

## Hw6 41047012s 簡碩辰

```
import requests
import json
import pandas as pd

url = 'https://tcgbusfs.blob.core.windows.net/dotapp/youbike/v2/youbike_immediate.json'
web = requests.get(url)
data = json.loads(web.content.decode('utf-8-sig'))
df = pd.DataFrame(data)
output_path = r'./youbike.csv'
df.to_csv(output_path, index=False, encoding='utf-8-sig')

print(f"CSV output to {output_path}")

✓ 0.6s
CSV output to ./youbike.csv
```

資料取自臺北市資料大平台的「 Youbike2.0臺北市共同自行車即時資訊 」

[https://tcgbusfs.blob.core.windows.net/dotapp/youbike/v2/youbike\\_immediate.json](https://tcgbusfs.blob.core.windows.net/dotapp/youbike/v2/youbike_immediate.json)

Youbike2.0即時資訊 :																		
	sno	sna	sarea	mday	ar	sareaen		snaen	aren	act	srcUpdateTime	updateTime	infoTime	infoDate	total	availab		
0	500101001	YouBike2.0_捷運科技大學站	大安區	2024-11-25 11:58:15	復興南路二段235號前	Daan Dist.	YouBike2.0_MRT Technology Bldg. Sta.	No.235 · Sec. 2 · Fuxing S. Rd.	1	2024-11-25 11:58:23	2024-11-25 11:58:52	2024-11-25 11:58:15	2024-11-25	28				
1	500101002	YouBike2.0_復興南路二段273號前	大安區	2024-11-25 11:58:15	復興南路二段273號西側	Daan Dist.	YouBike2.0_No.273 , Sec. 2 · Fuxing S. Rd.	No.273 · Sec. 2 · Fuxing S. Rd. (West)	1	2024-11-25 11:58:23	2024-11-25 11:58:52	2024-11-25 11:58:15	2024-11-25	21				
2	500101003	YouBike2.0_國北教大實小東側門	大安區	2024-11-25 11:50:16	和平東路二段96巷7號	Daan Dist.	YouBike2.0_NTUE Experiment Elementary School (...)	No. 7 · Ln. 96 · Sec. 2 · Heping E. Rd	1	2024-11-25 11:58:23	2024-11-25 11:58:52	2024-11-25 11:50:16	2024-11-25	16				

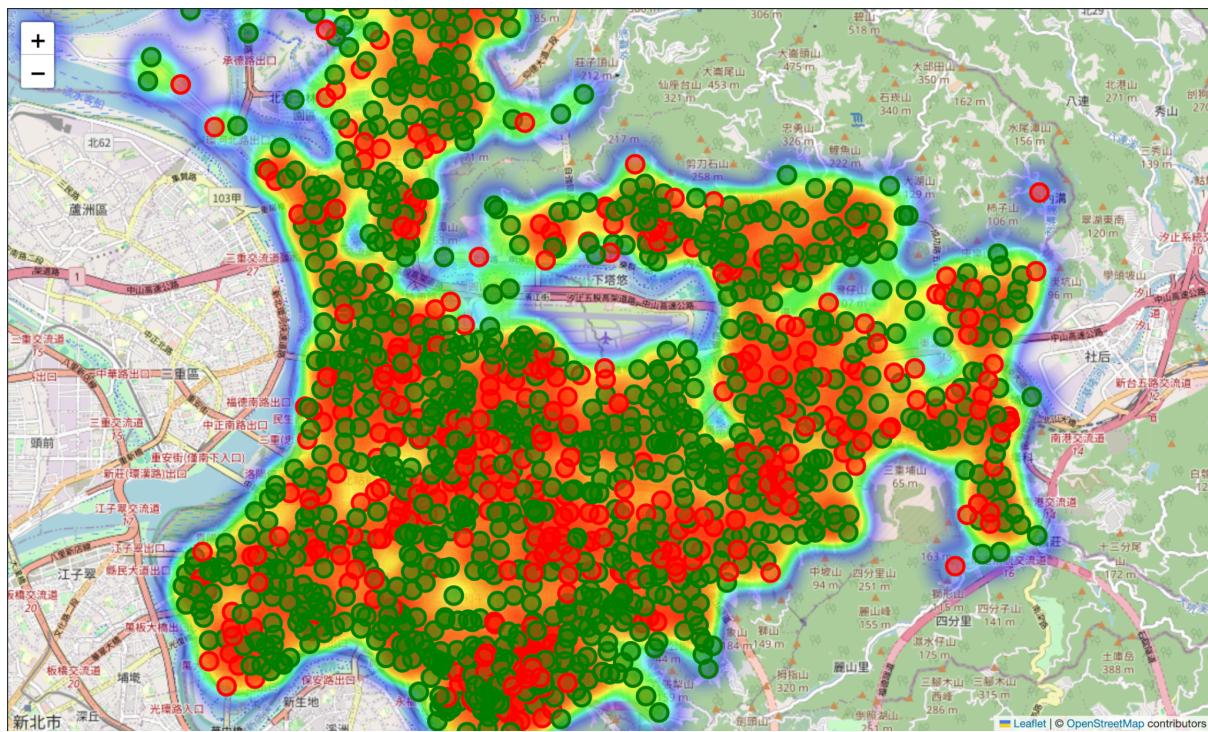
資料整理後可發現提供多項Youbike站點資訊，如地址、剩餘車輛、剩餘車位、經緯度等資訊即可進行進一步分析如視覺化，以下是將站點車輛使用率和地圖整合後所顯示的分析

```
import folium
from folium.plugins import HeatMap
from IPython.display import display

df['usage_rate'] = df['available_rent_bikes'] / (df['available_rent_bikes'] + df['available_return_bikes'])

m = folium.Map(location=[25.0330, 121.5654], zoom_start=13)
for index, row in df.iterrows():
    folium.CircleMarker(
        location=[row['latitude'], row['longitude']],
        radius=8,
        color='green' if row['usage_rate'] < 0.5 else 'red',
        fill=True,
        fill_color='green' if row['usage_rate'] < 0.5 else 'red',
        fill_opacity=0.6,
        popup=f"站點: {row['sna']}<br>使用率: {row['usage_rate']:.2f}"
    ).add_to(m)

df_cleaned = df.dropna(subset=['latitude', 'longitude', 'usage_rate'])
heat_data = [[row['latitude'], row['longitude'], row['usage_rate']] for index, row in df_cleaned.iterrows()]
HeatMap(heat_data).add_to(m)
display(m)
```



圖中所示，紅色表示車輛使用率高的站點，反之綠色則為相對低的使用率



點擊站點後也可將站點名稱和使用率顯示出，方便使用者直接的觀察