MA_High_Low

September 29, 2021

1 Moving Average High and Low

https://www.incrediblecharts.com/indicators/ma_high_low.php

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

import warnings
warnings.filterwarnings("ignore")

# fix_yahoo_finance is used to fetch data
import fix_yahoo_finance as yf
yf.pdr_override()
```

[2]:
```
# input
symbol = 'AAPL'
start = '2018-08-01'
end = '2019-01-01'

# Read data
df = yf.download(symbol,start,end)

# View Columns
df.head()
```

```
[**********************100%**********************]  1 of 1 downloaded
```

[2]:

Date	Open	High	Low	Close	Adj Close	Volume
2018-08-01	199.130005	201.759995	197.309998	201.500000	199.243088	
2018-08-02	200.580002	208.380005	200.350006	207.389999	205.067123	
2018-08-03	207.029999	208.740005	205.479996	207.990005	205.660416	
2018-08-06	208.000000	209.250000	207.070007	209.070007	206.728317	
2018-08-07	209.320007	209.500000	206.759995	207.110001	204.790268	

```
2018-08-01  67935700
2018-08-02  62404000
2018-08-03  33447400
2018-08-06  25425400
2018-08-07  25587400
```

[3]:
```
import talib as ta
```

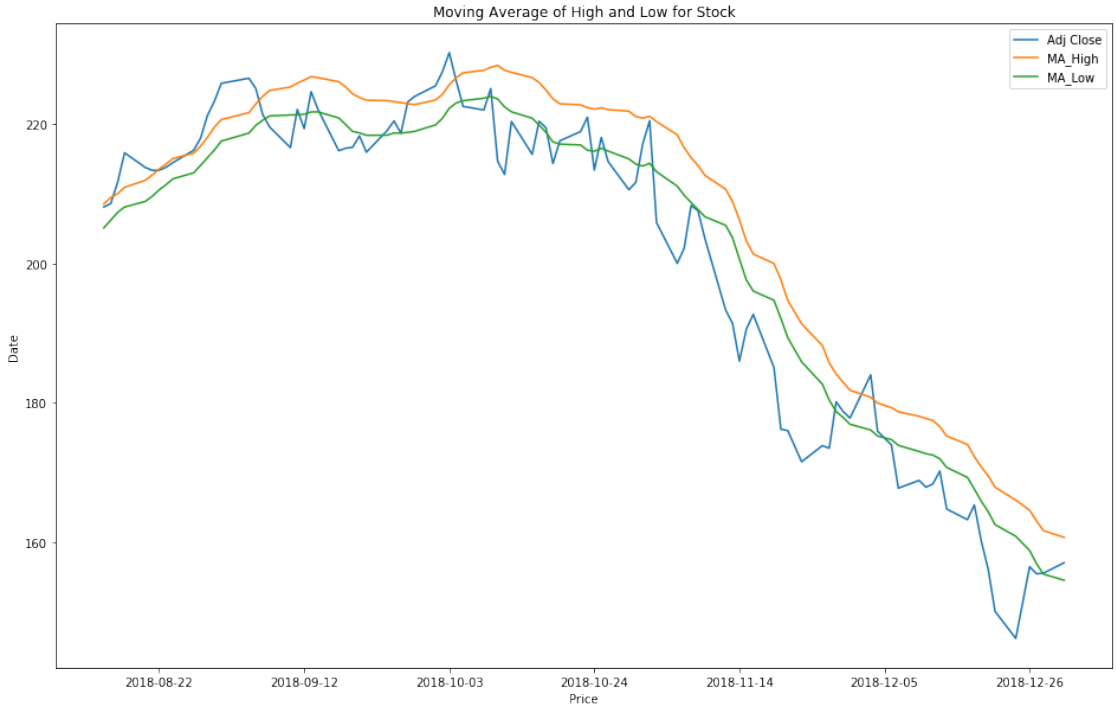
[4]:
```
df['MA_High'] = df['High'].rolling(10).mean()
df['MA_Low'] = df['Low'].rolling(10).mean()
```

[5]:
```
df = df.dropna()
df.head()
```

[5]:

Date	Open	High	Low	Close	Adj Close	Volume	MA_High	MA_Low
2018-08-14	210.160004	210.559998	208.259995	209.750000	208.128067	20748000	208.583000	205.131999
2018-08-15	209.220001	210.740005	208.330002	210.240005	208.614273	28807600	209.481001	206.234000
2018-08-16	211.750000	213.809998	211.470001	213.320007	211.670471	28500400	210.024001	207.345999
2018-08-17	213.440002	217.949997	213.160004	217.580002	215.897522	35427000	210.945000	208.114000
2018-08-20	218.100006	219.179993	215.110001	215.460007	213.793930	30287700	211.937999	208.917999

[7]:
```
plt.figure(figsize=(16,10))
plt.plot(df['Adj Close'])
plt.plot(df['MA_High'])
plt.plot(df['MA_Low'])
plt.title('Moving Average of High and Low for Stock')
plt.legend(loc='best')
plt.xlabel('Price')
plt.ylabel('Date')
plt.show()
```



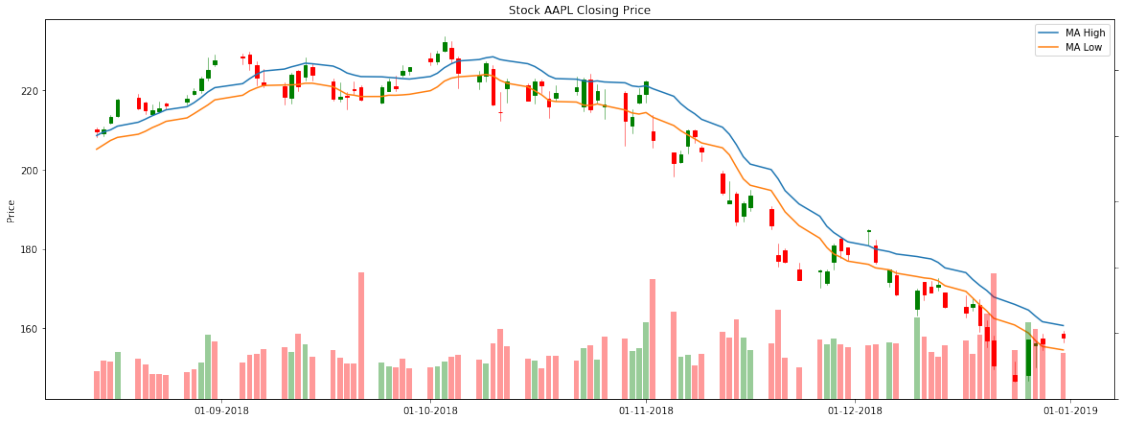
2 Candlestick with Moving Averages High and Low

[8]:
```
from matplotlib import dates as mdates
import datetime as dt


df['VolumePositive'] = df['Open'] < df['Adj Close']
df = df.dropna()
df = df.reset_index()
df['Date'] = mdates.date2num(df['Date'].astype(dt.date))
df.head()
```

[8]:

	Date	Open	High	Low	Close	Adj Close	Volume	MA_High	MA_Low	VolumePositive
0	736920.0	210.160004	210.559998	208.259995	209.750000	208.128067	20748000	208.583000	205.131999	False
1	736921.0	209.220001	210.740005	208.330002	210.240005	208.614273	28807600	209.481001	206.234000	False
2	736922.0	211.750000	213.809998	211.470001	213.320007	211.670471	28500400	210.024001	207.345999	False
3	736923.0	213.440002	217.949997	213.160004	217.580002	215.897522				
4	736926.0	218.100006	219.179993	215.110001	215.460007	213.793930				

```
3  35427000  210.945000  208.114000           True
4  30287700  211.937999  208.917999          False
```

[9]:
```
from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(20,16))
ax1 = plt.subplot(2, 1, 1)
candlestick_ohlc(ax1,df.values, width=0.5, colorup='g', colordown='r', alpha=1.
↪0)
ax1.plot(df.Date, df['MA_High'],label='MA High')
ax1.plot(df.Date, df['MA_Low'],label='MA Low')
ax1.xaxis_date()
ax1.xaxis.set_major_formatter(mdates.DateFormatter('%d-%m-%Y'))
#ax1.axhline(y=dfc['Adj Close'].mean(),color='r')
ax1v = ax1.twinx()
colors = df.VolumePositive.map({True: 'g', False: 'r'})
ax1v.bar(df.Date, df['Volume'], color=colors, alpha=0.4)
ax1v.axes.yaxis.set_ticklabels([])
ax1v.set_ylim(0, 3*df.Volume.max())
ax1.set_title('Stock '+ symbol +' Closing Price')
ax1.set_ylabel('Price')
ax1.set_xlabel('Date')
ax1.legend(loc='best')
```

[9]:
```
<matplotlib.legend.Legend at 0x18a8acefac8>
```