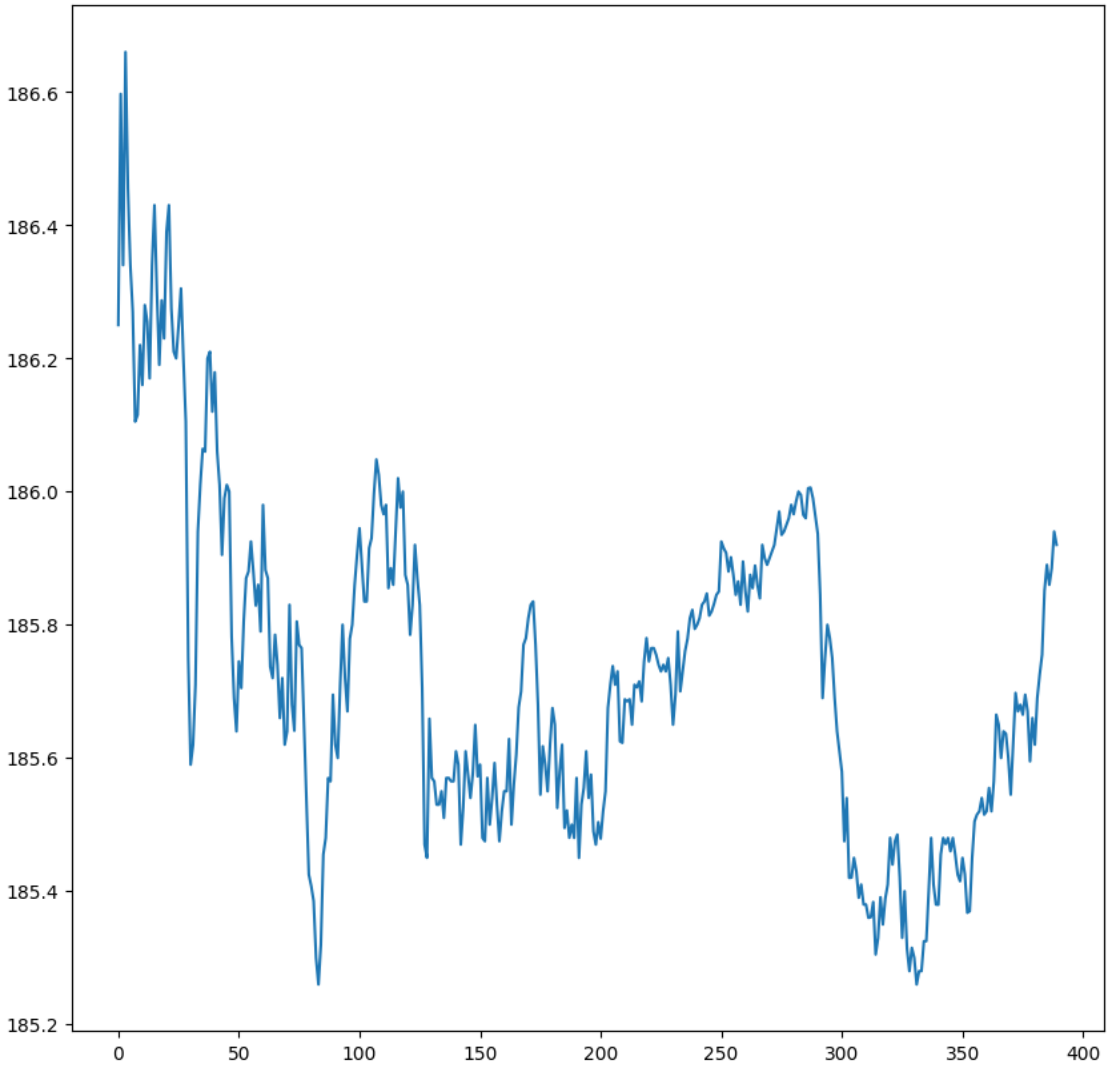
January 16, 2024

[ ]:
```
"""
ta.sh

wget http://prdownloads.sourceforge.net/ta-lib/ta-lib-0.4.0-src.tar.gz
cd ta-lib
./configure --prefix=/usr
make
sudo make install
"""

!chmod +x ta.sh
!./ta.sh
!pip install yfinance TA-Lib
```

[1]:
```
import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import talib
```

[2]:
```
aapl = yf.Ticker("AAPL")
df = aapl.history(period="1w", interval='1m')
df.reset_index(inplace=True)
```

[3]:
```
ax = df['Close'].plot(figsize=(10, 10))
```



$$sma = \frac{x_1 +, ..., x_n}{n}$$

[4]:
```
df['sma1'] = df['Close'].rolling(window = 21, min_periods = 1, center = False).
 ↪mean()
df['sma2'] = df['Close'].rolling(window = 100, min_periods = 1, center = False).
 ↪mean()
```

[5]:
```
df["buy"] = 0
buy_flag = False

for i in range(len(df)):
    if not buy_flag and df.loc[i, "sma1"] > df.loc[i, "sma2"]:
```

```
        df.loc[i, "buy"] = 'BUY'
        buy_flag = True
    elif buy_flag and df.loc[i, "sma1"] <= df.loc[i, "sma2"]:
        df.loc[i, "buy"] = 0
        buy_flag = False

df["sell"] = 0
sell_flag = False

for i in range(len(df)):
    if not sell_flag and df.loc[i, "sma1"] < df.loc[i, "sma2"]:
        df.loc[i, "sell"] = 'SELL'
        sell_flag = True
    elif sell_flag and df.loc[i, "sma1"] >= df.loc[i, "sma2"]:
        df.loc[i, "sell"] = 0
        sell_flag = False

df["x"] = 0

for i in range(len(df)):
    if df.loc[i, "buy"] == 'BUY':
        df.loc[i, "x"] = df.loc[i, "Close"]

df["y"] = 0

for i in range(len(df)):
    if df.loc[i, "sell"] == 'SELL':
        df.loc[i, "y"] = df.loc[i, "Close"]

comprato = df['x'].sum()
venduto = df['y'].sum()
```

[6]:
```
comprato
```

[6]: 743.6699829101562

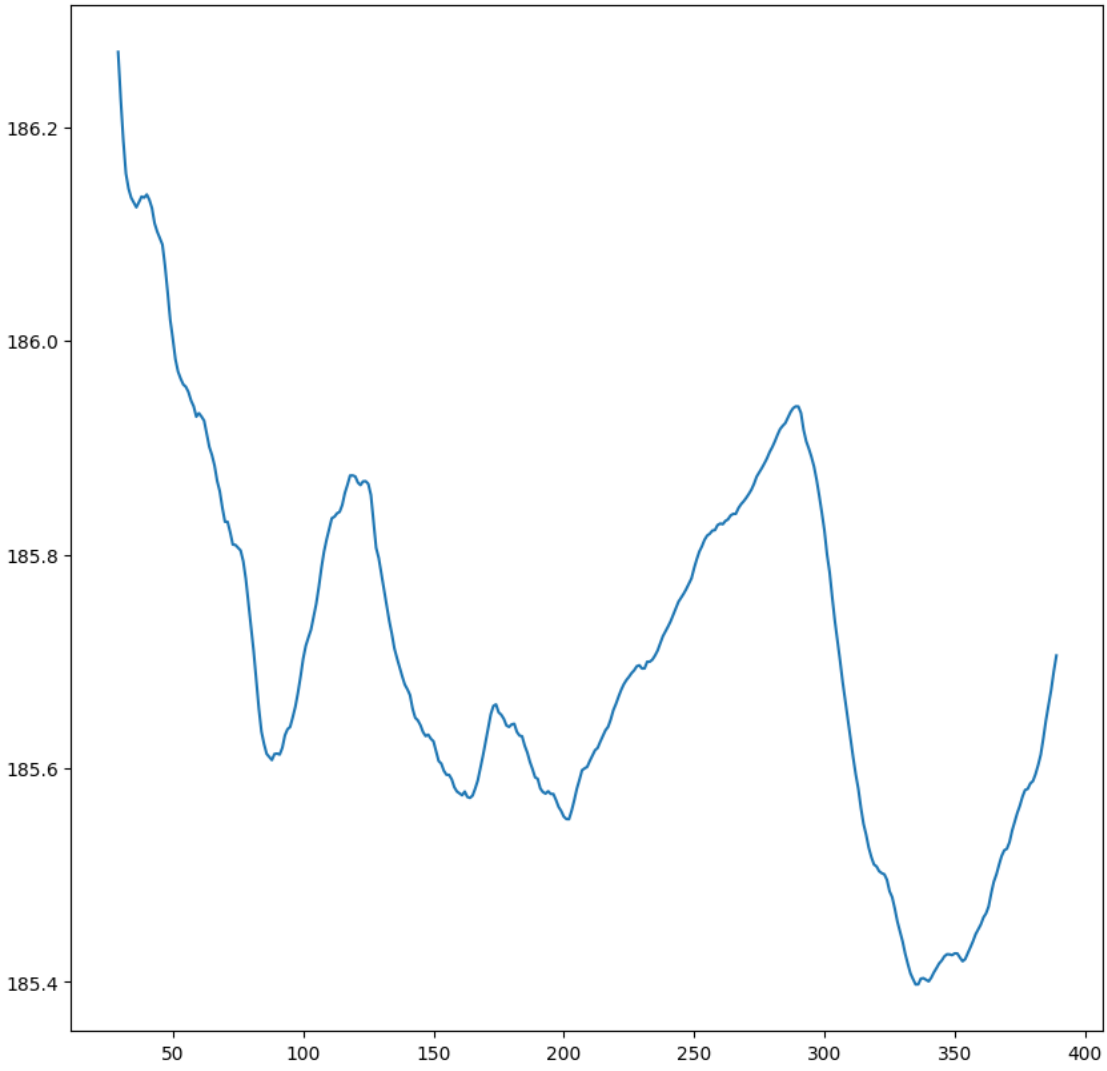
[7]:
```
venduto
```

[7]: 557.3448028564453

$$ema = x_t k + ema_y(1 - k)$$

[8]:
```
df["ema1"] = talib.EMA(df['Close'], timeperiod=30)
```

[9]:
```
ax = df['ema1'].plot(figsize=(10, 10))
```


186.2
186.0
185.8
185.6
185.4
50
100
150
200
250
300
350
400