Analyzing Financial Data using Pandas DataReader by Oyeleke Olayemi DataLab Nigeria

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1 Using Pandas Datareader to Analyze Financial Data

[ ]:
```
#pip install pandas-datareader
```

2 The Task

We are going to use Pandas Datareader to read the stock price data from yahoo finance.

[ ]:
```
#pandas_datareader.data and pandas_datareader.wb extract data from
#various Internet sources into a pandas DataFrame.
#Currently the following sources are supported:

Tiingo

IEX

Alpha Vantage

Econdb

Enigma

Quandl

St.Louis FED (FRED)

Kenneth French's data library

World Bank

OECD

Eurostat

Thrift Savings Plan
```

```
Nasdaq Trader symbol definitions

Stooq

MOEX

Naver Finance

Yahoo Finance
```

3 Import Libraries for this Task

[89]:
```
import pandas as pd
import pandas_datareader.data as web
import matplotlib.pyplot as plt
import seaborn as sns
```

[2]:
```
#Set Start and End Date
start_date = "2021-01-1"
end_date = "2021-12-31"
```

4 Getting the Tickers for Stocks to be Analyzed

[20]:
```
tickers = ['AAF.L','TWTR']
```

5 Using Financial Data from Yahoo

[21]:
```
data_source = "yahoo"
```

6 Read in the Data using Pandas Data Reader

[22]:
```
Airtel_Africa = web.DataReader('AAF.L', data_source, start_date, end_date)
Twitter = web.DataReader('TWTR', data_source, start_date, end_date)
```

[36]:
```
#View the first few rows for Airtel Africa Stock
Airtel_Africa.head()
```

[36]:

Date	High	Low	Open	Close	Volume	Adj Close
2021-01-04	78.199997	74.400002	77.599998	74.400002	1496738.0	74.376068
2021-01-05	77.599998	74.400002	76.599998	77.599998	2198045.0	77.575035
2021-01-06	80.300003	76.599998	78.500000	80.300003	3017284.0	80.274170
2021-01-07	82.500000	79.400002	82.500000	79.699997	1473496.0	79.674355

```
2021-01-08  83.400002  77.860001  83.400002  78.199997  1579485.0  78.174843
```

[37]:
```
#View the first few rows for Twitter Stock
Twitter.head()
```

[37]:
```
                 High        Low       Open      Close    Volume  Adj Close
Date
2021-01-04  55.490002  53.580002  54.490002  54.529999  12231600  54.529999
2021-01-05  54.500000  53.150002  53.410000  53.880001   8317200  53.880001
2021-01-06  54.520000  52.570000  53.270000  53.259998   9260000  53.259998
2021-01-07  53.380001  51.459999  52.220001  52.330002  18967600  52.330002
2021-01-08  52.700001  50.189999  52.500000  51.480000  16955400  51.480000
```

7 Statistical Analysis

[50]:
```
# Print the summary statistics of Airtel Africa Stock
Airtel_Africa.describe()
```

[50]:
```
              High         Low        Open       Close        Volume  \
count  253.000000  253.000000  253.000000  253.000000  2.530000e+02
mean    93.426028   89.766945   91.759091   91.508300  2.004583e+06
std     18.050389   17.183259   17.473491   17.774385  1.963728e+06
min     73.599998   70.300003   71.050003   71.400002  5.099600e+04
25%     80.300003   77.300003   79.099998   78.750000  1.165344e+06
50%     84.699997   81.000000   83.650002   82.800003  1.588814e+06
75%     99.050003   95.199997   98.150002   96.500000  2.169590e+06
max    139.699997  134.600006  136.699997  135.899994  1.826950e+07

        Adj Close
count  253.000000
mean    91.492263
std     17.782109
min     71.377029
25%     78.724663
50%     82.773361
75%     96.489182
max    135.899994
```

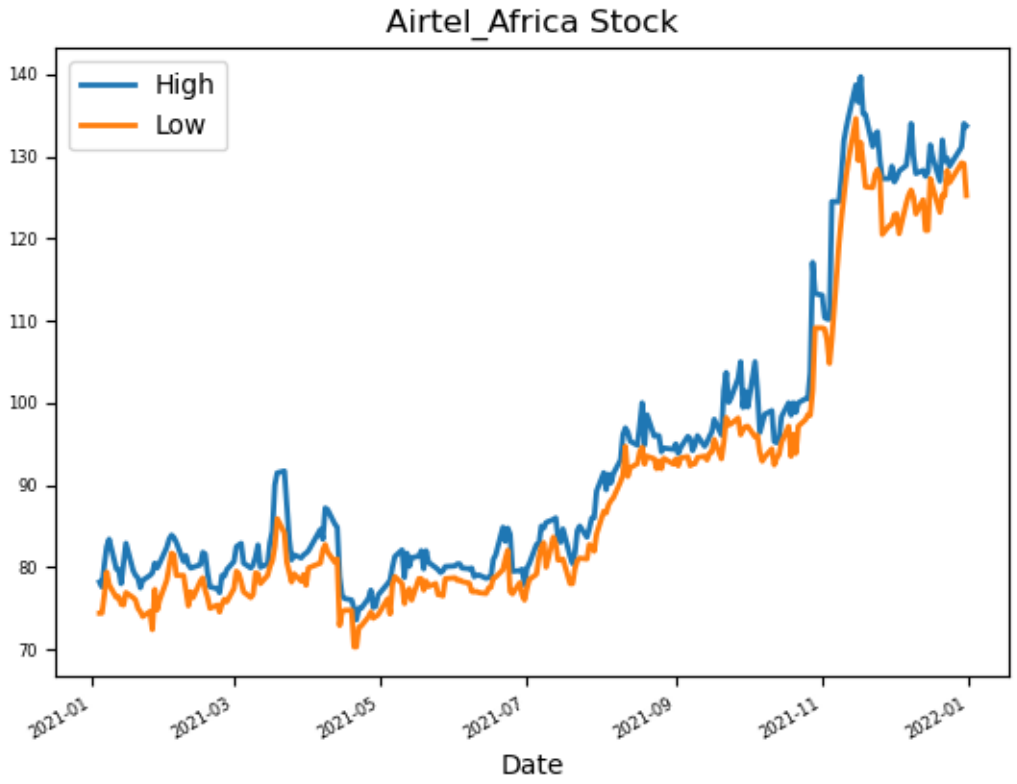
[51]:
```
# Print the summary statistics of Twitter Stock
Twitter.describe()
```

[51]:
```
              High         Low        Open       Close        Volume  \
count  252.000000  252.000000  252.000000  252.000000  2.520000e+02
mean    61.165397   58.939484   60.111389   59.991746  1.685024e+07
std      8.859557    8.569974    8.712135    8.715725  1.141948e+07
min     43.099998   41.009998   42.110001   42.070000  5.060100e+06
25%     54.440000   52.644999   53.265000   53.470000  9.979325e+06
```

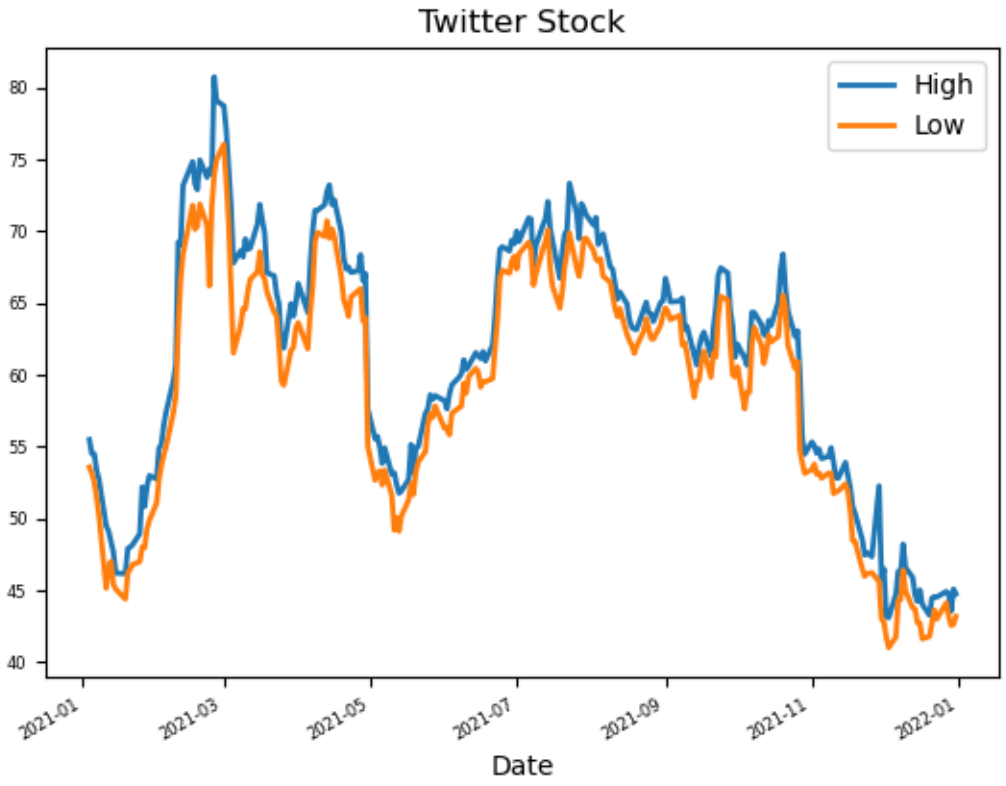
```
50%     63.174999   61.485001   61.980000   62.105000   1.393450e+07
75%     68.372501   65.782497   67.080000   66.962498   1.960610e+07
max     80.750000   76.050003   78.360001   77.629997   8.837880e+07

        Adj Close
count  252.000000
mean    59.991746
std      8.715725
min     42.070000
25%     53.470000
50%     62.105000
75%     66.962498
max     77.629997
```

8 Visualize Multiple Indicators

[103]:
```
ax = Airtel_Africa[["High","Low"]].plot(linewidth=2,fontsize=6);

# Additional customizations
plt.title("Airtel_Africa Stock")
ax.set_xlabel('Date');
ax.legend(fontsize=10);
```



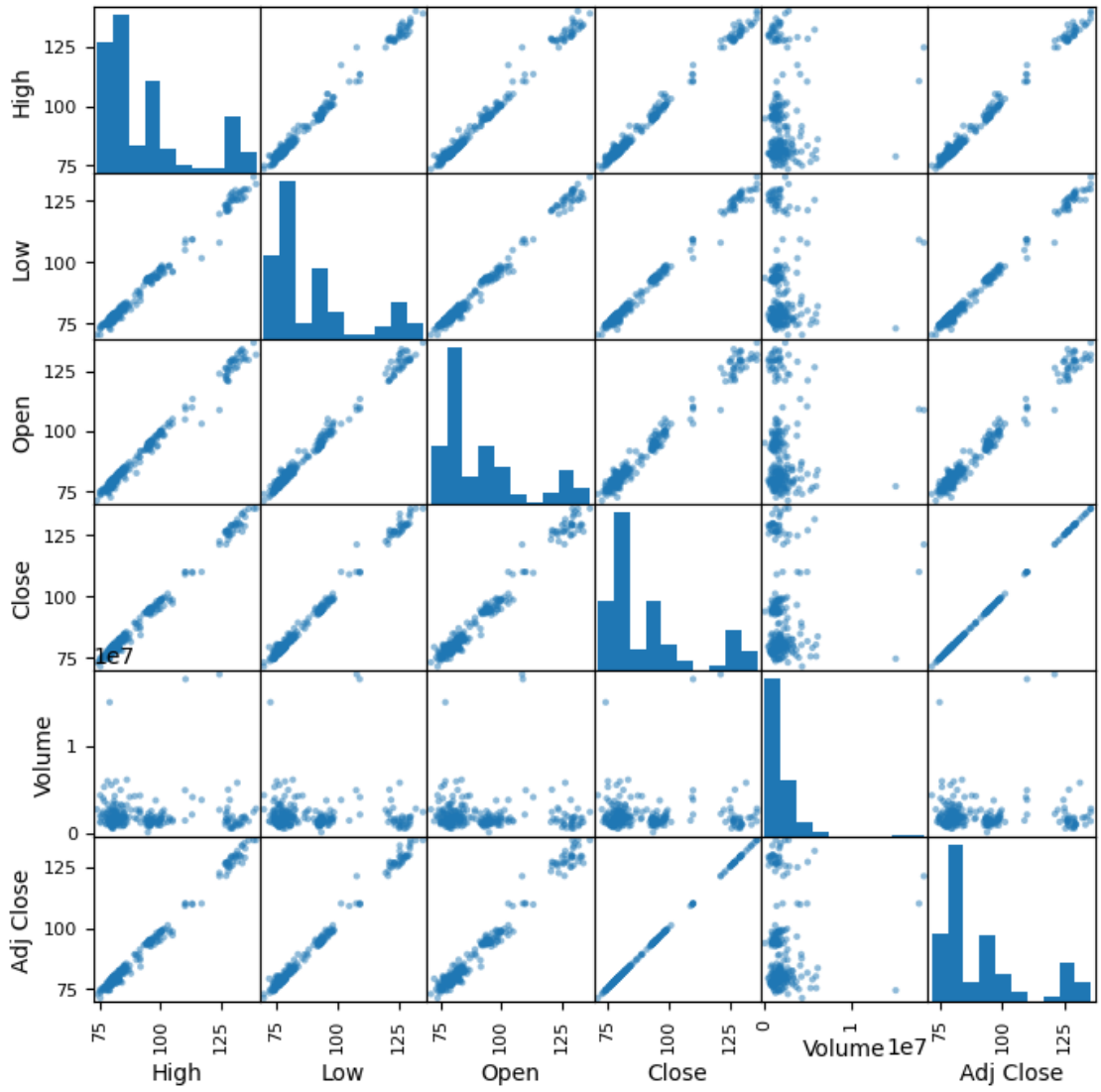
[98]:
```
ax = Twitter[["High","Low"]].plot(linewidth=2,fontsize=6);

# Additional customizations
plt.title("Twitter Stock")
ax.set_xlabel('Date');
ax.legend(fontsize=10);
```



9 Visualizing Relationships between Features

[102]:
```
from matplotlib import pyplot
from pandas.plotting import scatter_matrix
pyplot.figure(figsize=(6,8))
scatter_matrix(Airtel_Africa,figsize=(8,8))
pyplot.show()
```

```
<Figure size 600x800 with 0 Axes>
```


High
Low
Open
Close
Volume
Adj Close
1e7
1e7

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