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In [1]:
```
!pip install yfinance==0.1.67
!pip install pandas==1.3.3
!pip install requests==2.26.0
!pip install bs4
!pip install plotly==5.3.1
```

```
Requirement already satisfied: yfinance==0.1.67 in c:\users\sathwik shetty\anaconda3\lib\site-packages (0.1.67)
Requirement already satisfied: multitasking>=0.0.7 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from yfinance==0.1.6
7) (0.0.10)
Requirement already satisfied: pandas>=0.24 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from yfinance==0.1.67) (1.
3.3)
Requirement already satisfied: lxml>=4.5.1 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from yfinance==0.1.67) (4.6.
3)
Requirement already satisfied: numpy>=1.15 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from yfinance==0.1.67) (1.2
0.1)
Requirement already satisfied: requests>=2.20 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from yfinance==0.1.67)
(2.26.0)
Requirement already satisfied: pytz>=2017.3 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from pandas>=0.24->yfinance
==0.1.67) (2021.1)
Requirement already satisfied: python-dateutil>=2.7.3 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from pandas>=0.24
->yfinance==0.1.67) (2.8.1)
Requirement already satisfied: six>=1.5 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from python-dateutil>=2.7.3->pa
ndas>=0.24->yfinance==0.1.67) (1.15.0)
Requirement already satisfied: charset-normalizer~=2.0.0 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from requests>
=2.20->yfinance==0.1.67) (2.0.12)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from requests>=2.2
0->yfinance==0.1.67) (1.26.4)
Requirement already satisfied: idna<4,>=2.5 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from requests>=2.20->yfinan
ce==0.1.67) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from requests>=2.20->
yfinance==0.1.67) (2020.12.5)
Requirement already satisfied: pandas==1.3.3 in c:\users\sathwik shetty\anaconda3\lib\site-packages (1.3.3)
Requirement already satisfied: numpy>=1.17.3 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from pandas==1.3.3) (1.20.
1)
```

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```
Requirement already satisfied: tenacity>=6.2.0 in c:\users\sathwik shetty\anaconda3\lib\site-packages (from plotly==5.3.1) (8.
0.1)
```

In [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
```

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 [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"), verti
    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.
    fig.add_trace(go.Scatter(x=pd.to_datetime(revenue_data_specific.Date, infer_datetime_format=True), y=revenue_data_specific.Re
    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()
```

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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 [4]:
```
tesla=yf.Ticker("TSLA")
```

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 [5]:
```
tesla_info=tesla.info
tesla_info
```

```
s in the design, manufacture, installation, sale, and leasing of solar energy generation and energy storage products, and rel
ated services to residential, commercial, and industrial customers and utilities through its website, stores, and galleries,
as well as through a network of channel partners. This segment also offers service and repairs to its energy product customer
s, including under warranty; and various financing options to its solar customers. The company was formerly known as Tesla Mo
tors, Inc. and changed its name to Tesla, Inc. in February 2017. Tesla, Inc. was incorporated in 2003 and is headquartered in
Austin, Texas.',
 'city': 'Austin',
 'phone': '(512) 516-8177',
 'state': 'TX',
 'country': 'United States',
 'companyOfficers': [],
 'website': 'https://www.tesla.com',
 'maxAge': 1,
 'address1': '13101 Tesla Road',
 'industry': 'Auto Manufacturers',
 'ebitdaMargins': 0.1734,
 'profitMargins': 0.102539994,
 'grossMargins': 0.25279,
 'operatingCashflow': 11496999936,
 'revenueGrowth': 0.649,
```

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```
'maxAge': 1,
'address1': '13101 Tesla Road',
'industry': 'Auto Manufacturers',
'ebitdaMargins': 0.1734,
'profitMargins': 0.102539994,
'grossMargins': 0.25279,
'operatingCashflow': 11496999936,
'revenueGrowth': 0.649,
```

In [6]:
```
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.

In [7]:
```
tesla_data.reset_index(inplace=True)
tesla_data.head()
```

Out[7]:

	Date	Open	High	Low	Close	Volume	Dividends	Stock Splits
0	2010-06-29	3.800	5.000	3.508	4.778	93831500	0	0.0
1	2010-06-30	5.158	6.084	4.660	4.766	85935500	0	0.0
2	2010-07-01	5.000	5.184	4.054	4.392	41094000	0	0.0
3	2010-07-02	4.600	4.620	3.742	3.840	25699000	0	0.0
4	2010-07-06	4.000	4.000	3.166	3.222	34334500	0	0.0

Question 2: Use Webscraping to Extract Tesla Revenue Data

Use the `requests` library to download the webpage https://www.macrotrends.net/stocks/charts/TSLA/tesla/revenue. Save the text of the response as a variable named `html_data`.

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