Skills Network

Extracting and Visualizing Stock Data

Description

Extracting essential data from a dataset and displaying it is a necessary part of data science; therefore individuals can make correct decisions based on the data. In this assignment, you will extract some stock data, you will then display this data in a graph.

Table of Contents

Estimated Time Needed: **30 min**

Note:- If you are working Locally using anaconda, please uncomment the following code and execute it.

In [17]:

```
!pip install yfinance==0.2.38
!pip install pandas==2.2.2
!pip install nbformat
```

```
Collecting yfinance==0.2.38
  Downloading yfinance-0.2.38-py2.py3-none-any.whl (72 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 73.0/73.0 kB 8.7 MB/s eta 0:00:
00
Requirement already satisfied: pandas>=1.3.0 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from yfinance==0.2.38) (1.3.5)
Requirement already satisfied: numpy>=1.16.5 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from yfinance==0.2.38) (1.21.6)
Collecting requests>=2.31 (from yfinance==0.2.38)
  Downloading requests-2.31.0-py3-none-any.whl (62 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 62.6/62.6 kB 13.9 MB/s eta 0:0
0:00
Requirement already satisfied: multitasking>=0.0.7 in /home/jupyterlab/conda/
envs/python/lib/python3.7/site-packages (from yfinance==0.2.38) (0.0.11)
Requirement already satisfied: lxml>=4.9.1 in /home/jupyterlab/conda/envs/pyt
hon/lib/python3.7/site-packages (from yfinance==0.2.38) (4.9.2)
Collecting appdirs>=1.4.4 (from yfinance==0.2.38)
  Downloading appdirs-1.4.4-py2.py3-none-any.whl (9.6 kB)
Requirement already satisfied: pytz>=2022.5 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from yfinance==0.2.38) (2023.3)
Collecting frozendict>=2.3.4 (from yfinance==0.2.38)
  Downloading frozendict-2.4.4-cp37-cp37m-manylinux_2_17_x86_64.manylinux2014
_x86_64.whl (103 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 103.7/103.7 kB 21.1 MB/s eta 0:0
0:00
Collecting peewee>=3.16.2 (from yfinance==0.2.38)
  Downloading peewee-3.17.3.tar.gz (3.0 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 3.0/3.0 MB 89.8 MB/s eta 0:00:0
0
  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing metadata (pyproject.toml) ... done
Collecting beautifulsoup4>=4.11.1 (from yfinance==0.2.38)
  Downloading beautifulsoup4-4.12.3-py3-none-any.whl (147 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 147.9/147.9 kB 7.9 MB/s eta 0:0
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Collecting html5lib>=1.1 (from yfinance==0.2.38)
  Downloading html5lib-1.1-py2.py3-none-any.whl (112 kB)
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0:00
Requirement already satisfied: soupsieve>1.2 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from beautifulsoup4>=4.11.1->yfinance==0.
2.38) (2.3.2.post1)
Requirement already satisfied: six>=1.9 in /home/jupyterlab/conda/envs/pytho
n/lib/python3.7/site-packages (from html5lib>=1.1->yfinance==0.2.38) (1.16.0)
Requirement already satisfied: webencodings in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from html5lib>=1.1->yfinance==0.2.38) (0.5.
1)
Requirement already satisfied: python-dateutil>=2.7.3 in /home/jupyterlab/con
da/envs/python/lib/python3.7/site-packages (from pandas>=1.3.0->yfinance==0.
2.38) (2.8.2)
Requirement already satisfied: charset-normalizer<4,>=2 in /home/jupyterlab/c
onda/envs/python/lib/python3.7/site-packages (from requests>=2.31->yfinance==
0.2.38) (3.1.0)
Requirement already satisfied: idna<4,>=2.5 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from requests>=2.31->yfinance==0.2.38) (3.
4)
Requirement already satisfied: urllib3<3,>=1.21.1 in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from requests>=2.31->yfinance==0.2.3
8) (1.26.15)
Requirement already satisfied: certifi>=2017.4.17 in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from requests>=2.31->yfinance==0.2.3
8) (2023.5.7)
Building wheels for collected packages: peewee
  Building wheel for peewee (pyproject.toml) ... done
  Created wheel for peewee: filename=peewee-3.17.3-py3-none-any.whl size=1384
05 sha256=d1d57a10e4b4a8f3f4790247e4b323c882f99d897d8d8f0a2fc6e7f1ae5b357d
  Stored in directory: /home/jupyterlab/.cache/pip/wheels/52/58/ee/e76652228a
2ca264efbeb1e2b1f82feb5175098caf738f861b
Successfully built peewee
Installing collected packages: peewee, appdirs, requests, html5lib, frozendic
t, beautifulsoup4, yfinance
  Attempting uninstall: requests
    Found existing installation: requests 2.29.0
    Uninstalling requests-2.29.0:
      Successfully uninstalled requests-2.29.0
  Attempting uninstall: beautifulsoup4
    Found existing installation: beautifulsoup4 4.10.0
    Uninstalling beautifulsoup4-4.10.0:
      Successfully uninstalled beautifulsoup4-4.10.0
  Attempting uninstall: yfinance
    Found existing installation: yfinance 0.1.67
    Uninstalling yfinance-0.1.67:
      Successfully uninstalled yfinance-0.1.67
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 de
pendency conflicts.
nbconvert 7.4.0 requires nbformat>=5.1, but you have nbformat 4.2.0 which is
incompatible.
Successfully installed appdirs-1.4.4 beautifulsoup4-4.12.3 frozendict-2.4.4 h
tml5lib-1.1 peewee-3.17.3 requests-2.31.0 yfinance-0.2.38
ERROR: Ignored the following versions that require a different python versio
n: 1.4.0 Requires-Python >=3.8; 1.4.0rc0 Requires-Python >=3.8; 1.4.1 Require
s-Python >=3.8; 1.4.2 Requires-Python >=3.8; 1.4.3 Requires-Python >=3.8; 1.
4.4 Requires-Python >=3.8; 1.5.0 Requires-Python >=3.8; 1.5.0rc0 Requires-Pyt
hon >=3.8; 1.5.1 Requires-Python >=3.8; 1.5.2 Requires-Python >=3.8; 1.5.3 Re
quires-Python >=3.8; 2.0.0 Requires-Python >=3.8; 2.0.0rc0 Requires-Python >=
3.8; 2.0.0rc1 Requires-Python >=3.8; 2.0.1 Requires-Python >=3.8; 2.0.2 Requi
res-Python >=3.8; 2.0.3 Requires-Python >=3.8; 2.1.0 Requires-Python >=3.9;
2.1.0rc0 Requires-Python >=3.9; 2.1.1 Requires-Python >=3.9; 2.1.2 Requires-P
ython >=3.9; 2.1.3 Requires-Python >=3.9; 2.1.4 Requires-Python >=3.9; 2.2.0
Requires-Python >=3.9; 2.2.0rc0 Requires-Python >=3.9; 2.2.1 Requires-Python
>=3.9; 2.2.2 Requires-Python >=3.9
ERROR: Could not find a version that satisfies the requirement pandas==2.2.2
(from versions: 0.1, 0.2, 0.3.0, 0.4.0, 0.4.1, 0.4.2, 0.4.3, 0.5.0, 0.6.0, 0.
6.1, 0.7.0, 0.7.1, 0.7.2, 0.7.3, 0.8.0, 0.8.1, 0.9.0, 0.9.1, 0.10.0, 0.10.1,
0.11.0, 0.12.0, 0.13.0, 0.13.1, 0.14.0, 0.14.1, 0.15.0, 0.15.1, 0.15.2, 0.16.
0, 0.16.1, 0.16.2, 0.17.0, 0.17.1, 0.18.0, 0.18.1, 0.19.0, 0.19.1, 0.19.2, 0.
20.0, 0.20.1, 0.20.2, 0.20.3, 0.21.0, 0.21.1, 0.22.0, 0.23.0, 0.23.1, 0.23.2,
0.23.3, 0.23.4, 0.24.0, 0.24.1, 0.24.2, 0.25.0, 0.25.1, 0.25.2, 0.25.3, 1.0.
0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.1.0, 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.
5, 1.2.0, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.3.0, 1.3.1, 1.3.2, 1.3.3, 1.3.
```

```
4, 1.3.5)
ERROR: No matching distribution found for pandas==2.2.2
Requirement already satisfied: nbformat in /home/jupyterlab/conda/envs/pytho
n/lib/python3.7/site-packages (4.2.0)
Requirement already satisfied: ipython-genutils in /home/jupyterlab/conda/env
s/python/lib/python3.7/site-packages (from nbformat) (0.2.0)
Requirement already satisfied: jsonschema!=2.5.0,>=2.4 in /home/jupyterlab/co
nda/envs/python/lib/python3.7/site-packages (from nbformat) (4.17.3)
Requirement already satisfied: jupyter-core in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from nbformat) (4.12.0)
Requirement already satisfied: traitlets>=4.1 in /home/jupyterlab/conda/envs/
python/lib/python3.7/site-packages (from nbformat) (5.9.0)
Requirement already satisfied: attrs>=17.4.0 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4->nbformat) (2
3.1.0)
Requirement already satisfied: importlib-metadata in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4->nbforma
t) (4.11.4)
Requirement already satisfied: importlib-resources>=1.4.0 in /home/jupyterla
b/conda/envs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4
->nbformat) (5.12.0)
Requirement already satisfied: pkgutil-resolve-name>=1.3.10 in /home/jupyterl
ab/conda/envs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.
4->nbformat) (1.3.10)
Requirement already satisfied: pyrsistent!=0.17.0,!=0.17.1,!=0.17.2,>=0.14.0
in /home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from jsons
chema!=2.5.0,>=2.4->nbformat) (0.19.3)
Requirement already satisfied: typing-extensions in /home/jupyterlab/conda/en
vs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4->nbforma
t) (4.5.0)
Requirement already satisfied: zipp>=3.1.0 in /home/jupyterlab/conda/envs/pyt
hon/lib/python3.7/site-packages (from importlib-resources>=1.4.0->jsonschema!
=2.5.0,>=2.4->nbformat) (3.15.0)
```

In [1]:

```
!pip install yfinance==0.1.67
!mamba install bs4==4.10.0 -y
!pip install nbformat==4.2.0
```

```
Collecting yfinance==0.1.67
  Downloading yfinance-0.1.67-py2.py3-none-any.whl (25 kB)
Requirement already satisfied: pandas>=0.24 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from yfinance==0.1.67) (1.3.5)
Requirement already satisfied: numpy>=1.15 in /home/jupyterlab/conda/envs/pyt
hon/lib/python3.7/site-packages (from yfinance==0.1.67) (1.21.6)
Requirement already satisfied: requests>=2.20 in /home/jupyterlab/conda/envs/
python/lib/python3.7/site-packages (from yfinance==0.1.67) (2.29.0)
Collecting multitasking>=0.0.7 (from yfinance==0.1.67)
  Downloading multitasking-0.0.11-py3-none-any.whl (8.5 kB)
Requirement already satisfied: lxml>=4.5.1 in /home/jupyterlab/conda/envs/pyt
hon/lib/python3.7/site-packages (from yfinance==0.1.67) (4.9.2)
Requirement already satisfied: python-dateutil>=2.7.3 in /home/jupyterlab/con
da/envs/python/lib/python3.7/site-packages (from pandas>=0.24->yfinance==0.1.
67) (2.8.2)
Requirement already satisfied: pytz>=2017.3 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from pandas>=0.24->yfinance==0.1.67) (2023.
3)
Requirement already satisfied: charset-normalizer<4,>=2 in /home/jupyterlab/c
onda/envs/python/lib/python3.7/site-packages (from requests>=2.20->yfinance==
0.1.67) (3.1.0)
Requirement already satisfied: idna<4,>=2.5 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from requests>=2.20->yfinance==0.1.67) (3.
4)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in /home/jupyterlab/cond
a/envs/python/lib/python3.7/site-packages (from requests>=2.20->yfinance==0.
1.67) (1.26.15)
Requirement already satisfied: certifi>=2017.4.17 in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from requests>=2.20->yfinance==0.1.6
7) (2023.5.7)
Requirement already satisfied: six>=1.5 in /home/jupyterlab/conda/envs/pytho
n/lib/python3.7/site-packages (from python-dateutil>=2.7.3->pandas>=0.24->yfi
nance==0.1.67) (1.16.0)
Installing collected packages: multitasking, yfinance
Successfully installed multitasking-0.0.11 yfinance-0.1.67


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        mamba (1.4.2) supported by @QuantStack

        GitHub:  https://github.com/mamba-org/mamba
        Twitter: https://twitter.com/QuantStack
```

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Looking for: ['bs4==4.10.0']

[+] 0.0s
[+] 0.1s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   0.0 B /  ??.?MB @  ??.?MB/s
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pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━ 340.0kB /  ??.?MB @   1.3MB/s
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pkgs/main/noarch   ━━━━━━━━━━━━━━━━━━━━━━━━━ 405.5kB /  ??.?MB @   1.5MB/s
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pkgs/r/linux-64    ━━━━━━━━━━━━━━━━━━━━━━━━━ 434.2kB /  ??.?MB @   1.5MB/s
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pkgs/r/noarch      ━━━━━━━━━━━━━━━━━━━━━━━━━ 438.2kB /  ??.?MB @   1.5MB/s
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pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━ 786.4kB @   2.1MB/s
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pkgs/main/noarch   ━━━━━━━━━━━━━━━━━━━━━━━━ 870.0kB @   2.2MB/s Finalizing
0.4s
pkgs/r/linux-64    ━━━━━━━━━━━━━━━━━━━━━━━━ 868.4kB @   2.2MB/s
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pkgs/r/noarch      ━━━━━━━━━━━━━━━━━━━━━━━━ 774.2kB @   2.3MB/s
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[+] 0.5s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   1.3MB /  ??.?MB @   2.7MB/s
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pkgs/r/linux-64    ━━━━━━━━━━━━━━━━━━━━━━━━━   1.3MB /  ??.?MB @   2.6MB/s
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pkgs/r/noarch      ━━━━━━━━━━━━━━━━━━━━━━━━━   1.3MB /  ??.?MB @   2.7MB/s
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0.6s
pkgs/r/linux-64    ━━━━━━━━━━━━━━━━━━━━━━━━━   1.7MB /  ??.?MB @   2.9MB/s
0.6s
pkgs/r/noarch      ━━━━━━━━━━━━━━━━━━━━━━━━━   1.7MB /  ??.?MB @   3.0MB/s
0.6spkgs/r/linux-64                                      1.9MB @   3.0MB/s
0.7s
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pkgs/r/noarch       ━━━━━━━━━━━━━━━━━━━━━━━━━   2.2MB /  ??.?MB @   3.2MB/s
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[+] 0.8s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   2.8MB /  ??.?MB @   3.6MB/s
0.8s[+] 0.9s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   3.1MB /  ??.?MB @   3.6MB/s
0.9s[+] 1.0s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   3.6MB /  ??.?MB @   3.7MB/s
1.0s[+] 1.1s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   4.0MB /  ??.?MB @   3.7MB/s
1.1s[+] 1.2s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   4.5MB /  ??.?MB @   3.8MB/s
1.2s[+] 1.3s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   5.0MB /  ??.?MB @   3.9MB/s
1.3s[+] 1.4s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   5.0MB /  ??.?MB @   3.9MB/s
1.4s[+] 1.5s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   6.0MB /  ??.?MB @   4.0MB/s
1.5s[+] 1.6s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   6.5MB /  ??.?MB @   4.1MB/s
1.6s[+] 1.7s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━━   6.7MB /  ??.?MB @   4.1MB/s
1.7s[+] 1.8s
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1.8s[+] 1.9s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━   6.9MB @   4.1MB/s Finalizing
1.9s[+] 2.0s
pkgs/main/linux-64 ━━━━━━━━━━━━━━━━━━━━━━━━   6.9MB @   4.1MB/s Finalizing
2.0s[+] 2.1s
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2.1spkgs/main/linux-64                                @   4.1MB/s  2.2s

Pinned packages:
  - python 3.7.*


Transaction

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

  Updating specs:

   - bs4==4.10.0
   - ca-certificates
   - certifi
   - openssl


  Package                Version  Build          Channel                Size
────────────────────────────────────────────────────────────────────────────
  Install:
────────────────────────────────────────────────────────────────────────────

  + bs4                   4.10.0  hd3eb1b0_0     pkgs/main/noarch       10kB
  Upgrade:
─────────────────────────────────────────────────────────────────────────────

  - ca-certificates   2023.5.7  hbcca054_0    conda-forge
  + ca-certificates  2024.3.11  h06a4308_0    pkgs/main/linux-64     130kB
  - openssl             1.1.1t  h0b41bf4_0    conda-forge
  + openssl             1.1.1w  h7f8727e_0    pkgs/main/linux-64       4MB

  Downgrade:
─────────────────────────────────────────────────────────────────────────────

  - beautifulsoup4      4.11.1  pyha770c72_0  conda-forge
  + beautifulsoup4      4.10.0  pyh06a4308_0  pkgs/main/noarch        87kB

  Summary:

  Install: 1 packages
  Upgrade: 2 packages
  Downgrade: 1 packages

  Total download: 4MB

─────────────────────────────────────────────────────────────────────────────


[+] 0.0s
Downloading  (1) ━━━━━━━━━━━━━━━━━━━━━━━   0.0 B beautifulsoup4
0.0s
Extracting       ━━━━━━━━━━━━━━━━━━━━━━━       0
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Downloading  (4) ━━━━━━━━━━━━━━━━━━━━━━━   0.0 B beautifulsoup4
0.1s
Extracting       ━━━━━━━━━━━━━━━━━━━━━━━       0
0.0sca-certificates                                     130.4kB @ 827.8kB/s
0.2s
bs4                                                  10.2kB @  59.6kB/s  0.2s
openssl                                               3.9MB @  20.9MB/s  0.2s
beautifulsoup4                                       86.6kB @ 435.1kB/s  0.2s
[+] 0.2s
Downloading      ━━━━━━━━━━━━━━━━━━━━━━━   4.1MB
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Extracting   (4) ━━━━━╸━━━━━━━━━━━━━━━╺━       0 beautifulsoup4
0.0s[+] 0.3s
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Downloading and Extracting Packages

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
Collecting nbformat==4.2.0
  Downloading nbformat-4.2.0-py2.py3-none-any.whl (153 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 153.3/153.3 kB 27.8 MB/s eta 0:0
0:00
Requirement already satisfied: ipython-genutils in /home/jupyterlab/conda/env
s/python/lib/python3.7/site-packages (from nbformat==4.2.0) (0.2.0)
Requirement already satisfied: jsonschema!=2.5.0,>=2.4 in /home/jupyterlab/co
nda/envs/python/lib/python3.7/site-packages (from nbformat==4.2.0) (4.17.3)
Requirement already satisfied: jupyter-core in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from nbformat==4.2.0) (4.12.0)
Requirement already satisfied: traitlets>=4.1 in /home/jupyterlab/conda/envs/
python/lib/python3.7/site-packages (from nbformat==4.2.0) (5.9.0)
Requirement already satisfied: attrs>=17.4.0 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4->nbformat==4.
2.0) (23.1.0)
Requirement already satisfied: importlib-metadata in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4->nbforma
t==4.2.0) (4.11.4)
Requirement already satisfied: importlib-resources>=1.4.0 in /home/jupyterla
b/conda/envs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4
->nbformat==4.2.0) (5.12.0)
Requirement already satisfied: pkgutil-resolve-name>=1.3.10 in /home/jupyterl
ab/conda/envs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.
4->nbformat==4.2.0) (1.3.10)
Requirement already satisfied: pyrsistent!=0.17.0,!=0.17.1,!=0.17.2,>=0.14.0
in /home/jupyterlab/conda/envs/python/lib/python3.7/site-packages (from jsons
chema!=2.5.0,>=2.4->nbformat==4.2.0) (0.19.3)
Requirement already satisfied: typing-extensions in /home/jupyterlab/conda/en
vs/python/lib/python3.7/site-packages (from jsonschema!=2.5.0,>=2.4->nbformat
==4.2.0) (4.5.0)
Requirement already satisfied: zipp>=3.1.0 in /home/jupyterlab/conda/envs/pyt
hon/lib/python3.7/site-packages (from importlib-resources>=1.4.0->jsonschema!
=2.5.0,>=2.4->nbformat==4.2.0) (3.15.0)
Installing collected packages: nbformat
  Attempting uninstall: nbformat
    Found existing installation: nbformat 5.8.0
    Uninstalling nbformat-5.8.0:
      Successfully uninstalled nbformat-5.8.0
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 de
```

```
pendency conflicts.
jupyter-server 1.24.0 requires nbformat>=5.2.0, but you have nbformat 4.2.0 w
hich is incompatible.
nbclient 0.7.4 requires nbformat>=5.1, but you have nbformat 4.2.0 which is i
ncompatible.
nbconvert 7.4.0 requires nbformat>=5.1, but you have nbformat 4.2.0 which is
incompatible.
Successfully installed nbformat-4.2.0
```

In [18]:

```python
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
```

In Python, you can ignore warnings using the warnings module. You can use the filterwarnings function to filter or ignore specific warning messages or categories.

In [6]:

```python
import warnings
# Ignore all warnings
warnings.filterwarnings("ignore", category=FutureWarning)
```

Define Graphing Function

In this section, we define the function `make_graph`. You don't have to know how the function works, you should only care about the inputs. It takes a dataframe with stock data (dataframe must contain Date and Close columns), a dataframe with revenue data (dataframe must contain Date and Revenue columns), and the name of the stock.

In [8]:

```python
def make_graph(stock_data, revenue_data, stock):
    fig = make_subplots(rows=2, cols=1, shared_xaxes=True, subplot_titles=("
    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, infe
    fig.add_trace(go.Scatter(x=pd.to_datetime(revenue_data_specific.Date, in
    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: Use yfinance to Extract Stock Data

Using the `Ticker` function enter the ticker symbol of the stock we want to extract data on to create a ticker object. The stock is Tesla and its ticker symbol is `TSLA`.

```
In [65]: !pip install yfinance
         import yfinance as yf
         tsla = yf.Ticker("TSLA")
```

```
Requirement already satisfied: yfinance in /home/jupyterlab/conda/envs/pytho
n/lib/python3.7/site-packages (0.2.38)
Requirement already satisfied: pandas>=1.3.0 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from yfinance) (1.3.5)
Requirement already satisfied: numpy>=1.16.5 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from yfinance) (1.21.6)
Requirement already satisfied: requests>=2.31 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>=4.9.1 in /home/jupyterlab/conda/envs/pyt
hon/lib/python3.7/site-packages (from yfinance) (4.9.2)
Requirement already satisfied: appdirs>=1.4.4 in /home/jupyterlab/conda/envs/
python/lib/python3.7/site-packages (from yfinance) (1.4.4)
Requirement already satisfied: pytz>=2022.5 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from yfinance) (2023.3)
Requirement already satisfied: frozendict>=2.3.4 in /home/jupyterlab/conda/en
vs/python/lib/python3.7/site-packages (from yfinance) (2.4.4)
Requirement already satisfied: peewee>=3.16.2 in /home/jupyterlab/conda/envs/
python/lib/python3.7/site-packages (from yfinance) (3.17.3)
Requirement already satisfied: beautifulsoup4>=4.11.1 in /home/jupyterlab/con
da/envs/python/lib/python3.7/site-packages (from yfinance) (4.12.3)
Requirement already satisfied: html5lib>=1.1 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from yfinance) (1.1)
Requirement already satisfied: soupsieve>1.2 in /home/jupyterlab/conda/envs/p
ython/lib/python3.7/site-packages (from beautifulsoup4>=4.11.1->yfinance) (2.
3.2.post1)
Requirement already satisfied: six>=1.9 in /home/jupyterlab/conda/envs/pytho
n/lib/python3.7/site-packages (from html5lib>=1.1->yfinance) (1.16.0)
Requirement already satisfied: webencodings in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from html5lib>=1.1->yfinance) (0.5.1)
Requirement already satisfied: python-dateutil>=2.7.3 in /home/jupyterlab/con
da/envs/python/lib/python3.7/site-packages (from pandas>=1.3.0->yfinance) (2.
8.2)
Requirement already satisfied: charset-normalizer<4,>=2 in /home/jupyterlab/c
onda/envs/python/lib/python3.7/site-packages (from requests>=2.31->yfinance)
(3.1.0)
Requirement already satisfied: idna<4,>=2.5 in /home/jupyterlab/conda/envs/py
thon/lib/python3.7/site-packages (from requests>=2.31->yfinance) (3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from requests>=2.31->yfinance) (1.26.
15)
Requirement already satisfied: certifi>=2017.4.17 in /home/jupyterlab/conda/e
nvs/python/lib/python3.7/site-packages (from requests>=2.31->yfinance) (2023.
5.7)
```

Using the ticker object and the function `history` extract stock information and save it in a dataframe named `tesla_data`. Set the `period` parameter to `max` so we get information for the maximum amount of time.

In [66]:
```
tsla = yf.Ticker("TSLA")
tesla_data = tsla.history(period="max")
print(tesla_data.head())
```

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

            Stock Splits
Date
2010-06-29           0.0
2010-06-30           0.0
2010-07-01           0.0
2010-07-02           0.0
2010-07-06           0.0
```

Reset the index using the `reset_index(inplace=True)` function on the tesla_data DataFrame and display the first five rows of the `tesla_data` dataframe using the `head` function. Take a screenshot of the results and code from the beginning of Question 1 to the results below.

In [67]:
```
tesla_data.reset_index(inplace=True)
print(tesla_data.head())
```

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

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

Question 2: Use Webscraping to Extract Tesla Revenue Data

Use the `requests` library to download the webpage https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.htm Save the text of the response as a variable named `html_data`.

In [68]:

```
import requests
from bs4 import BeautifulSoup
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IB
response = requests.get(url)
```

Parse the html data using `beautiful_soup`.

In [34]:

```
html_data = response.text
soup = BeautifulSoup(html_data, 'html.parser')
```

Using `BeautifulSoup` or the `read_html` function extract the table with `Tesla Revenue` and store it into a dataframe named `tesla_revenue`. The dataframe should have columns `Date` and `Revenue`.

▶ Click here if you need help locating the table

In [69]:

```
import pandas as pd
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IB
tesla_revenue = pd.read_html(url)[1]  # read_html directly fetches tables fr
tesla_revenue.columns = ['Date', 'Revenue']
print(tesla_revenue.head())
```

```
         Date  Revenue
0  2022-09-30  $21,454
1  2022-06-30  $16,934
2  2022-03-31  $18,756
3  2021-12-31  $17,719
4  2021-09-30  $13,757
```

Execute the following line to remove the comma and dollar sign from the `Revenue` column.

In [46]:

```
tesla_revenue["Revenue"] = tesla_revenue['Revenue'].str.replace(',|\$',"")
```

Execute the following lines to remove an null or empty strings in the Revenue column.

In [71]:

```
tesla_revenue.dropna(inplace=True)

tesla_revenue = tesla_revenue[tesla_revenue['Revenue'] != ""]
```

Display the last 5 row of the `tesla_revenue` dataframe using the `tail` function. Take a screenshot of the results.

In [72]:

```
tesla_revenue["Revenue"] = tesla_revenue['Revenue'].str.replace(',|\$',"")
tesla_revenue.dropna(inplace=True)
tesla_revenue = tesla_revenue[tesla_revenue['Revenue'] != ""]
print(tesla_revenue.tail(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: Use yfinance to Extract Stock Data

Using the `Ticker` function enter the ticker symbol of the stock we want to extract data on to create a ticker object. The stock is GameStop and its ticker symbol is `GME`.

In [ ]:

```
!pip install yfinance
import yfinance as yf
gme = yf.Ticker("GME")
```

Using the ticker object and the function `history` extract stock information and save it in a dataframe named `gme_data`. Set the `period` parameter to `max` so we get information for the maximum amount of time.

In [ ]:

```
gme = yf.Ticker("GME")
gme_data = gme.history(period="max")
print(gme_data.head())
```

Reset the index using the `reset_index(inplace=True)` function on the gme_data DataFrame and display the first five rows of the `gme_data` dataframe using the `head` function. Take a screenshot of the results and code from the beginning of Question 3 to the results below.

In [74]:

```
gme_data.reset_index(inplace=True)
print(gme_data.head())
```

```
   index       Date      Open      High       Low     Close    Volume  \
0      0 2002-02-13  1.620128  1.693350  1.603296  1.691666  76216000
1      1 2002-02-14  1.712707  1.716074  1.670626  1.683250  11021600
2      2 2002-02-15  1.683251  1.687459  1.658002  1.674834   8389600
3      3 2002-02-19  1.666418  1.666418  1.578047  1.607504   7410400
4      4 2002-02-20  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: Use Webscraping to Extract GME Revenue Data

Use the `requests` library to download the webpage https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/stock.html. Save the text of the response as a variable named `html_data`.

In [ ]:

```
import requests
from bs4 import BeautifulSoup
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IE
response = requests.get(url)
html_data = response.text
```

Parse the html data using `beautiful_soup`.

In [ ]:

```
html_data = response.text
soup = BeautifulSoup(html_data,'html.parser')
```

Using `BeautifulSoup` or the `read_html` function extract the table with `GameStop Revenue` and store it into a dataframe named `gme_revenue`. The dataframe should have columns `Date` and `Revenue`. Make sure the comma and dollar sign is removed from the `Revenue` column using a method similar to what you did in Question 2.

▶ Click here if you need help locating the table

In [75]:

```
import pandas as pd
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IE
gme_revenue = pd.read_html(url)[1]
gme_revenue.columns = ['Date', 'Revenue']
print(gme_revenue.head())
```

```
         Date Revenue
0  2020-04-30  $1,021
1  2020-01-31  $2,194
2  2019-10-31  $1,439
3  2019-07-31  $1,286
4  2019-04-30  $1,548
```

Display the last five rows of the `gme_revenue` dataframe using the `tail` function. Take a screenshot of the results.

In [76]:

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

```
          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 5: Plot Tesla Stock Graph

Use the `make_graph` function to graph the Tesla Stock Data, also provide a title for the graph. The structure to call the `make_graph` function is `make_graph(tesla_data, tesla_revenue, 'Tesla')`. Note the graph will only show data upto June 2021.

In [80]:

```
make_graph(tesla_data, tesla_revenue, 'Tesla')
```

Question 6: Plot GameStop Stock Graph

Use the `make_graph` function to graph the GameStop Stock Data, also provide a title for the graph. The structure to call the `make_graph` function is `make_graph(gme_data, gme_revenue, 'GameStop')`. Note the graph will only show data upto June 2021.

```
In [81]: make_graph(gme_data, gme_revenue, 'GameStop')
```

About the Authors:

Joseph Santarcangelo has a PhD in Electrical Engineering, his research focused on using machine learning, signal processing, and computer vision to determine how videos impact human cognition. Joseph has been working for IBM since he completed his PhD.

Azim Hirjani

Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2022-02-28	1.2	Lakshmi Holla	Changed the URL of GameStop
2020-11-10	1.1	Malika Singla	Deleted the Optional part
2020-08-27	1.0	Malika Singla	Added lab to GitLab
