

The background features abstract green geometric shapes. On the left, a solid green trapezoid points towards the center. On the right, a complex arrangement of overlapping translucent green triangles and polygons creates a layered, dynamic effect. The central text is positioned between these two main graphic elements.

Retrieval data from Internet

授課老師：邱淑怡

Outline

- ▶ Use yfinance
- ▶ Use pandas read_html()



stock price: yfinance

- ▶ yfinance come from Yahoo Finance API
 - ▶ pip install yfinance



Download one ticker from yfinance

```
import yfinance as yf

# for 台股
df = yf.Ticker("2330.TW").history(period="max")
df11 = yf.Ticker("2303.TW").history(period='max')
df12 = yf.Ticker("1605.TW").history(start='2022-01-01',end='2022-09-23')
# for 美股
df111 = yf.Ticker("MSFT")
display(df12)
df112=yf.Ticker("goog")
```

download

```
import yfinance as yf
df22=yf.download('TSM TSLA',start='2016-01-01',end='2021-01-01')
df33= yf.download(('TSLA')      # 下載特斯拉 TSLA 全部歷史價量資料
```

download() parameter:	description
symbol	stock code or string, example: 'AMD' (超微), 台股後面要加 '.tw', 例如 '0050.tw'
start	start date: YYYY-MM-DD (string), example: '2022-08-22'
end	end date: YYYY-MM-DD (string), example: '2022-09-06', notice: not included this date
period	period, use d (date), mo(month), y(year), ytd, max, example: 5d (last 5 day), 3mo(last 3 months)
interval	(頻率), use m(分), h(小時), d(日), wk(周), mo(月), 例如 1m(一分線)

ytd:今年以來, 即自年初第一個交易日至今

i.e. since the beginning of this year, that is, from the first trading day of this year to the present

yf.download()

```
yf.download()  
# stock code  
# period=1d,5d,1mo,3mo,6mo,1y,2y,5y,10y,ytd,max (date range)  
# interval=1m,2m,5m,15m,30m,60m,90m,1h,1d,5d,1wk,1mo,3mo (frequency)  
yf.download('TSM TSLA',period='6mo',interval='1mo')
```

download-Period

```
yf.download('TSM TSLA',period='7d',interval='1m')
```

#最近 7 天的日內數據。透過指定頻率 (interval) 為 1m/5m/10m/90m 等 (m 代表分鐘) ，可以提取到高頻率的股票價格數據

Pandas

- ▶ `read_html()`: 只有傳入網址，就能夠讀取網頁中的<table>表格標籤，且回傳一個dataframe的物件，<tr>標籤就是dataframe資料結構的列(row)，<td>標籤則是欄(column)

台灣銀行匯率

```
url = "https://rate.bot.com.tw/xrt?Lang=zh-TW"
tables = pd.read_html(url)
df = tables[0]

#選取想要的欄位
df = df[[df.columns[0], df.columns[1], df.columns[2]]]
df.columns = ["幣別", "本行買出", "本行賣出"]
display(df)

#處理欄位內容
df["幣別"] = df["幣別"].apply(lambda x: x.split("(")[0].strip())
df.set_index("幣別", inplace=True) #將幣別設定為 Index
print(df.loc["港幣"])
```

公開資訊觀測站的資料擷取

```
import pandas as pd
url = 'https://mops.twse.com.tw/server-java/t13sa150_otc?&step=wh'
df_twse = pd.read_html(url,encoding="big5-hkscs", header=1)[0]
display(df_twse)
```

國際的資料

```
import pandas as pd
url="https://en.wikipedia.org/wiki/Economy_of_the_United_States"
data_table=pd.read_html(url)
print(len(data_table)) #該網頁共有幾張表格
df_GDP = table_GDP[-11]
display(df_GDP)
```

Dataframe基本資訊

```
print(df1.shape)  
print(df1.column)
```



範例說明

建立一個貨幣匯率轉換系統

