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]:                 Open         High          Low        Close    Adj Close  \
     Date
     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

                     Volume
     Date
```

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

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

[4]:
```python
df['MA_High'] = df['High'].rolling(10).mean()
df['MA_Low'] = df['Low'].rolling(10).mean()
```
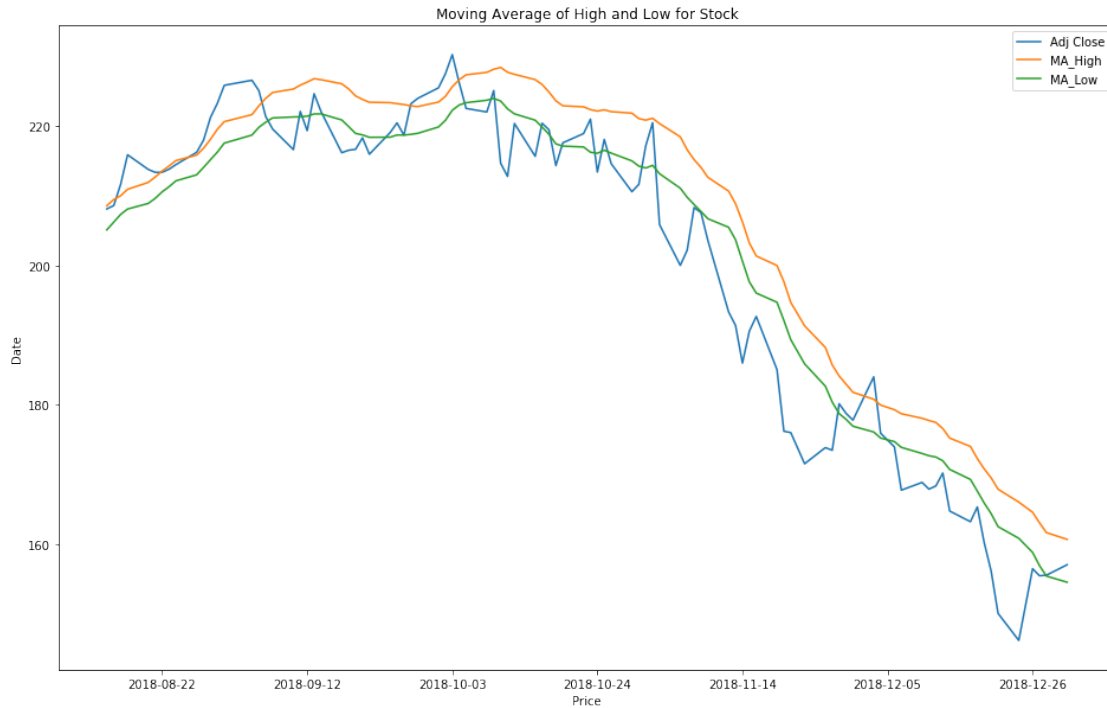
[5]:
```python
df = df.dropna()
df.head()
```

[5]:
```
                 Open        High         Low       Close    Adj Close  \
Date
2018-08-14  210.160004  210.559998  208.259995  209.750000  208.128067
2018-08-15  209.220001  210.740005  208.330002  210.240005  208.614273
2018-08-16  211.750000  213.809998  211.470001  213.320007  211.670471
2018-08-17  213.440002  217.949997  213.160004  217.580002  215.897522
2018-08-20  218.100006  219.179993  215.110001  215.460007  213.793930

              Volume     MA_High      MA_Low
Date
2018-08-14  20748000  208.583000  205.131999
2018-08-15  28807600  209.481001  206.234000
2018-08-16  28500400  210.024001  207.345999
2018-08-17  35427000  210.945000  208.114000
2018-08-20  30287700  211.937999  208.917999
```

[7]:
```python
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()
```

Moving Average of High and Low for Stock

2 Candlestick with Moving Averages High and Low

```python
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  \
     0  736920.0  210.160004  210.559998  208.259995  209.750000  208.128067
     1  736921.0  209.220001  210.740005  208.330002  210.240005  208.614273
     2  736922.0  211.750000  213.809998  211.470001  213.320007  211.670471
     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

          Volume     MA_High      MA_Low  VolumePositive
     0  20748000  208.583000  205.131999           False
     1  28807600  209.481001  206.234000           False
     2  28500400  210.024001  207.345999           False
```

3

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

[9]:
```python
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>