Analyzing Tesla and Gamestop’s Historical Stock and Revenue Data and Building a Dashboard

Tesla:

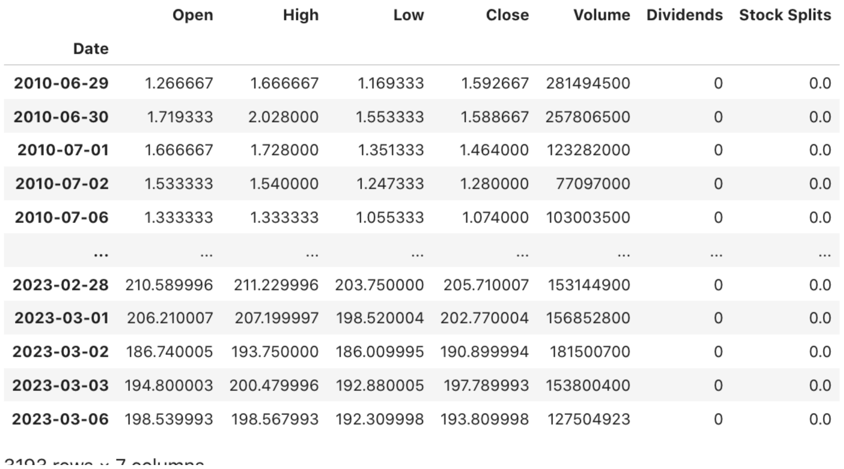
```
!pip install yfinance==0.1.67
!mamba install bs4==4.10.0 -y
!pip install nbformat==4.2.0

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

# Define the function make_graph
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()
```

# Use Yfinance to extract Tesla’s stock data

# Create a ticker object, “tesla”, that takes in the stock data using the key "TSLA"
tesla = yf.Ticker("TSLA")

# Extract stock information and save it in a dataframe named tesla_data. The period parameter is set to max so we get information for the maximum amount of time.
tesla_data = tesla.history(period="max")
tesla_data

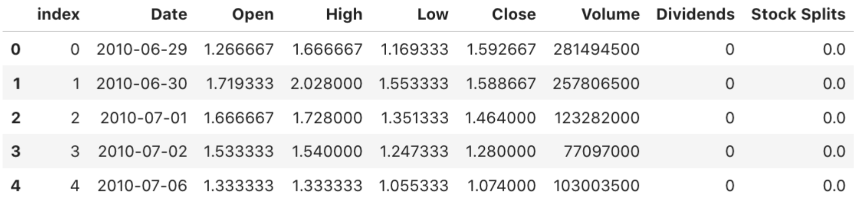
# Output:



	Open	High	Low	Close	Volume	Dividends	Stock Splits
Date							
2010-06-29	1.266667	1.666667	1.169333	1.592667	281494500	0	0.0
2010-06-30	1.719333	2.028000	1.553333	1.588667	257806500	0	0.0
2010-07-01	1.666667	1.728000	1.351333	1.464000	123282000	0	0.0
2010-07-02	1.533333	1.540000	1.247333	1.280000	77097000	0	0.0
2010-07-06	1.333333	1.333333	1.055333	1.074000	103003500	0	0.0
...	...	...	...	...	...	...	...
2023-02-28	210.589996	211.229996	203.750000	205.710007	153144900	0	0.0
2023-03-01	206.210007	207.199997	198.520004	202.770004	156852800	0	0.0
2023-03-02	186.740005	193.750000	186.009995	190.899994	181500700	0	0.0
2023-03-03	194.800003	200.479996	192.880005	197.789993	153800400	0	0.0
2023-03-06	198.539993	198.567993	192.309998	193.809998	127504923	0	0.0

3193 rows × 7 columns

# Reset the index and display the first 5 rows

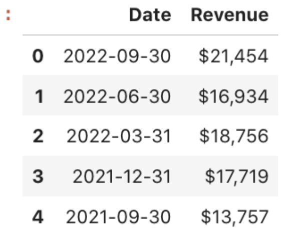


	index	Date	Open	High	Low	Close	Volume	Dividends	Stock Splits
0	0	2010-06-29	1.266667	1.666667	1.169333	1.592667	281494500	0	0.0
1	1	2010-06-30	1.719333	2.028000	1.553333	1.588667	257806500	0	0.0
2	2	2010-07-01	1.666667	1.728000	1.351333	1.464000	123282000	0	0.0
3	3	2010-07-02	1.533333	1.540000	1.247333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

# Use webscraping to extract Tesla Revenue Data¶

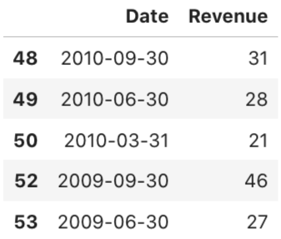
# Download the webpage https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.html and save the text as a variable, html_data
import requests
from bs4 import BeautifulSoup
url = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/revenue.htm"
html_data = requests.get(url).text

```
# Parse the html data using BeautifulSoup
soup = BeautifulSoup(html_data,'html.parser')
tag_object=soup.title
print("tag object:",tag_object)

# Output:
tag object: <title>Tesla Revenue 2010-2022 | TSLA | MacroTrends</title>

# Use BeautifulSoup to extract the table with Tesla Quarterly Revenue and store it into a
dataframe named tesla_revenue, with columns Date and Revenue
tesla_revenue = pd.DataFrame(columns=["Date" , "Revenue"])
for table in soup.find_all('table'):
    if table.find('th').getText().startswith("Tesla Quarterly Revenue"):
        for row in table.find("tbody").find_all("tr"):
            col = row.find_all("td")
            date = col[0].text
            revenue = col[1].text
            tesla_revenue = tesla_revenue.append({"Date":date, "Revenue":revenue},
            ignore_index=True)
tesla_revenue.head()

# Output:
```



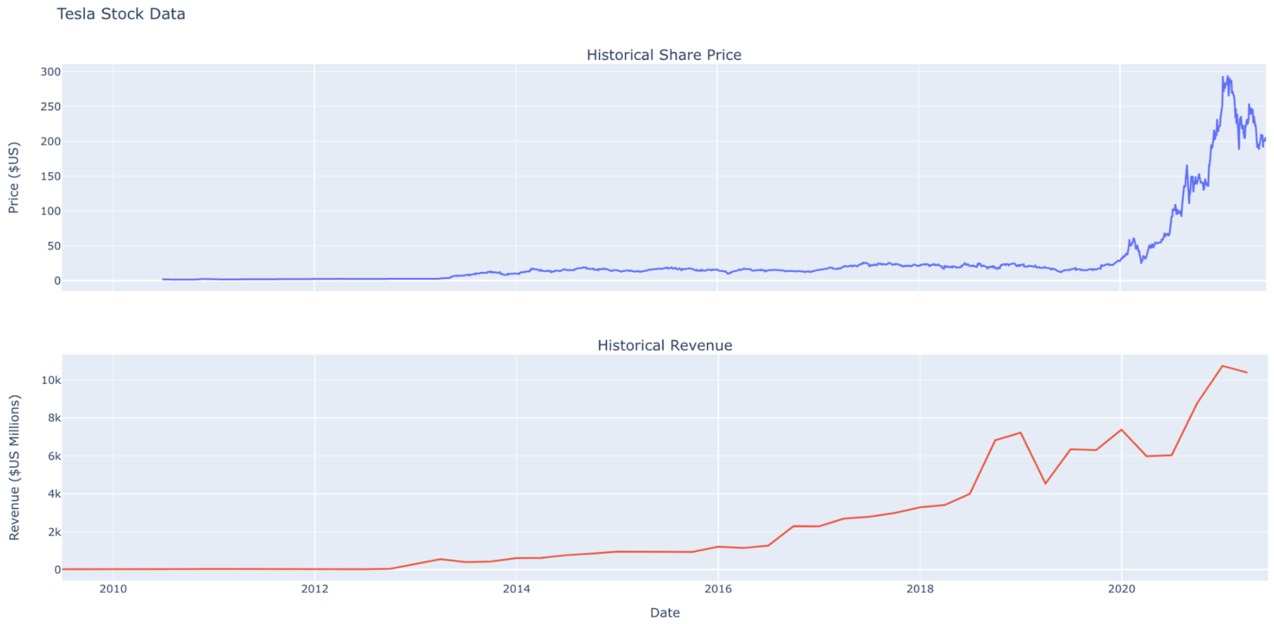
	Date	Revenue
0	2022-09-30	$21,454
1	2022-06-30	$16,934
2	2022-03-31	$18,756
3	2021-12-31	$17,719
4	2021-09-30	$13,757

```
#  Remove the comma and dollar sign from the Revenue column
tesla_revenue["Revenue"] = tesla_revenue['Revenue'].str.replace(',|\$',"")

# Remove an null or empty strings in the Revenue column
tesla_revenue.dropna(inplace=True)
tesla_revenue = tesla_revenue[tesla_revenue['Revenue'] != ""]
tesla_revenue.tail(5)

# Output:
```



	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

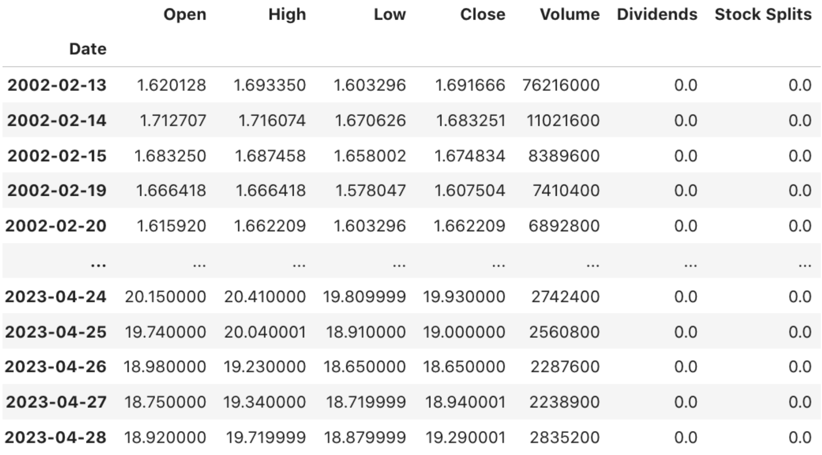
```
# Graph the Tesla Stock Data. The graph will only show data up to June 2021
make_graph(tesla_data, tesla_revenue, 'Tesla Stock Data')

# Output:
```



Gamestop:

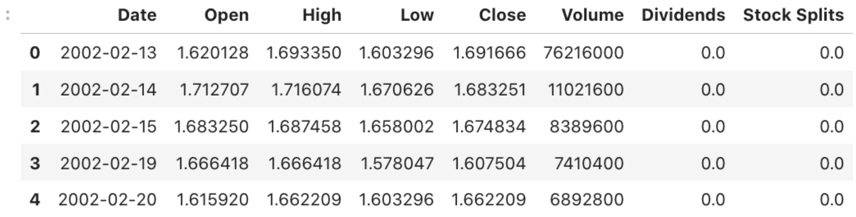
```
# Use Yfinance to extract Gamestop’s stock data
```

```
# Create a ticker object, “gamestop”, that takes in the stock data using the key "GME"
gamestop = yf.Ticker("GME")

# Extract stock information and save it in a dataframe named gme_data. The period parameter
is set to max so we get information for the maximum amount of time.
gme_data = gamestop.history(period="max")
Gme_data

# Output:
```



```
                 Open       High        Low      Close    Volume  Dividends  Stock Splits
      Date
2002-02-13   1.620128   1.693350   1.603296   1.691666  76216000        0.0           0.0
2002-02-14   1.712707   1.716074   1.670626   1.683251  11021600        0.0           0.0
2002-02-15   1.683250   1.687458   1.658002   1.674834   8389600        0.0           0.0
2002-02-19   1.666418   1.666418   1.578047   1.607504   7410400        0.0           0.0
2002-02-20   1.615920   1.662209   1.603296   1.662209   6892800        0.0           0.0
       ...        ...        ...        ...        ...       ...        ...           ...
2023-04-24  20.150000  20.410000  19.809999  19.930000   2742400        0.0           0.0
2023-04-25  19.740000  20.040001  18.910000  19.000000   2560800        0.0           0.0
2023-04-26  18.980000  19.230000  18.650000  18.650000   2287600        0.0           0.0
2023-04-27  18.750000  19.340000  18.719999  18.940001   2238900        0.0           0.0
2023-04-28  18.920000  19.719999  18.879999  19.290001   2835200        0.0           0.0
```

```
# Reset the index and display the first 5 rows
gme_data.reset_index(inplace=True)
gme_data.head(5)

# Output:
```



```
:          Date      Open      High       Low     Close    Volume  Dividends  Stock Splits
  0  2002-02-13  1.620128  1.693350  1.603296  1.691666  76216000        0.0           0.0
  1  2002-02-14  1.712707  1.716074  1.670626  1.683251  11021600        0.0           0.0
  2  2002-02-15  1.683250  1.687458  1.658002  1.674834   8389600        0.0           0.0
  3  2002-02-19  1.666418  1.666418  1.578047  1.607504   7410400        0.0           0.0
  4  2002-02-20  1.615920  1.662209  1.603296  1.662209   6892800        0.0           0.0
```

# Use webscraping to extract Gamestop Revenue Data¶

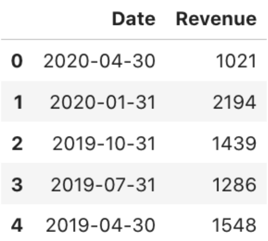
# Download the webpage https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-PY0220EN-SkillsNetwork/labs/project/stock.html and save the text as a variable named html_data

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

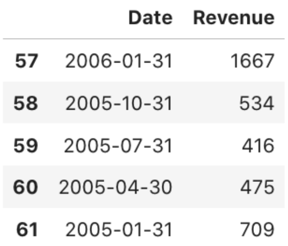
# Use BeautifulSoup to extract the table with Gamestop Quarterly Revenue and store it into a dataframe named gme_revenue, with columns Date and Revenue

```
gme_revenue = pd.DataFrame(columns=["Date" , "Revenue"])
for table in soup.find_all('table'):
    if table.find('th').getText().startswith("GameStop Quarterly Revenue"):
        for row in table.find("tbody").find_all("tr"):
            col = row.find_all("td")
            date = col[0].text
            revenue = col[1].text
            gme_revenue = gme_revenue.append({"Date":date, "Revenue":revenue}, 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.head(5)
gme_revenue.tail(5)
```

# Output:

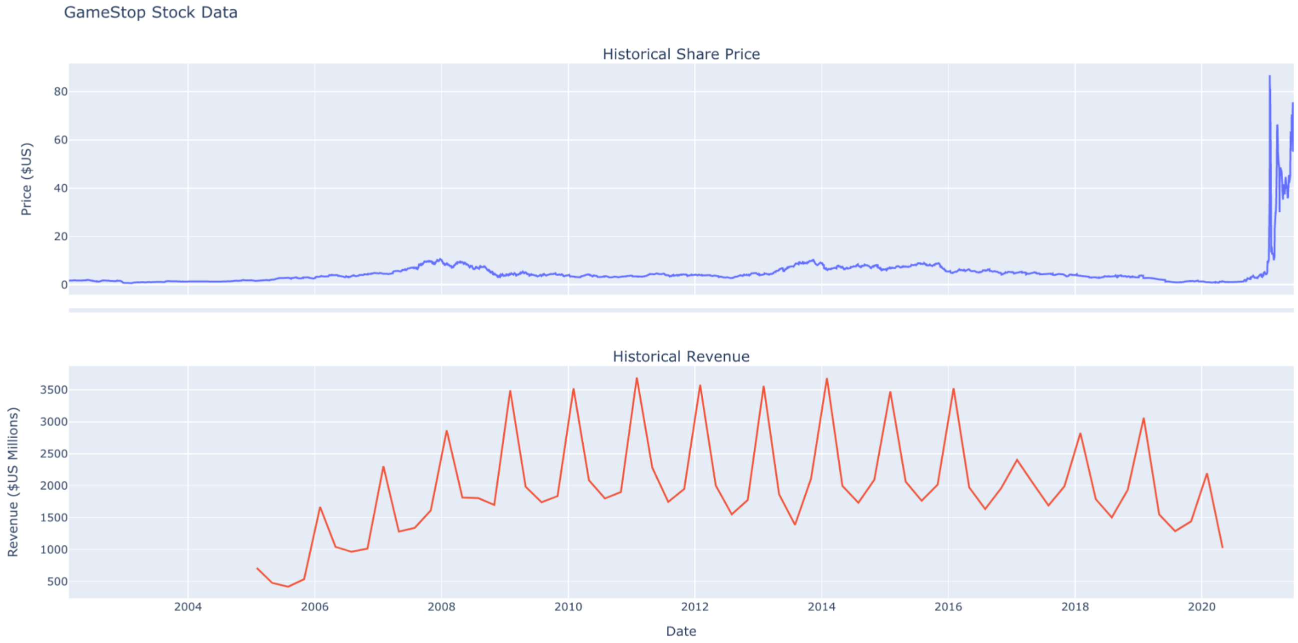


	Date	Revenue
0	2020-04-30	1021
1	2020-01-31	2194
2	2019-10-31	1439
3	2019-07-31	1286
4	2019-04-30	1548



	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

```
# Graph the Gamestop Stock Data. The graph will only show data up to June 2021
make_graph(gme_data, gme_revenue, 'GameStop Stock Data')

# Output:
```


GameStop Stock Data
Historical Share Price
Price ($US)
Historical Revenue
Revenue ($US Millions)
Date