

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]:
```

	Open	High	Low	Close	Adj Close	\
Date						
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	

	Volume
Date	

```

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]:

```

	Open	High	Low	Close	Adj Close	\
Date						
2018-12-10	165.000000	170.089996	163.330002	169.600006	168.875732	
2018-12-11	171.660004	171.789993	167.000000	168.630005	167.909866	
2018-12-12	170.399994	171.919998	169.020004	169.100006	168.377869	
2018-12-13	170.490005	172.570007	169.550003	170.949997	170.219955	
2018-12-14	169.000000	169.080002	165.279999	165.479996	164.773315	

	Volume	BI
Date		
2018-12-10	62026000	0.274847
2018-12-11	47281700	0.280336
2018-12-12	35627700	0.392247
2018-12-13	31898600	0.949312
2018-12-14	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')

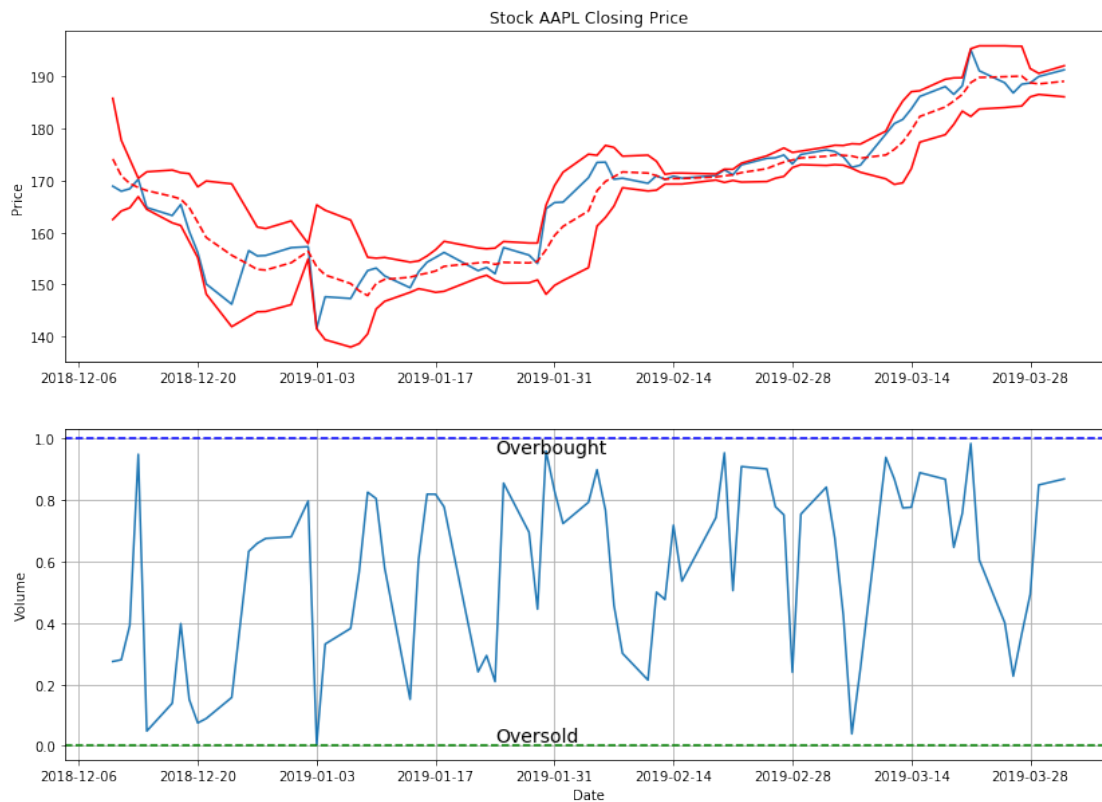
```

```

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')

