Enhancement

November 25, 2020

1 Enhancement

1.1 1. Retrieve Data from MongoDB

[6]:
```
import pymongo

client = pymongo.MongoClient()
```

[7]:
```
import pandas as pds

db = client.get_database("stock")
collection = db.get_collection("stock")
data = list(collection.find())
df = pds.DataFrame.from_records(data)
df.drop('_id', axis=1, inplace=True)
print(df.head())
print(df.info())
```

```
             Datetime         SPY       SBUX        AAPL  MSFT
0 2020-11-18 14:30:00  360.760010  98.510002  118.910004   NaN
1 2020-11-18 14:31:00  360.679993  98.565498  118.684998   NaN
2 2020-11-18 14:32:00  360.730011  98.669998  118.620003   NaN
3 2020-11-18 14:33:00  360.660004  98.705002  118.377701   NaN
4 2020-11-18 14:34:00  360.695007  98.644997  118.499901   NaN
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1950 entries, 0 to 1949
Data columns (total 5 columns):
 #   Column    Non-Null Count  Dtype
---  ------    --------------  -----
 0   Datetime  1950 non-null   datetime64[ns]
 1   SPY       1950 non-null   float64
 2   SBUX      1950 non-null   float64
 3   AAPL      1949 non-null   float64
 4   MSFT      1 non-null      float64
dtypes: datetime64[ns](1), float64(4)
memory usage: 76.3 KB
None
```

1.2 2 Porftolio Performance against S&P 500

Here is a performance analysis of our user's chosen portfolio. The user can input the number of Starbux stocks and Apple stocks they want to perchase and the plot will exhibit their gains(or loss) in percentage. The computation method is

((stock price at the moment-stock price at the beginning)/stock price at the beginning-1)-100

For example, when the y for our portfolio is 1.2, it means that if we invest 100 USD with our portfolio, we will make 1.2 USD at that datetime.

[50]:
```
import plotly.graph_objects as go
import plotly.offline as pyo
pyo.init_notebook_mode()

def portfolio_plot(sbux, aapl):
    x = df['Datetime']
    SPY = df['SPY']
    base=df['SPY'][0]
    SPY=(SPY/base-1)*100

    PTF=df['SBUX']*sbux+df['AAPL']*aapl
    base=df['SBUX'][0]*sbux+df['AAPL'][0]*aapl
    PTF=(PTF/base-1)*100

    str1='Apple and '
    str2='Starbux) against S&P 500 in 7 Days'
    ttle='Gains of Our Portfolio( %s %s %s %s' % (aapl, str1, sbux, str2)
    fig = go.Figure()
    fig.add_trace(go.Scatter(x=x, y=SPY,
                    mode='lines',
                    name='S&P 500',line=dict(color='pink', width=3)))
    fig.add_trace(go.Scatter(x=x, y=PTF,
                    mode='lines',
                    name='Portfolio',line=dict(color='orange', width=3)))

    fig.update_layout(template='ggplot2', title=ttle, yaxis_title='Gains(%)',
                      xaxis_title='Date/Time')
    return fig

portfolio_plot(5,2)
```