B_indicator

September 29, 2021

1 %B Indicator

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

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

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 = '2018-12-01'
end = '2019-04-01'

# 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
2018-12-03	184.460007	184.940002	181.210007	184.820007	184.030731	
2018-12-04	180.949997	182.389999	176.270004	176.690002	175.935455	
2018-12-06	171.759995	174.779999	170.419998	174.720001	173.973862	
2018-12-07	173.490005	174.490005	168.300003	168.490005	167.770477	
2018-12-10	165.000000	170.089996	163.330002	169.600006	168.875732	

```
2018-12-03  40802500
2018-12-04  41344300
2018-12-06  43098400
2018-12-07  42281600
2018-12-10  62026000
```

[3]:
```
import talib as ta

upper, middle, lower = ta.BBANDS(df['Adj Close'])
```

[4]:
```
# Create %B Indicator
df['BI'] = (df['Adj Close'] - lower)/(upper - lower)
```

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

[5]:

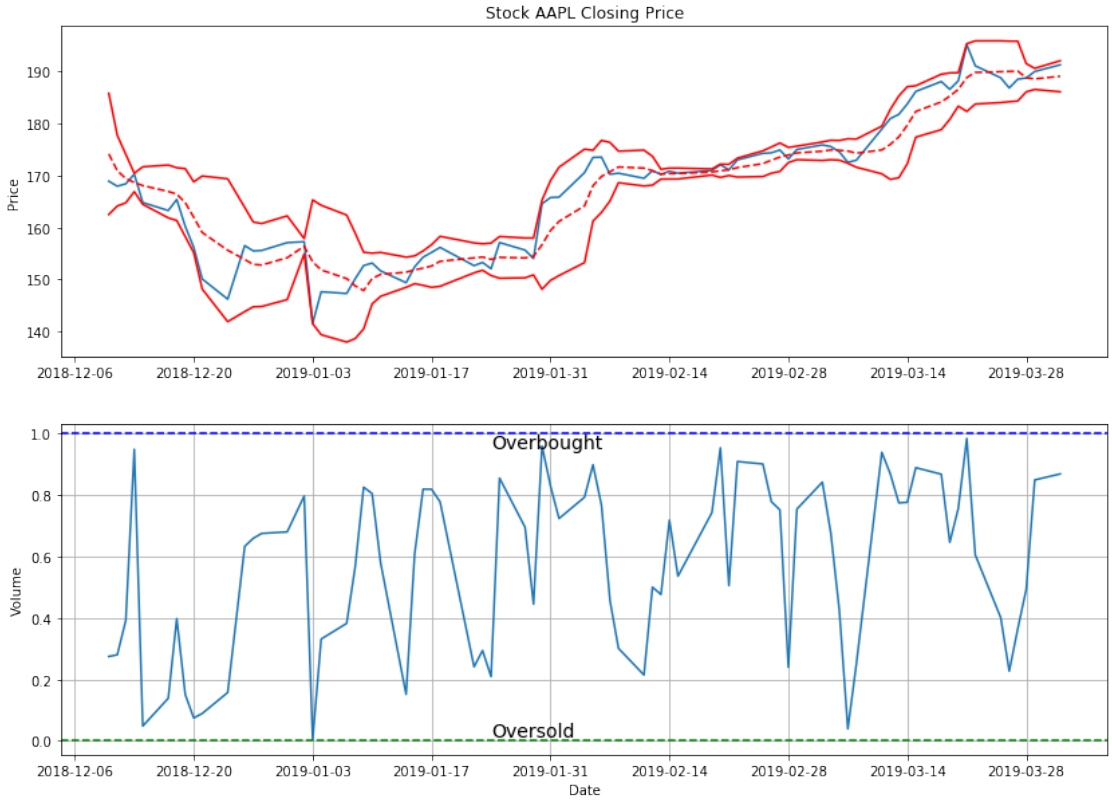
Date	Open	High	Low	Close	Adj Close	Volume	BI
2018-12-10	165.000000	170.089996	163.330002	169.600006	168.875732	62026000	0.274847
2018-12-11	171.660004	171.789993	167.000000	168.630005	167.909866	47281700	0.280336
2018-12-12	170.399994	171.919998	169.020004	169.100006	168.377869	35627700	0.392247
2018-12-13	170.490005	172.570007	169.550003	170.949997	170.219955	31898600	0.949312
2018-12-14	169.000000	169.080002	165.279999	165.479996	164.773315	40703700	0.048228

[6]:
```
fig = plt.figure(figsize=(14,10))
ax1 = plt.subplot(2, 1, 1)
ax1.plot(df['Adj Close'])
ax1.plot(upper, color='red')
ax1.plot(middle, color='red', linestyle='--')
ax1.plot(lower, color='red')
ax1.set_title('Stock '+ symbol +' Closing Price')
ax1.set_ylabel('Price')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['BI'], label='%B Indicator')
ax2.text(s='Overbought', x=df.index[30], y=1, fontsize=14,␣
↪verticalalignment='top')
ax2.text(s='Oversold', x=df.index[30], y=0, fontsize=14,␣
↪verticalalignment='bottom')
```

```
ax2.axhline(y=1, color='blue', linestyle='--')
ax2.axhline(y=0, color='green', linestyle='--')
ax2.grid()
ax2.set_ylabel('Volume')
ax2.set_xlabel('Date')
```

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



1.1 Candlestick with %B Indicator

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

[7]:
```
        Date        Open        High         Low       Close   Adj Close  \
0  737038.0  165.000000  170.089996  163.330002  169.600006  168.875732
1  737039.0  171.660004  171.789993  167.000000  168.630005  167.909866
2  737040.0  170.399994  171.919998  169.020004  169.100006  168.377869
3  737041.0  170.490005  172.570007  169.550003  170.949997  170.219955
4  737042.0  169.000000  169.080002  165.279999  165.479996  164.773315

     Volume        BI  VolumePositive
0  62026000  0.274847            True
1  47281700  0.280336           False
2  35627700  0.392247           False
3  31898600  0.949312           False
4  40703700  0.048228           False
```

[8]:
```
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(upper, color='red')
ax1.plot(middle, color='red', linestyle='--')
ax1.plot(lower, color='red')
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')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['BI'], label='%B Indicator')
ax2.text(s='Overbought', x=df.index[30], y=1, fontsize=14,␣
 ↪verticalalignment='top')
ax2.text(s='Oversold', x=df.index[30], y=0, fontsize=14,␣
 ↪verticalalignment='bottom')
ax2.axhline(y=1, color='blue', linestyle='--')
ax2.axhline(y=0, color='green', linestyle='--')
ax2.grid()
ax2.set_ylabel('Volume')
ax2.set_xlabel('Date')
```

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