Suhyeon's second assignment

September 13, 2023

[1]:
```
!pip install yfinance
!pip install pandas
!pip install requests
!pip install bs4
!pip install plotly
```

```
Requirement already satisfied: yfinance in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (0.1.67)
Requirement already satisfied: pandas>=0.24 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from yfinance)
(1.3.5)
Requirement already satisfied: numpy>=1.15 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from yfinance)
(1.21.6)
Requirement already satisfied: requests>=2.20 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from yfinance)
(2.31.0)
Requirement already satisfied: multitasking>=0.0.7 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from yfinance)
(0.0.11)
Requirement already satisfied: lxml>=4.5.1 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from yfinance)
(4.9.2)
Requirement already satisfied: python-dateutil>=2.7.3 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
pandas>=0.24->yfinance) (2.8.2)
Requirement already satisfied: pytz>=2017.3 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
pandas>=0.24->yfinance) (2023.3)
Requirement already satisfied: charset-normalizer<4,>=2 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.20->yfinance) (3.1.0)
Requirement already satisfied: idna<4,>=2.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.20->yfinance) (3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.20->yfinance) (1.26.15)
```

```
Requirement already satisfied: certifi>=2017.4.17 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.20->yfinance) (2023.5.7)
Requirement already satisfied: six>=1.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from python-
dateutil>=2.7.3->pandas>=0.24->yfinance) (1.16.0)
Requirement already satisfied: pandas in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (1.3.5)
Requirement already satisfied: python-dateutil>=2.7.3 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from pandas)
(2.8.2)
Requirement already satisfied: pytz>=2017.3 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from pandas)
(2023.3)
Requirement already satisfied: numpy>=1.17.3 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from pandas)
(1.21.6)
Requirement already satisfied: six>=1.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from python-
dateutil>=2.7.3->pandas) (1.16.0)
Requirement already satisfied: requests in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (2.31.0)
Requirement already satisfied: charset-normalizer<4,>=2 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from requests)
(3.1.0)
Requirement already satisfied: idna<4,>=2.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from requests)
(3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from requests)
(1.26.15)
Requirement already satisfied: certifi>=2017.4.17 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from requests)
(2023.5.7)
Requirement already satisfied: bs4 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (0.0.1)
Requirement already satisfied: beautifulsoup4 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from bs4)
(4.10.0)
Requirement already satisfied: soupsieve>1.2 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
beautifulsoup4->bs4) (2.3.2.post1)
Requirement already satisfied: plotly in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (5.14.1)
Requirement already satisfied: tenacity>=6.2.0 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from plotly)
(8.2.2)
Requirement already satisfied: packaging in
```

```
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from plotly)
(23.1)
```

[2]:
```
import yfinance as yf
import pandas as pd
import requests
from bs4 import BeautifulSoup
import plotly.graph_objects as go
from plotly.subplots import make_subplots
```

[3]:
```
def make_graph(stock_data, revenue_data, stock):
    fig = make_subplots(rows=2, cols=1, shared_xaxes=True,␣
 ↪subplot_titles=("Historical Share Price", "Historical Revenue"),␣
 ↪vertical_spacing = .3)
    fig.add_trace(go.Scatter(x=pd.to_datetime(stock_data.Date,␣
 ↪infer_datetime_format=True), y=stock_data.Close.astype("float"), name="Share␣
 ↪Price"), row=1, col=1)
    fig.add_trace(go.Scatter(x=pd.to_datetime(revenue_data.Date,␣
 ↪infer_datetime_format=True), y=revenue_data.Revenue.astype("float"),␣
 ↪name="Revenue"), row=2, col=1)
    fig.update_xaxes(title_text="Date", row=1, col=1)
    fig.update_xaxes(title_text="Date", row=2, col=1)
    fig.update_yaxes(title_text="Price ($US)", row=1, col=1)
    fig.update_yaxes(title_text="Revenue ($US Millions)", row=2, col=1)
    fig.update_layout(showlegend=False,
    height=900,
    title=stock,
    xaxis_rangeslider_visible=True)
    fig.show()
```

[4]:
```
Tesla = yf.Ticker('TSLA')
```

[5]:
```
tesla_data = Tesla.history(period = "max")
```

[6]:
```
tesla_data.reset_index(inplace = True)
tesla_data.head()
```

[6]:

	Date	Open	High	Low	Close	Volume	Dividends	Stock Splits
0	2010-06-29	1.266667	1.666667	1.169333	1.592667	281494500	0	0.0
1	2010-06-30	1.719333	2.028000	1.553333	1.588667	257806500	0	0.0
2	2010-07-01	1.666667	1.728000	1.351333	1.464000	123282000	0	0.0
3	2010-07-02	1.533333	1.540000	1.247333	1.280000	77097000	0	0.0
4	2010-07-06	1.333333	1.333333	1.055333	1.074000	103003500	0	0.0

```
2           0.0
3           0.0
4           0.0
```

[9]:
```
url = " https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/
 ↪IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.htm"
html_data = requests.get(url).text
```

[10]:
```
soup = BeautifulSoup(html_data, "html.parser")
soup.find_all('title')
```

[10]:
```
[<title>Tesla Revenue 2010-2022 | TSLA | MacroTrends</title>]
```

[11]:
```
tesla_revenue = pd.DataFrame(columns = ['Date', 'Revenue'])

for row in soup.find_all("tbody")[1].find_all("tr"):
    col = row.find_all("td")
    date = col[0].text
    revenue = col[1].text.replace("$", "").replace(",", "")

    tesla_revenue = tesla_revenue.append({"Date": date, "Revenue": revenue},␣
 ↪ignore_index = True)
```

[12]:
```
tesla_revenue.dropna(inplace=True)
tesla_revenue = tesla_revenue[tesla_revenue['Revenue'] != ""]
```

[13]:
```
tesla_revenue.tail()
```

[13]:
```
          Date Revenue
48  2010-09-30      31
49  2010-06-30      28
50  2010-03-31      21
52  2009-09-30      46
53  2009-06-30      27
```

[14]:
```
GameStop = yf.Ticker("GME")
```

[15]:
```
gme_data = GameStop.history(period = 'max')
```

[16]:
```
gme_data.reset_index(inplace = True)
gme_data.head()
```

[16]:
```
        Date      Open      High       Low     Close    Volume  Dividends  \
0 2002-02-13  1.620129  1.693350  1.603296  1.691667  76216000        0.0
1 2002-02-14  1.712707  1.716073  1.670626  1.683250  11021600        0.0
2 2002-02-15  1.683250  1.687458  1.658002  1.674834   8389600        0.0
3 2002-02-19  1.666418  1.666418  1.578047  1.607504   7410400        0.0
```

```
4 2002-02-20  1.615921  1.662210  1.603296  1.662210   6892800        0.0

   Stock Splits
0           0.0
1           0.0
2           0.0
3           0.0
4           0.0
```

[17]:
```
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/
 ↪IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/stock.html"
html_data = requests.get(url).text
```

[18]:
```
soup = BeautifulSoup(html_data, "html.parser")
soup.find_all('title')
```

[18]:
```
[<title>GameStop Revenue 2006-2020 | GME | MacroTrends</title>]
```

[19]:
```
gme_revenue = pd.DataFrame(columns = ['Date', 'Revenue'])

for row in soup.find_all("tbody")[1].find_all("tr"):
    col = row.find_all("td")
    date = col[0].text
    revenue = col[1].text.replace("$", "").replace(",", "")

    gme_revenue = gme_revenue.append({"Date": date, "Revenue": revenue},␣
 ↪ignore_index = True)
```

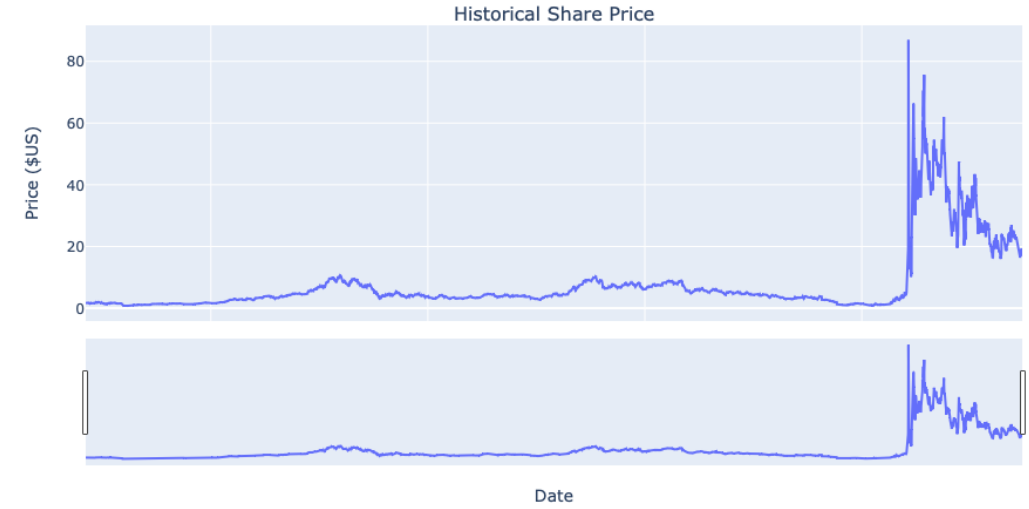
[20]:
```
tesla_revenue.dropna(inplace=True)
tesla_revenue = tesla_revenue[tesla_revenue['Revenue'] != ""]
gme_revenue.tail()
```

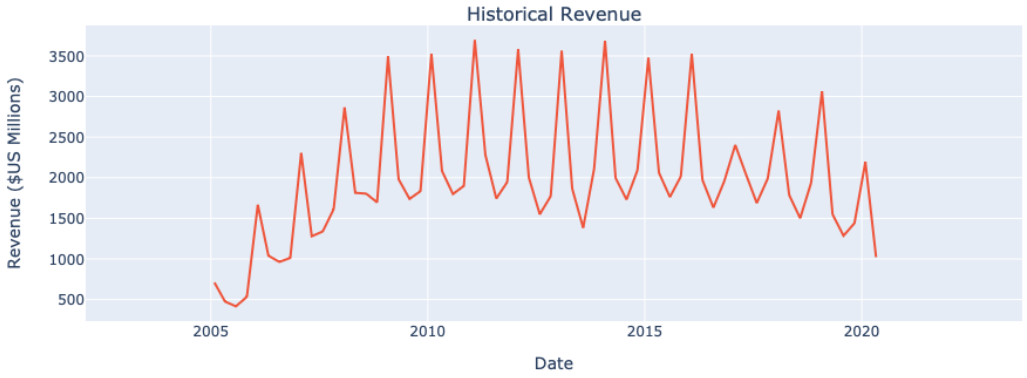
[20]:
```
          Date Revenue
57  2006-01-31    1667
58  2005-10-31     534
59  2005-07-31     416
60  2005-04-30     475
61  2005-01-31     709
```

[21]:
```
make_graph(tesla_data, tesla_revenue, 'Tesla')
```

[22]:
```
make_graph(gme_data, gme_revenue, 'GameStop')
```

GameStop


Historical Share Price
Price ($US)
80
60
40
20
0
Date


Historical Revenue
Revenue ($US Millions)
3500
3000
2500
2000
1500
1000
500
2005
2010
2015
2020
Date

[ ]: