Moving_Median

September 29, 2021

1 Moving Median Price

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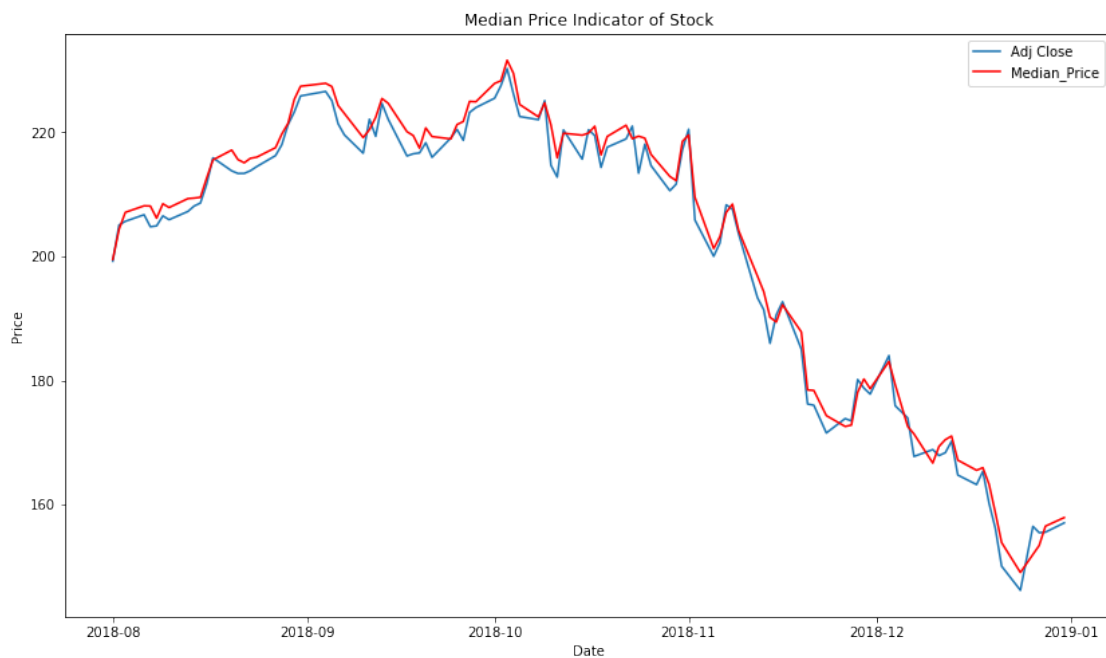
```
2018-08-02   62404000
2018-08-03   33447400
2018-08-06   25425400
2018-08-07   25587400
```

[3]:
```python
df['Median_Price'] = (df['High'] + df['Low'])/2
```

[4]:
```python
plt.figure(figsize=(14,8))
plt.plot(df['Adj Close'])
plt.plot(df['Median_Price'], color='red')
plt.title('Median Price Indicator of Stock')
plt.legend()
plt.xlabel('Date')
plt.ylabel('Price')
plt.show()
```


1.1 Candlestick with Median Price

[5]:
```python
from matplotlib import dates as mdates
import datetime as dt

dfc = df.copy()
dfc['VolumePositive'] = dfc['Open'] < dfc['Adj Close']
#dfc = dfc.dropna()
dfc = dfc.reset_index()
```

2

```
dfc['Date'] = mdates.date2num(dfc['Date'].astype(dt.date))
dfc.head()
```

[5]:
```
        Date        Open        High         Low       Close    Adj Close  \
0  736907.0  199.130005  201.759995  197.309998  201.500000  199.243088
1  736908.0  200.580002  208.380005  200.350006  207.389999  205.067123
2  736909.0  207.029999  208.740005  205.479996  207.990005  205.660416
3  736912.0  208.000000  209.250000  207.070007  209.070007  206.728317
4  736913.0  209.320007  209.500000  206.759995  207.110001  204.790268

     Volume  Median_Price  VolumePositive
0  67935700    199.534997            True
1  62404000    204.365005            True
2  33447400    207.110001           False
3  25425400    208.160004           False
4  25587400    208.129998           False
```

[6]:
```python
from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(14,10))
ax1 = plt.subplot(2, 1, 1)
candlestick_ohlc(ax1,dfc.values, width=0.5, colorup='g', colordown='r', alpha=1.
 ↪0)
ax1.plot(df['Median_Price'], color='orange')
ax1.xaxis_date()
ax1.xaxis.set_major_formatter(mdates.DateFormatter('%d-%m-%Y'))
ax1.grid(True, which='both')
ax1.minorticks_on()
ax1v = ax1.twinx()
colors = dfc.VolumePositive.map({True: 'g', False: 'r'})
ax1v.bar(dfc.Date, dfc['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.legend()

ax2 = plt.subplot(2, 1, 2)
df['VolumePositive'] = df['Open'] < df['Adj Close']
ax2.bar(df.index, df['Volume'], color=df.VolumePositive.map({True: 'g', False:␣
 ↪'r'}), label='macdhist')
ax2.grid()
ax2.set_ylabel('Volume')
ax2.set_xlabel('Date')
```

[6]: Text(0.5,0,'Date')
```

Stock AAPL Closing Price