

# Graded exam

January 18, 2023

```
[1]: !pip install yfinance==0.2.4
      !mamba install bs4==4.10.0 -y
      !pip install lxml==4.6.4
      !mamba install html5lib==1.1 -y
```

```
Requirement already satisfied: yfinance==0.2.4 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (0.2.4)
Requirement already satisfied: cryptography>=3.3.2 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (38.0.2)
Requirement already satisfied: pytz>=2022.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (2022.6)
Requirement already satisfied: appdirs>=1.4.4 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (1.4.4)
Requirement already satisfied: html5lib>=1.1 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (1.1)
Requirement already satisfied: beautifulsoup4>=4.11.1 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (4.11.1)
Requirement already satisfied: frozendict>=2.3.4 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (2.3.4)
Requirement already satisfied: multitasking>=0.0.7 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (0.0.11)
Collecting lxml>=4.9.1
  Downloading lxml-4.9.2-cp37-cp37m-manylinux_2_17_x86_64.manylinux2014_x86_64.m
anylinux_2_24_x86_64.whl (6.6 MB)
                                6.6/6.6 MB
40.8 MB/s eta 0:00:0000:0100:01
Requirement already satisfied: numpy>=1.16.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (1.21.6)
Requirement already satisfied: pandas>=1.3.0 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
```

```

yfinance==0.2.4) (1.3.5)
Requirement already satisfied: requests>=2.26 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
yfinance==0.2.4) (2.28.1)
Requirement already satisfied: soupsieve>1.2 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
beautifulsoup4>=4.11.1->yfinance==0.2.4) (2.3.2.post1)
Requirement already satisfied: cffi>=1.12 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
cryptography>=3.3.2->yfinance==0.2.4) (1.15.1)
Requirement already satisfied: webencodings in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
html5lib>=1.1->yfinance==0.2.4) (0.5.1)
Requirement already satisfied: six>=1.9 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
html5lib>=1.1->yfinance==0.2.4) (1.16.0)
Requirement already satisfied: python-dateutil>=2.7.3 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
pandas>=1.3.0->yfinance==0.2.4) (2.8.2)
Requirement already satisfied: charset-normalizer<3,>=2 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.26->yfinance==0.2.4) (2.1.1)
Requirement already satisfied: certifi>=2017.4.17 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.26->yfinance==0.2.4) (2022.12.7)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.26->yfinance==0.2.4) (1.26.13)
Requirement already satisfied: idna<4,>=2.5 in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
requests>=2.26->yfinance==0.2.4) (3.4)
Requirement already satisfied: pycparser in
/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from
cffi>=1.12->cryptography>=3.3.2->yfinance==0.2.4) (2.21)
Installing collected packages: lxml
  Attempting uninstall: lxml
    Found existing installation: lxml 4.6.4
    Uninstalling lxml-4.6.4:
      Successfully uninstalled lxml-4.6.4
Successfully installed lxml-4.9.2

```

|/

mamba (0.15.3) supported by @QuantStack

GitHub: <https://github.com/mamba-org/mamba>

Twitter: <https://twitter.com/QuantStack>

Looking for: ['bs4==4.10.0']

pkgs/r/noarch	[>	] (--:--)	No change
pkgs/r/noarch	[=====]	(00m:00s)	No change
pkgs/main/linux-64	[>	] (--:--)	No change
pkgs/main/linux-64	[=====]	(00m:00s)	No change
pkgs/main/noarch	[>	] (--:--)	No change
pkgs/main/noarch	[=====]	(00m:00s)	No change
pkgs/r/linux-64	[>	] (--:--)	No change
pkgs/r/linux-64	[=====]	(00m:00s)	No change

Pinned packages:

- python 3.7.\*

Transaction

Prefix: /home/jupyterlab/conda/envs/python

All requested packages already installed

Collecting lxml==4.6.4

Using cached lxml-4.6.4-cp37-cp37m-manylinux\_2\_17\_x86\_64.manylinux2014\_x86\_64.manylinux\_2\_24\_x86\_64.whl (6.3 MB)

Installing collected packages: lxml

Attempting uninstall: lxml

Found existing installation: lxml 4.9.2

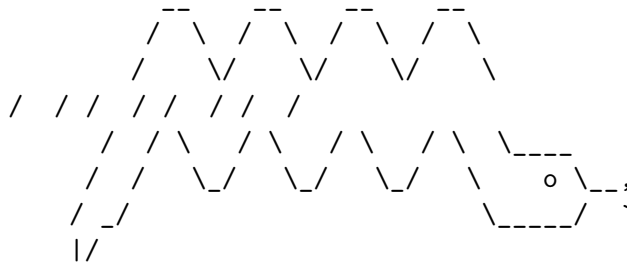
Uninstalling lxml-4.9.2:

Successfully uninstalled lxml-4.9.2

ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This behaviour is the source of the following dependency conflicts.

yfinance 0.2.4 requires lxml>=4.9.1, but you have lxml 4.6.4 which is incompatible.

Successfully installed lxml-4.6.4



mamba (0.15.3) supported by @QuantStack

GitHub: <https://github.com/mamba-org/mamba>

Twitter: <https://twitter.com/QuantStack>

Looking for: ['html5lib==1.1']

pkgs/main/linux-64	Using cache
pkgs/main/noarch	Using cache
pkgs/r/linux-64	Using cache
pkgs/r/noarch	Using cache

Pinned packages:

- python 3.7.\*

Transaction

Prefix: /home/jupyterlab/conda/envs/python

All requested packages already installed

```
[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)
    stock_data_specific = stock_data[stock_data.Date <= '2021-06-14']
    revenue_data_specific = revenue_data[revenue_data.Date <= '2021-04-30']
    fig.add_trace(go.Scatter(x=pd.to_datetime(stock_data_specific.Date,
        ↳ infer_datetime_format=True), y=stock_data_specific.Close.astype("float"),
        ↳ name="Share Price"), row=1, col=1)
    fig.add_trace(go.Scatter(x=pd.to_datetime(revenue_data_specific.Date,
        ↳ infer_datetime_format=True), y=revenue_data_specific.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()
```

Question 1 - Extracting Tesla Stock Data Using yfinance - 2 Points

```
[4]: tesla_data = yf.Ticker("TSLA")
tesla_data = tesla_data.history(period='max')
tesla_data.reset_index(inplace=True)
tesla_data.head()
```

```
[4]:
```

	Date	Open	High	Low	Close	\
0	2010-06-29 00:00:00-04:00	1.266667	1.666667	1.169333	1.592667	
1	2010-06-30 00:00:00-04:00	1.719333	2.028000	1.553333	1.588667	
2	2010-07-01 00:00:00-04:00	1.666667	1.728000	1.351333	1.464000	
3	2010-07-02 00:00:00-04:00	1.533333	1.540000	1.247333	1.280000	
4	2010-07-06 00:00:00-04:00	1.333333	1.333333	1.055333	1.074000	

Volume Dividends Stock Splits

0	281494500	0.0	0.0
1	257806500	0.0	0.0
2	123282000	0.0	0.0
3	77097000	0.0	0.0
4	103003500	0.0	0.0

### Question 2 - Extracting Tesla Revenue Data Using Webscraping - 1 Points

```
[5]: url = ("https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/
↳IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.htm")
data = requests.get(url).text
soup = BeautifulSoup(data, "html.parser")
tables = soup.find_all('table')

tesla_revenue = pd.DataFrame(columns=["Date", "Revenue"])
for row in tables[1].tbody.find_all("tr"):
    col = row.find_all("td")
    if (col != []):
        year = col[0].text
        stock = col[1].text
        tesla_revenue = tesla_revenue.append({"Date":year, "Revenue":stock},
↳ignore_index=True)

tesla_revenue["Revenue"] = tesla_revenue['Revenue'].str.replace(',', '\$', "")
tesla_revenue.dropna(inplace=True)
tesla_revenue = tesla_revenue[tesla_revenue['Revenue'] != ""]

tesla_revenue.tail()
```

/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages/ipykernel\_launcher.py:14: FutureWarning: The default value of regex will change from True to False in a future version.

```
[5]:      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
```

### Question 3 - Extracting GameStop Stock Data Using yfinance - 2 Points

```
[6]: gme_data = yf.Ticker("GME")
gme_data = gme_data.history(period='max')
gme_data.reset_index(inplace=True)
gme_data.head()
```

```
[6]:
```

	Date	Open	High	Low	Close	Volume	\
0	2002-02-13 00:00:00-05:00	1.620128	1.693350	1.603296	1.691666	76216000	
1	2002-02-14 00:00:00-05:00	1.712707	1.716074	1.670626	1.683250	11021600	
2	2002-02-15 00:00:00-05:00	1.683250	1.687458	1.658002	1.674834	8389600	
3	2002-02-19 00:00:00-05:00	1.666418	1.666418	1.578047	1.607504	7410400	
4	2002-02-20 00:00:00-05:00	1.615920	1.662210	1.603296	1.662210	6892800	

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

#### Question 4 - Extracting GameStop Revenue Data Using Webscraping - 1 Points

```
[7]: url = ("https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/
↳IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/stock.html")
data = requests.get(url).text
soup = BeautifulSoup(data,"html.parser")
tables = soup.find_all('table')

gme_revenue = pd.DataFrame(columns=["Date", "Revenue"])
for row in tables[1].tbody.find_all("tr"):
    col = row.find_all("td")
    if (col != []):
        year = col[0].text
        stock = col[1].text
        gme_revenue = gme_revenue.append({"Date":year, "Revenue":stock},
↳ignore_index=True)

gme_revenue["Revenue"] = gme_revenue['Revenue'].str.replace(',|\$',"")
gme_revenue.dropna(inplace=True)
gme_revenue = gme_revenue[gme_revenue['Revenue'] != ""]

gme_revenue.tail()
```

/home/jupyterlab/conda/envs/python/lib/python3.7/site-packages/ipykernel\_launcher.py:14: FutureWarning: The default value of regex will change from True to False in a future version.

```
[7]:
```

	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

### Question 5 - Tesla Stock and Revenue Dashboard - 2 Points

```
[8]: make_graph(tesla_data, tesla_revenue, 'Tesla Revenue Stock and Revenue')
```



### Question 6 - GameStop Stock and Revenue Dashboard- 2 Points

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



# GameStop

