Assignment - API and Web Scraping

1. Fetch API Data

Cropto Compare provides API on exchange rate. https://min-api.cryptocompare.com/documentation (https://min-api.cryptocompare.com/documentation)

You are to fetch exchange rates from SGD to JPY,USD,MYR,EUR using above API.

1. Make api call from python & fetch the response in a python dict.
2. Parse returned data from the API Response. For example,

```
{
"JPY": 107.93,
"INR": 84.82
}
```

3. Format the parsed infomation/data and save it into a csv file `fx_api.csv` with following format.

from_symbol	to_symbol	price	datetime
USD	INR	71	...
USD	SGD	1.37	...

Hint: Use python `time` or `datetime` module to get the current time.

In [8]:

```
# https://min-api.cryptocompare.com/data/price?fsym=SGD&tsyms=JPY,USD,MYI
import requests

fsym = 'SGD'
tsyms = 'JPY,USD,MYR,EUR'
URL = f'https://min-api.cryptocompare.com/data/price?fsym={fsym}&tsyms={

response = requests.get(URL)

print(response.status_code)
rates = response.json()
print(rates)
```

```
200
{'JPY': 78.2, 'USD': 0.7465, 'MYR': 3.141, 'EUR': 0.6325}
```

In [14]:
```
# for k,v in data.items():
#     print(k, v)

import csv
from datetime import datetime

now = datetime.now().strftime('%Y-%m-%d %H:%M:%S')

data = [ [fsym, k, v, now] for k,v in rates.items() ]
header = ['from_symbol', 'to_symbol', 'price', 'datetime']

with open('fx_api.csv', 'w', newline='') as f:
    writer = csv.writer(f)
    writer.writerow(header)
    writer.writerows(data)

```

In [15]:
```
!notepad fx_api.csv
```

2. Scrape static websites

Exchange Rates website https://www.exchange-rates.org/converter (https://www.exchange-rates.org/converter) provides a tool to calculate foreign currencies.

For example, to convert 1 USD to EUR, use URL https://www.exchange-rates.org/converter/USD/EUR/1 (https://www.exchange-rates.org/converter/USD/EUR/1).

From the website, extract exchange rate data for following currency pairs. Save them into `fx_scrap.csv` .

from_symbol	to_symbol	price	datetime
SGD	EUR	...	...
SGD	HKD	...	...
SGD	USD	...	...
SGD	MYR	...	...

Noted: Use `bs4` library to parse the HTML

1. Look at the URL `path parameter` and decide how to pass inputs into URL.
2. Use `bs4` library to parse the html as show below.
3. You need to make mutiple requests.

In [11]:

```
import requests
from bs4 import BeautifulSoup
from datetime import datetime
import csv

from_symbol = 'SGD'
to_symbols = ['EUR', 'HKD', 'USD', 'MYR']

now = datetime.now().strftime('%Y-%m-%d %H:%M:%S')

result = []
header = ['from_symbol', 'to_symbol', 'price', 'datetime']

for i in range(len(to_symbols)):
    URL = f'https://www.exchange-rates.org/converter/{from_symbol}/{to_s

    response = requests.get(URL)
    html = response.text

    soup = BeautifulSoup(html)

    tag = soup.find('span', {'id':'ctl00_M_lblToAmount'})
    row = [from_symbol, to_symbols[i], float(tag.text), now]
    print(row)
    result.append(row)

print(result)

with open('fx_scrap.csv', 'w', newline='') as f:
    writer = csv.writer(f)
    writer.writerow(header)
    writer.writerows(result)
```

```
['SGD', 'EUR', 0.62195, '2020-09-18 08:52:22']
['SGD', 'HKD', 5.7125, '2020-09-18 08:52:22']
['SGD', 'USD', 0.73709, '2020-09-18 08:52:22']
['SGD', 'MYR', 3.0369, '2020-09-18 08:52:22']
[['SGD', 'EUR', 0.62195, '2020-09-18 08:52:22'], ['SGD', 'HKD', 5.7125, '20
20-09-18 08:52:22'], ['SGD', 'USD', 0.73709, '2020-09-18 08:52:22'], ['SG
D', 'MYR', 3.0369, '2020-09-18 08:52:22']]
```

In [12]:

```
!notepad fx_scrap.csv
```