ZigZag

September 29, 2021

1 ZigZag

https://stockcharts.com/school/doku.php?id=chart_school:technical_indicators:zigzag

[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 = '2018-01-01'
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
2018-01-02	170.160004	172.300003	169.259995	172.259995	168.987320	
2018-01-03	172.529999	174.550003	171.960007	172.229996	168.957886	
2018-01-04	172.539993	173.470001	172.080002	173.029999	169.742706	
2018-01-05	173.440002	175.369995	173.050003	175.000000	171.675278	
2018-01-08	174.350006	175.610001	173.929993	174.350006	171.037628	

```
2018-01-02  25555900
2018-01-03  29517900
2018-01-04  22434600
2018-01-05  23660000
2018-01-08  20567800
```

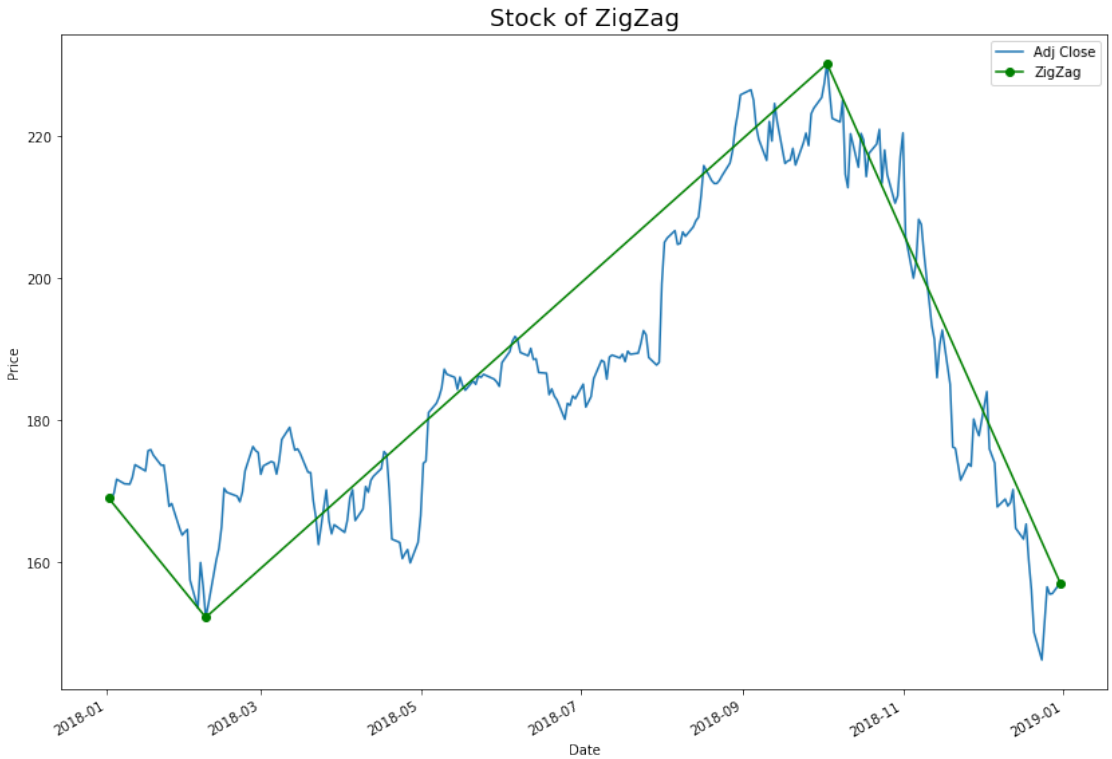
https://github.com/jbn/ZigZag

pip install zigzag

[3]:
```
from zigzag import *
```

[4]:
```
plt.figure(figsize=(14,10))

pivots = peak_valley_pivots(df['Adj Close'].values, 0.2, -0.2)
ts_pivots = pd.Series(df['Adj Close'], index=df.index)
ts_pivots = ts_pivots[pivots != 0]
df['Adj Close'].plot()
ts_pivots.plot(style='g-o', label='ZigZag')
plt.title('Stock of ZigZag', fontsize=18)
plt.legend(loc='best')
plt.xlabel('Date')
plt.ylabel('Price')
plt.show()
```



1.1 Candlestick with ZigZag

[5]:
```
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()
dfc['Date'] = mdates.date2num(dfc['Date'].astype(dt.date))
dfc.head()
```

[5]:

	Date	Open	High	Low	Close	Adj Close	Volume	VolumePositive
0	736696.0	170.160004	172.300003	169.259995	172.259995	168.987320	25555900	False
1	736697.0	172.529999	174.550003	171.960007	172.229996	168.957886	29517900	False
2	736698.0	172.539993	173.470001	172.080002	173.029999	169.742706	22434600	False
3	736699.0	173.440002	175.369995	173.050003	175.000000	171.675278	23660000	False
4	736702.0	174.350006	175.610001	173.929993	174.350006	171.037628	20567800	False

[8]:
```
from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(22,12))
ax1 = plt.subplot(111)
candlestick_ohlc(ax1,dfc.values, width=0.5, colorup='g', colordown='r', alpha=1.
↪0)
pivots = peak_valley_pivots(df['Adj Close'].values, 0.2, -0.2)
ts_pivots = pd.Series(df['Adj Close'], index=df.index)
ts_pivots = ts_pivots[pivots != 0]
ax1.plot(df['Adj Close'])
ts_pivots.plot(style='g-o', label='ZigZag')
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.set_xlabel('Date')
ax1.legend()
```

[8]: <matplotlib.legend.Legend at 0x1593373ecc0>