Final Assignment

September 13, 2025

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.

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Estimated Time Needed: 30 min

Note:- If you are working Locally using anaconda, please uncomment the following code and execute it. Use the version as per your python version.

[4]:
```
!pip install yfinance
!pip install bs4
!pip install nbformat
!pip install --upgrade plotly
```

```
Collecting yfinance
  Downloading yfinance-0.2.65-py2.py3-none-any.whl.metadata (5.8 kB)
Collecting pandas>=1.3.0 (from yfinance)
  Downloading
pandas-2.3.2-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata
(91 kB)
Collecting numpy>=1.16.5 (from yfinance)
  Downloading
numpy-2.3.3-cp312-cp312-manylinux_2_27_x86_64.manylinux_2_28_x86_64.whl.metadata
(62 kB)
Requirement already satisfied: requests>=2.31 in /opt/conda/lib/python3.12/site-
packages (from yfinance) (2.32.3)
```

```
Collecting multitasking>=0.0.7 (from yfinance)
  Downloading multitasking-0.0.12.tar.gz (19 kB)
  Preparing metadata (setup.py) … done
Requirement already satisfied: platformdirs>=2.0.0 in
/opt/conda/lib/python3.12/site-packages (from yfinance) (4.3.6)
Requirement already satisfied: pytz>=2022.5 in /opt/conda/lib/python3.12/site-
packages (from yfinance) (2024.2)
Requirement already satisfied: frozendict>=2.3.4 in
/opt/conda/lib/python3.12/site-packages (from yfinance) (2.4.6)
Collecting peewee>=3.16.2 (from yfinance)
  Downloading peewee-3.18.2.tar.gz (949 kB)
                           949.2/949.2 kB
45.4 MB/s eta 0:00:00
  Installing build dependencies … one
  Getting requirements to build wheel … done
  Preparing metadata (pyproject.toml) … done
Requirement already satisfied: beautifulsoup4>=4.11.1 in
/opt/conda/lib/python3.12/site-packages (from yfinance) (4.12.3)
Collecting curl_cffi>=0.7 (from yfinance)
  Downloading curl_cffi-0.13.0-cp39-abi3-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (13 kB)
Collecting protobuf>=3.19.0 (from yfinance)
  Downloading protobuf-6.32.1-cp39-abi3-manylinux2014_x86_64.whl.metadata (593
bytes)
Collecting websockets>=13.0 (from yfinance)
  Downloading websockets-15.0.1-cp312-cp312-
manylinux_2_5_x86_64.manylinux1_x86_64.manylinux_2_17_x86_64.manylinux2014_x86_6
4.whl.metadata (6.8 kB)
Requirement already satisfied: soupsieve>1.2 in /opt/conda/lib/python3.12/site-
packages (from beautifulsoup4>=4.11.1->yfinance) (2.5)
Requirement already satisfied: cffi>=1.12.0 in /opt/conda/lib/python3.12/site-
packages (from curl_cffi>=0.7->yfinance) (1.17.1)
Requirement already satisfied: certifi>=2024.2.2 in
/opt/conda/lib/python3.12/site-packages (from curl_cffi>=0.7->yfinance)
(2024.12.14)
Requirement already satisfied: python-dateutil>=2.8.2 in
/opt/conda/lib/python3.12/site-packages (from pandas>=1.3.0->yfinance)
(2.9.0.post0)
Collecting tzdata>=2022.7 (from pandas>=1.3.0->yfinance)
  Downloading tzdata-2025.2-py2.py3-none-any.whl.metadata (1.4 kB)
Requirement already satisfied: charset_normalizer<4,>=2 in
/opt/conda/lib/python3.12/site-packages (from requests>=2.31->yfinance) (3.4.1)
Requirement already satisfied: idna<4,>=2.5 in /opt/conda/lib/python3.12/site-
packages (from requests>=2.31->yfinance) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/opt/conda/lib/python3.12/site-packages (from requests>=2.31->yfinance) (2.3.0)
Requirement already satisfied: pycparser in /opt/conda/lib/python3.12/site-
packages (from cffi>=1.12.0->curl_cffi>=0.7->yfinance) (2.22)
```

```
Requirement already satisfied: six>=1.5 in /opt/conda/lib/python3.12/site-
packages (from python-dateutil>=2.8.2->pandas>=1.3.0->yfinance) (1.17.0)
Downloading yfinance-0.2.65-py2.py3-none-any.whl (119 kB)
Downloading
curl_cffi-0.13.0-cp39-abi3-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (8.3
MB)
                         8.3/8.3 MB
155.2 MB/s eta 0:00:00
Downloading
numpy-2.3.3-cp312-cp312-manylinux_2_27_x86_64.manylinux_2_28_x86_64.whl (16.6
MB)
                         16.6/16.6 MB
191.3 MB/s eta 0:00:00
Downloading
pandas-2.3.2-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (12.0
MB)
                         12.0/12.0 MB
181.6 MB/s eta 0:00:00
Downloading protobuf-6.32.1-cp39-abi3-manylinux2014_x86_64.whl (322 kB)
Downloading websockets-15.0.1-cp312-cp312-
manylinux_2_5_x86_64.manylinux1_x86_64.manylinux_2_17_x86_64.manylinux2014_x86_6
4.whl (182 kB)
Downloading tzdata-2025.2-py2.py3-none-any.whl (347 kB)
Building wheels for collected packages: multitasking, peewee
  Building wheel for multitasking (setup.py) … one
  Created wheel for multitasking: filename=multitasking-0.0.12-py3-none-
any.whl size=15605
sha256=8d2eb876b2aca1ff608c1a86fa4efcd1a522c4472c3dc99192ae4ec47dabf06a
  Stored in directory: /home/jupyterlab/.cache/pip/wheels/cc/bd/6f/664d62c99327a
beef7d86489e6631cbf45b56fbf7ef1d6ef00
  Building wheel for peewee (pyproject.toml) … one
  Created wheel for peewee:
filename=peewee-3.18.2-cp312-cp312-linux_x86_64.whl size=303862
sha256=71f0ca5f691dc6cc4c39e2d7201a2a7063d7befb572f3ab2e10151ee518071aa
  Stored in directory: /home/jupyterlab/.cache/pip/wheels/d1/df/a9/0202b051c65b1
1c992dd6db9f2babdd2c44ec7d35d511be5d3
Successfully built multitasking peewee
Installing collected packages: peewee, multitasking, websockets, tzdata,
protobuf, numpy, pandas, curl_cffi, yfinance
Successfully installed curl_cffi-0.13.0 multitasking-0.0.12 numpy-2.3.3
pandas-2.3.2 peewee-3.18.2 protobuf-6.32.1 tzdata-2025.2 websockets-15.0.1
yfinance-0.2.65
Collecting bs4
  Downloading bs4-0.0.2-py2.py3-none-any.whl.metadata (411 bytes)
Requirement already satisfied: beautifulsoup4 in /opt/conda/lib/python3.12/site-
packages (from bs4) (4.12.3)
Requirement already satisfied: soupsieve>1.2 in /opt/conda/lib/python3.12/site-
packages (from beautifulsoup4->bs4) (2.5)
```

```
Downloading bs4-0.0.2-py2.py3-none-any.whl (1.2 kB)
Installing collected packages: bs4
Successfully installed bs4-0.0.2
Requirement already satisfied: nbformat in /opt/conda/lib/python3.12/site-
packages (5.10.4)
Requirement already satisfied: fastjsonschema>=2.15 in
/opt/conda/lib/python3.12/site-packages (from nbformat) (2.21.1)
Requirement already satisfied: jsonschema>=2.6 in
/opt/conda/lib/python3.12/site-packages (from nbformat) (4.23.0)
Requirement already satisfied: jupyter-core!=5.0.*,>=4.12 in
/opt/conda/lib/python3.12/site-packages (from nbformat) (5.7.2)
Requirement already satisfied: traitlets>=5.1 in /opt/conda/lib/python3.12/site-
packages (from nbformat) (5.14.3)
Requirement already satisfied: attrs>=22.2.0 in /opt/conda/lib/python3.12/site-
packages (from jsonschema>=2.6->nbformat) (25.1.0)
Requirement already satisfied: jsonschema-specifications>=2023.03.6 in
/opt/conda/lib/python3.12/site-packages (from jsonschema>=2.6->nbformat)
(2024.10.1)
Requirement already satisfied: referencing>=0.28.4 in
/opt/conda/lib/python3.12/site-packages (from jsonschema>=2.6->nbformat)
(0.36.2)
Requirement already satisfied: rpds-py>=0.7.1 in /opt/conda/lib/python3.12/site-
packages (from jsonschema>=2.6->nbformat) (0.22.3)
Requirement already satisfied: platformdirs>=2.5 in
/opt/conda/lib/python3.12/site-packages (from jupyter-
core!=5.0.*,>=4.12->nbformat) (4.3.6)
Requirement already satisfied: typing-extensions>=4.4.0 in
/opt/conda/lib/python3.12/site-packages (from
referencing>=0.28.4->jsonschema>=2.6->nbformat) (4.12.2)
Requirement already satisfied: plotly in /opt/conda/lib/python3.12/site-packages
(5.24.1)
Collecting plotly
  Downloading plotly-6.3.0-py3-none-any.whl.metadata (8.5 kB)
Collecting narwhals>=1.15.1 (from plotly)
  Downloading narwhals-2.5.0-py3-none-any.whl.metadata (11 kB)
Requirement already satisfied: packaging in /opt/conda/lib/python3.12/site-
packages (from plotly) (24.2)
Downloading plotly-6.3.0-py3-none-any.whl (9.8 MB)
                        9.8/9.8 MB
136.9 MB/s eta 0:00:00
Downloading narwhals-2.5.0-py3-none-any.whl (407 kB)
Installing collected packages: narwhals, plotly
  Attempting uninstall: plotly
    Found existing installation: plotly 5.24.1
    Uninstalling plotly-5.24.1:
      Successfully uninstalled plotly-5.24.1
Successfully installed narwhals-2.5.0 plotly-6.3.0
```

[32]:
```
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
```

[33]:
```
import plotly.io as pio
pio.renderers.default = "iframe"
```

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.

[34]:
```
import warnings
# Ignore all warnings
warnings.filterwarnings("ignore", category=FutureWarning)
```

0.1 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.**

[36]:
```
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()
    from IPython.display import display, HTML
    fig_html = fig.to_html()
    display(HTML(fig_html))
```

Use the make_graph function that we've already defined. You'll need to invoke it in questions 5 and 6 to display the graphs and create the dashboard. > **Note: You don't need to redefine the function for plotting graphs anywhere else in this notebook; just use the existing function.**

0.2 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`.

[37]:
```
# Import required libraries
import yfinance as yf
import pandas as pd

# Create a Ticker object for Tesla
tesla = yf.Ticker("TSLA")

# Extract historical stock data (maximum available period)
tesla_data = tesla.history(period="max")

# Reset the index so "Date" becomes a column instead of an index
tesla_data.reset_index(inplace=True)

# Display the first five rows
tesla_data.head()
```

[37]:

	Date	Open	High	Low	Close	Volume	Dividends	Stock Splits
0	2010-06-29 00:00:00-04:00	1.266667	1.666667	1.169333	1.592667	281494500	0.0	0.0
1	2010-06-30 00:00:00-04:00	1.719333	2.028000	1.553333	1.588667	257806500	0.0	0.0
2	2010-07-01 00:00:00-04:00	1.666667	1.728000	1.351333	1.464000	123282000	0.0	0.0
3	2010-07-02 00:00:00-04:00	1.533333	1.540000	1.247333	1.280000	77097000	0.0	0.0
4	2010-07-06 00:00:00-04:00	1.333333	1.333333	1.055333	1.074000	103003500	0.0	0.0

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.

[38]:
```
# Extract Tesla stock data for the maximum available time
tesla_data = tesla.history(period="max")
```

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.

[39]:
```
tesla_data.reset_index(inplace=True)
tesla_data.head()
```

[39]:

	Date	Open	High	Low	Close	Volume	Dividends	Stock Splits
0	2010-06-29 00:00:00-04:00	1.266667	1.666667	1.169333	1.592667	281494500	0.0	0.0
1	2010-06-30 00:00:00-04:00	1.719333	2.028000	1.553333	1.588667	257806500	0.0	0.0
2	2010-07-01 00:00:00-04:00	1.666667	1.728000	1.351333	1.464000	123282000	0.0	0.0
3	2010-07-02 00:00:00-04:00	1.533333	1.540000	1.247333	1.280000	77097000	0.0	0.0
4	2010-07-06 00:00:00-04:00	1.333333	1.333333	1.055333	1.074000	103003500	0.0	0.0

0.3 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`.

[40]:
```
import requests

# URL that contains Tesla revenue data
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/
 ↪IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.htm"

# Download the webpage
html_data = requests.get(url).text

# Optional: print the first 500 characters just to confirm
print(html_data[:500])
```

```
<!DOCTYPE html>
<!--[if lt IE 7]>      <html class="no-js lt-ie9 lt-ie8 lt-ie7"> <![endif]-->
<!--[if IE 7]>         <html class="no-js lt-ie9 lt-ie8"> <![endif]-->
<!--[if IE 8]>         <html class="no-js lt-ie9"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js"> <!--<![endif]-->
    <head>
        <meta charset="utf-8">
        <meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1">
                <link rel="canonical"
```

```
href="https://www.macrotrends.net/stocks/charts/TSLA/tesla/revenue" />
```

Parse the html data using `beautiful_soup` using parser i.e `html5lib` or `html.parser`.

[41]:
```
from bs4 import BeautifulSoup
import pandas as pd

# Parse the html data
soup = BeautifulSoup(html_data, "html.parser")

# Find all tables on the page
tables = soup.find_all("table")

# Usually the revenue table is the second table on the page
tesla_revenue = pd.DataFrame(columns=["Date", "Revenue"])

for row in tables[1].tbody.find_all("tr"):
    cols = row.find_all("td")
    if len(cols) == 2:
        date = cols[0].text.strip()
        revenue = cols[1].text.strip()
        # Skip empty values
        if revenue != "":
            tesla_revenue = pd.concat([tesla_revenue, pd.DataFrame({"Date":
 ↪[date], "Revenue":[revenue]})], ignore_index=True)

# Show first 5 rows
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
```

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`.

Step-by-step instructions

```
Here are the step-by-step instructions:

1. Create an Empty DataFrame
2. Find the Relevant Table
3. Check for the Tesla Quarterly Revenue Table
4. Iterate Through Rows in the Table Body
5. Extract Data from Columns
```

6. Append Data to the DataFrame

Click here if you need help locating the table

Below is the code to isolate the table, you will now need to loop through the rows and columns

soup.find_all("tbody")[1]

If you want to use the read_html function the table is located at index 1

We are focusing on quarterly revenue in the lab.

[45]:
```
import pandas as pd

# Extract all tables from the webpage
tables = pd.read_html(html_data)

# Revenue table is at index 1
tesla_revenue = tables[1]

# Rename columns to match requirement
tesla_revenue.columns = ["Date", "Revenue"]

# Drop rows with missing values
tesla_revenue.dropna(inplace=True)

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.

[46]:
```
tesla_revenue["Revenue"] = tesla_revenue['Revenue'].str.
  ↪replace(',|\$',"",regex=True)
```

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

[47]:
```
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.

[48]:
```
print(tesla_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
```

0.4 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`.

[49]:
```
import yfinance as yf
import pandas as pd

# Create ticker object for GameStop
gme = yf.Ticker("GME")

# Extract stock information, set period to max
gme_data = gme.history(period="max")

# Reset index to move Date from index to a column
gme_data.reset_index(inplace=True)

# Display first 5 rows
print(gme_data.head())
```

```
                       Date      Open      High       Low     Close    Volume  \
0 2002-02-13 00:00:00-05:00  1.620128  1.693350  1.603296  1.691667  76216000
1 2002-02-14 00:00:00-05:00  1.712708  1.716074  1.670626  1.683251  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  1.662209  1.603296  1.662209   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
```

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.

[50]:
```
# Using the ticker object created earlier
gme_data = gme.history(period="max")
```

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.

[51]:
```
gme_data.reset_index(inplace=True)
print(gme_data.head())
```

```
                       Date      Open      High       Low     Close    Volume  \
0 2002-02-13 00:00:00-05:00  1.620128  1.693350  1.603296  1.691667  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  1.578048  1.607504   7410400
4 2002-02-20 00:00:00-05:00  1.615920  1.662209  1.603295  1.662209   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
```

0.5 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_2`.

[52]:
```
import requests

# Step 1: Define the URL
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/
 ↪IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/stock.html"

# Step 2: Get the webpage content
response = requests.get(url)

# Step 3: Save the text of the response into html_data_2
html_data_2 = response.text

# Optional: Check the first 200 characters
print(html_data_2[:200])
```

```
<!DOCTYPE html>
<!-- saved from url=(0105)https://web.archive.org/web/20200814131437/https://www
.macrotrends.net/stocks/charts/GME/gamestop/revenue -->
<html class=" js flexbox canvas canvastext webgl
```

Parse the html data using `beautiful_soup` using parser i.e `html5lib` or `html.parser`.

[53]:
```
from bs4 import BeautifulSoup

# Step 1: Parse the HTML data
soup = BeautifulSoup(html_data_2, "html.parser")    # you can also use "html5lib"

# Step 2: Optional - check the structure
print(soup.prettify()[:500])  # printing first 500 characters
```

```
<!DOCTYPE html>
<!-- saved from url=(0105)https://web.archive.org/web/20200814131437/https://www
.macrotrends.net/stocks/charts/GME/gamestop/revenue -->
<html class="js flexbox canvas canvastext webgl no-touch geolocation postmessage
websqldatabase indexeddb hashchange history draganddrop websockets rgba hsla
multiplebgs backgroundsize borderimage borderradius boxshadow textshadow opacity
cssanimations csscolumns cssgradients cssreflections csstransforms
csstransforms3d csstransitions fontface ge
```

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.

Note: Use the method similar to what you did in question 2.

Click here if you need help locating the table

Below is the code to isolate the table, you will now need to loop through the rows and columns

```
soup.find_all("tbody")[1]
```

If you want to use the read_html function the table is located at index 1

[54]:
```
import pandas as pd

# Extract all tables in the HTML
tables = pd.read_html(str(soup))

# The GameStop Revenue table is usually the second one (index 1), but let's␣
 ↪check
for i, table in enumerate(tables):
    print(f"Table {i} shape: {table.shape}")

# Select the correct table (adjust index if needed)
gme_revenue = tables[1]

# Rename columns
gme_revenue.columns = ["Date", "Revenue"]
```

```
# Clean Revenue column (remove $ and ,)
gme_revenue["Revenue"] = gme_revenue["Revenue"].replace('[\$,]', '', regex=True)

# Drop rows with missing values
gme_revenue.dropna(inplace=True)
```

```
Table 0 shape: (16, 2)
Table 1 shape: (62, 2)
Table 2 shape: (2, 4)
Table 3 shape: (6, 4)
Table 4 shape: (3, 2)
Table 5 shape: (3, 2)
```

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

[55]:
```
print(gme_revenue.tail())
```

```
          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
```

0.6 Question 5: Plot Tesla Stock Graph

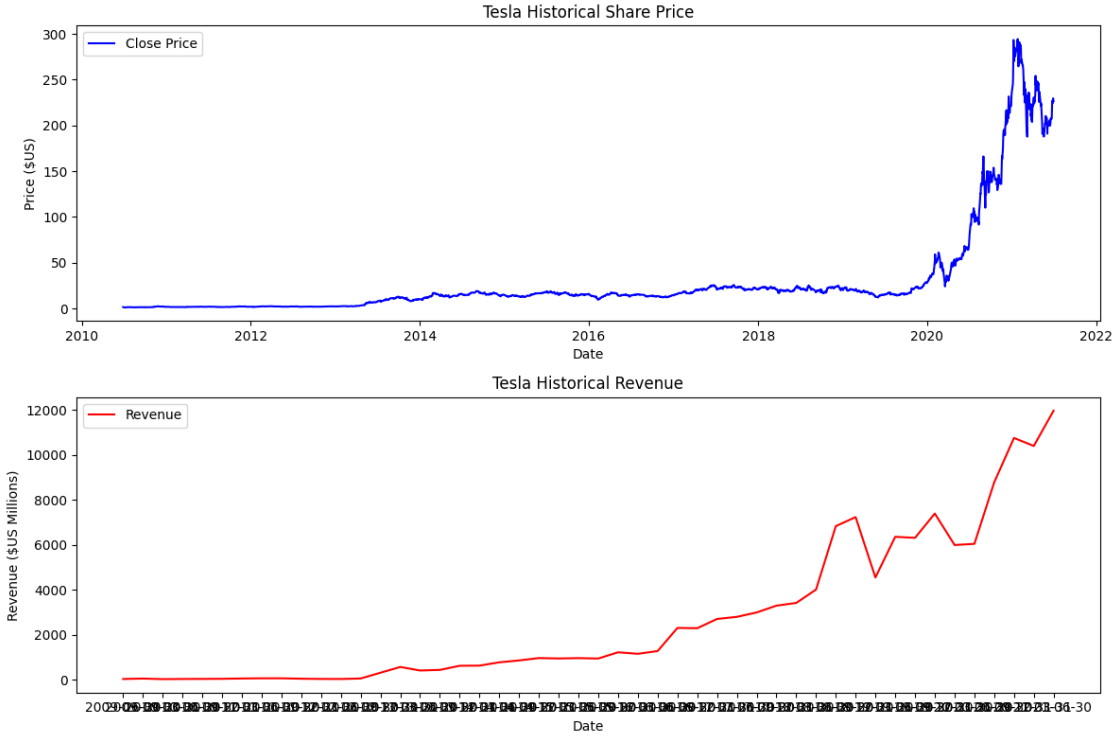
Use the `make_graph` function to graph the Tesla Stock Data, also provide a title for the graph. Note the graph will only show data upto June 2021.

Hint

```
You just need to invoke the make_graph function with the required parameter to print the graphs
```

[82]:
```
import matplotlib.pyplot as plt
import pandas as pd

def make_graph(stock_data, revenue_data, stock_name):
    fig, axs = plt.subplots(2, 1, figsize=(12, 8))

    # Sort data by Date in ascending order
    stock_data = stock_data.sort_values('Date')
    revenue_data = revenue_data.sort_values('Date')

    axs[0].plot(stock_data['Date'], stock_data['Close'], label="Close Price",␣
 ↪color="blue")
    axs[0].set_title(f"{stock_name} Historical Share Price")
    axs[0].set_xlabel("Date")
    axs[0].set_ylabel("Price ($US)")
```

```
    axs[0].legend()

    # Ensure Revenue is numeric and plotted correctly
    revenue_data['Revenue'] = pd.to_numeric(revenue_data['Revenue'],␣
 ↪errors='coerce')
    axs[1].plot(revenue_data['Date'], revenue_data['Revenue'], label="Revenue",␣
 ↪color="red")
    axs[1].set_title(f"{stock_name} Historical Revenue")
    axs[1].set_xlabel("Date")
    axs[1].set_ylabel("Revenue ($US Millions)")
    axs[1].legend()

    plt.tight_layout()
    plt.show()

# Filter data up to June 2021
tesla_data = tesla_data[tesla_data['Date'] <= '2021-06-30']
tesla_revenue = tesla_revenue[tesla_revenue['Date'] <= '2021-06-30']

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



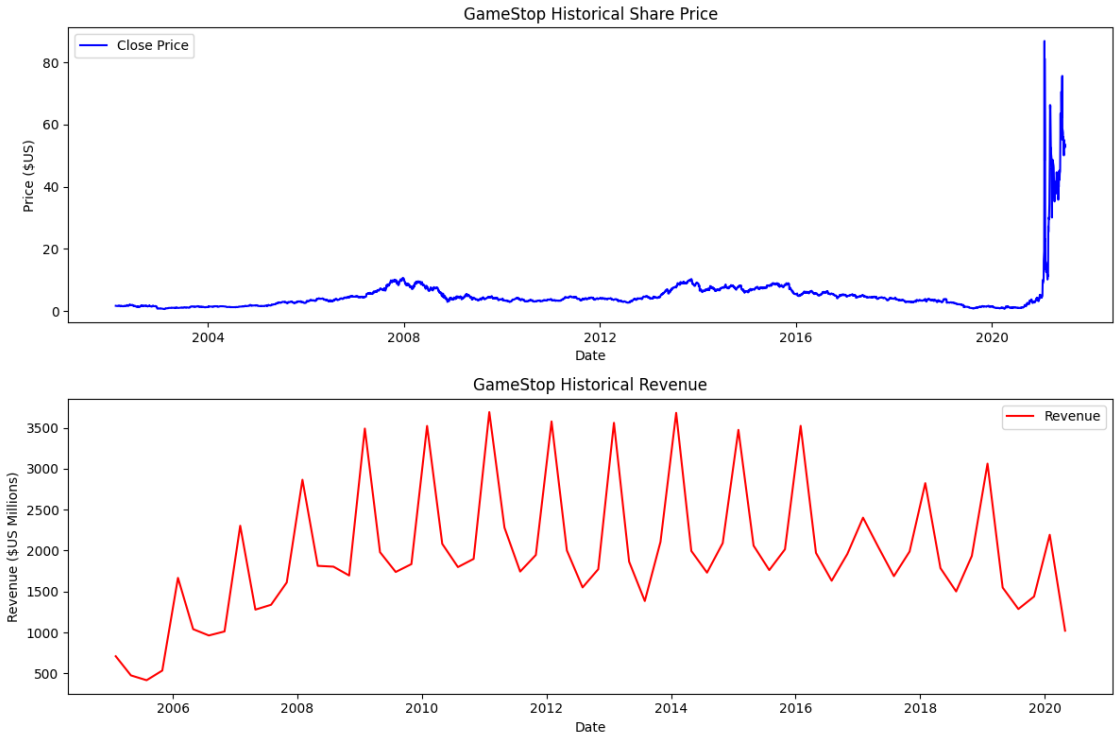
0.7 Question 6: Plot GameStop Stock Graph

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.

Hint

`You just need to invoke the make_graph function with the required parameter to print the graphs`

[83]:
```
import matplotlib.pyplot as plt
import pandas as pd

def make_graph(stock_data, revenue_data, stock_name):
    stock_data['Date'] = pd.to_datetime(stock_data['Date'])
    revenue_data['Date'] = pd.to_datetime(revenue_data['Date'])

    stock_data = stock_data[stock_data['Date'] <= '2021-06-30']
    revenue_data = revenue_data[revenue_data['Date'] <= '2021-06-30']

    fig, axs = plt.subplots(2, 1, figsize=(12, 8))

    axs[0].plot(stock_data['Date'], stock_data['Close'], label="Close Price",␣
 ↪color="blue")
    axs[0].set_title(f"{stock_name} Historical Share Price")
    axs[0].set_xlabel("Date")
    axs[0].set_ylabel("Price ($US)")
    axs[0].legend()

    revenue_data['Revenue'] = pd.to_numeric(revenue_data['Revenue'],␣
 ↪errors='coerce')
    axs[1].plot(revenue_data['Date'], revenue_data['Revenue'], label="Revenue",␣
 ↪color="red")
    axs[1].set_title(f"{stock_name} Historical Revenue")
    axs[1].set_xlabel("Date")
    axs[1].set_ylabel("Revenue ($US Millions)")
    axs[1].legend()

    plt.tight_layout()
    plt.show()

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

0.8 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

##

[71]:

```
  Cell In[71], line 3
    Stock rows (<=2021-06-30): …
                       ^
```

```
SyntaxError: leading zeros in decimal integer literals are not permitted; use a
  ↪0o prefix for octal integers
```

[ ]: