

# 강남 3구는 안전한가 - 3 (folium)

folium을 이용하여 지도로 시각화

```
import json

geo_path = './data/02. skorea_municipalities_geo_simple.json'
geo_str = json.load(open(geo_path, encoding='utf-8'))

crime_anal_raw['lat'] = station_lat
crime_anal_raw['lng'] = station_lng

col = ['살인 검거', '강도 검거', '강간 검거', '절도 검거', '폭력 검거']
tmp = crime_anal_raw[col] / crime_anal_raw[col].max()

crime_anal_raw['검거'] = np.sum(tmp, axis=1)
crime_anal_raw.head()

import folium
import webbrowser

map = folium.Map(location = [37.5502, 126.982], zoom_start=11)

for n in crime_anal_raw.index:
    folium.Marker([crime_anal_raw['lat'][n],
                    crime_anal_raw['lng'][n]]).add_to(map)

map
map.save('folium_kr.html')
webbrowser.open_new("folium_kr.html")
```

비율을 원으로 표시

```
map = folium.Map(location = [37.5502, 126.982], zoom_start=11)

for n in crime_anal_raw.index:
    folium.CircleMarker([crime_anal_raw['lat'][n], crime_anal_raw['lng'][n],
                          radius=crime_anal_raw['검거'][n]*10,
                          color = '#3186cc',
                          fill_color='#3186cc',
                          fill=True]).add_to(map)
```

```
map
map.save('folium_kr2.html')
webbrowser.open_new("folium_kr2.html")
```

choropleth을 이용하여 지역을 나눠 시각화

```
map = folium.Map(location = [37.5502, 126.982], zoom_start=11)

map.choropleth(geo_data=geo_str,
               data=crime_anal_norm['범죄'],
               columns = [crime_anal_norm.index, crime_anal_norm['범죄']],
               fill_color='PuRd',
               key_on='feature.id')

for n in crime_anal_raw.index:
    folium.CircleMarker([crime_anal_raw['lat'][n], crime_anal_raw['lng'][n],
                        radius=crime_anal_raw['검거'][n]*10,
                        color = '#3186cc',
                        fill_color='#3186cc',
                        fill=True).add_to(map)

map.save('folium_kr3.html')
webbrowser.open_new("folium_kr3.html")
```