

# PROYECTO FINAL BATALLA DE VECINDARIOS SEMANA 2

```
In [1]: import numpy as np # librería para manejar datos vectorizados
import pandas as pd # librería para procesar datos como dataframes
```

```
In [2]: import matplotlib.pyplot as plt #librería para graficar
%matplotlib inline
```

```
In [3]: !pip install openpyxl

Collecting openpyxl
  Downloading openpyxl-3.0.10-py2.py3-none-any.whl (242 kB)
  ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 242.1/242.1 kB 27.6 MB/s eta 0:00:00
Collecting et-xmlfile
  Downloading et_xmlfile-1.1.0-py3-none-any.whl (4.7 kB)
Installing collected packages: et-xmlfile, openpyxl
Successfully installed et-xmlfile-1.1.0 openpyxl-3.0.10
```

## Exploración de datos

```
In [4]: habitantes_df = pd.read_excel('Poblacion_Por_Distritos_Madrid_Edad__Clean.xlsx')
```

```
In [5]: habitantes_clean_df=habitantes_df.dropna()
habitantes_clean_df.head(21)
```

Out[5]:

	Distritos	0 a 4 años	5 a 9 años	10 a 14 años	15 a 19 años	20 a 24 años	25 a 29 años	30 a 34 años	35 a 39 años	40 a 44 años	...	55 a 59 años	60 a 64 años	65 a 69 años	70 a 74 años	75 a 79 años	80 a 84 años	85 a 89 años	90 a 94 años	95 a 99 años	100 años y más
0	Centro	3380.0	3061.0	3205.0	3465.0	7352.0	14150.0	15712.0	13888.0	13188.0	...	9619.0	8262.0	6247.0	4880.0	3901.0	2784.0	2277.0	1356.0	392.0	77.0
2	Arganzuela	5558.0	5653.0	5666.0	5756.0	6933.0	9917.0	11470.0	12263.0	12536.0	...	11677.0	10659.0	8843.0	7213.0	5525.0	3796.0	3419.0	1759.0	563.0	94.0
4	Retiro	4165.0	4529.0	4540.0	4575.0	5165.0	7048.0	7484.0	7692.0	8198.0	...	8287.0	8022.0	7581.0	7174.0	6179.0	4332.0	3455.0	1870.0	579.0	98.0
6	Salamanca	5161.0	4909.0	4806.0	5598.0	8060.0	11610.0	11518.0	9981.0	9755.0	...	10309.0	9485.0	8234.0	7615.0	6563.0	4881.0	4260.0	2428.0	779.0	135.0
8	Chamartín	6140.0	6131.0	5995.0	5907.0	6579.0	9397.0	10447.0	9959.0	10189.0	...	9863.0	9395.0	8001.0	7480.0	6708.0	4893.0	4118.0	2235.0	728.0	123.0
10	Tetuán	5840.0	5564.0	5497.0	5738.0	7937.0	12705.0	14542.0	13545.0	12480.0	...	10891.0	9500.0	7665.0	6405.0	5556.0	4137.0	3824.0	2061.0	619.0	99.0
12	Chamberí	4729.0	4435.0	4467.0	4824.0	6823.0	11444.0	11656.0	10011.0	9553.0	...	9145.0	8669.0	8088.0	7288.0	6448.0	4502.0	3971.0	2326.0	745.0	154.0
14	Fuencarral-El Pardo	11785.0	14375.0	14466.0	11790.0	10772.0	12175.0	13733.0	16515.0	20052.0	...	15211.0	13940.0	12554.0	12913.0	11383.0	7472.0	5335.0	2475.0	705.0	88.0
16	Moncloa-Aravaca	4696.0	5318.0	5640.0	6291.0	6896.0	7592.0	7166.0	7533.0	8285.0	...	8902.0	7876.0	6474.0	6029.0	5139.0	3748.0	3121.0	1617.0	466.0	91.0
18	Latina	7937.0	8806.0	9551.0	9954.0	12157.0	14664.0	14872.0	15754.0	17274.0	...	17149.0	14528.0	11438.0	11033.0	12775.0	10551.0	7555.0	3336.0	823.0	126.0
20	Carabanchel	9470.0	10996.0	12519.0	12303.0	13640.0	17155.0	17255.0	17589.0	20417.0	...	18232.0	14682.0	11011.0	9863.0	9284.0	7552.0	6296.0	3038.0	714.0	111.0
22	Usera	5608.0	6329.0	7183.0	7474.0	8393.0	9222.0	9389.0	9782.0	11157.0	...	10302.0	8129.0	5873.0	4679.0	4173.0	3366.0	3383.0	1599.0	371.0	59.0
24	Puente de Vallecas	9320.0	9781.0	10448.0	11156.0	14065.0	16494.0	16868.0	16691.0	17693.0	...	18915.0	16106.0	10887.0	8460.0	7216.0	6237.0	5727.0	2660.0	612.0	61.0
26	Moratalaz	2856.0	3126.0	3546.0	4110.0	4965.0	5466.0	5067.0	5193.0	5670.0	...	7827.0	6678.0	5103.0	4529.0	4845.0	4323.0	3662.0	1558.0	309.0	41.0
28	Ciudad Lineal	7122.0	8112.0	8652.0	9441.0	10851.0	13585.0	14472.0	14233.0	15346.0	...	16411.0	14464.0	11247.0	10035.0	9483.0	7542.0	6692.0	3314.0	793.0	119.0
30	Hortaleza	9558.0	11280.0	11270.0	10013.0	9075.0	9376.0	11022.0	13479.0	16461.0	...	13501.0	11205.0	8775.0	8410.0	7818.0	5244.0	3969.0	1795.0	416.0	64.0
32	Villaverde	6644.0	7430.0	8433.0	8270.0	8844.0	9936.0	10337.0	10358.0	11740.0	...	11614.0	8723.0	5889.0	5108.0	5050.0	4200.0	3621.0	1465.0	303.0	26.0
34	Villa de Vallecas	6226.0	7491.0	6612.0	5262.0	5343.0	6546.0	8252.0	9656.0	12097.0	...	7139.0	5899.0	4449.0	3758.0	2719.0	1851.0	1452.0	593.0	149.0	19.0
36	Vicálvaro	3291.0	3943.0	5228.0	4848.0	4526.0	4519.0	5033.0	5103.0	5852.0	...	6252.0	4267.0	2532.0	2118.0	2277.0	1962.0	1334.0	478.0	97.0	7.0
38	San Blas-Canillejas	5716.0	6727.0	7954.0	9340.0	9269.0	9349.0	9566.0	9863.0	11151.0	...	13677.0	10743.0	7117.0	5802.0	4753.0	3942.0	3955.0	1966.0	452.0	40.0
40	Barajas	2001.0	2673.0	2863.0	2797.0	2323.0	2193.0	2444.0	3163.0	4000.0	...	3436.0	2664.0	2171.0	2381.0	2097.0	1242.0	761.0	313.0	104.0	18.0

21 rows × 22 columns

In [6]:

```
# Selecciono solo la columna necesaria la del grupo de 0-4 años
habitantes_0_4_anios = habitantes_clean_df.loc[:, ('Distritos','0 a 4 años')]
habitantes_0_4_anios.head(21)
```

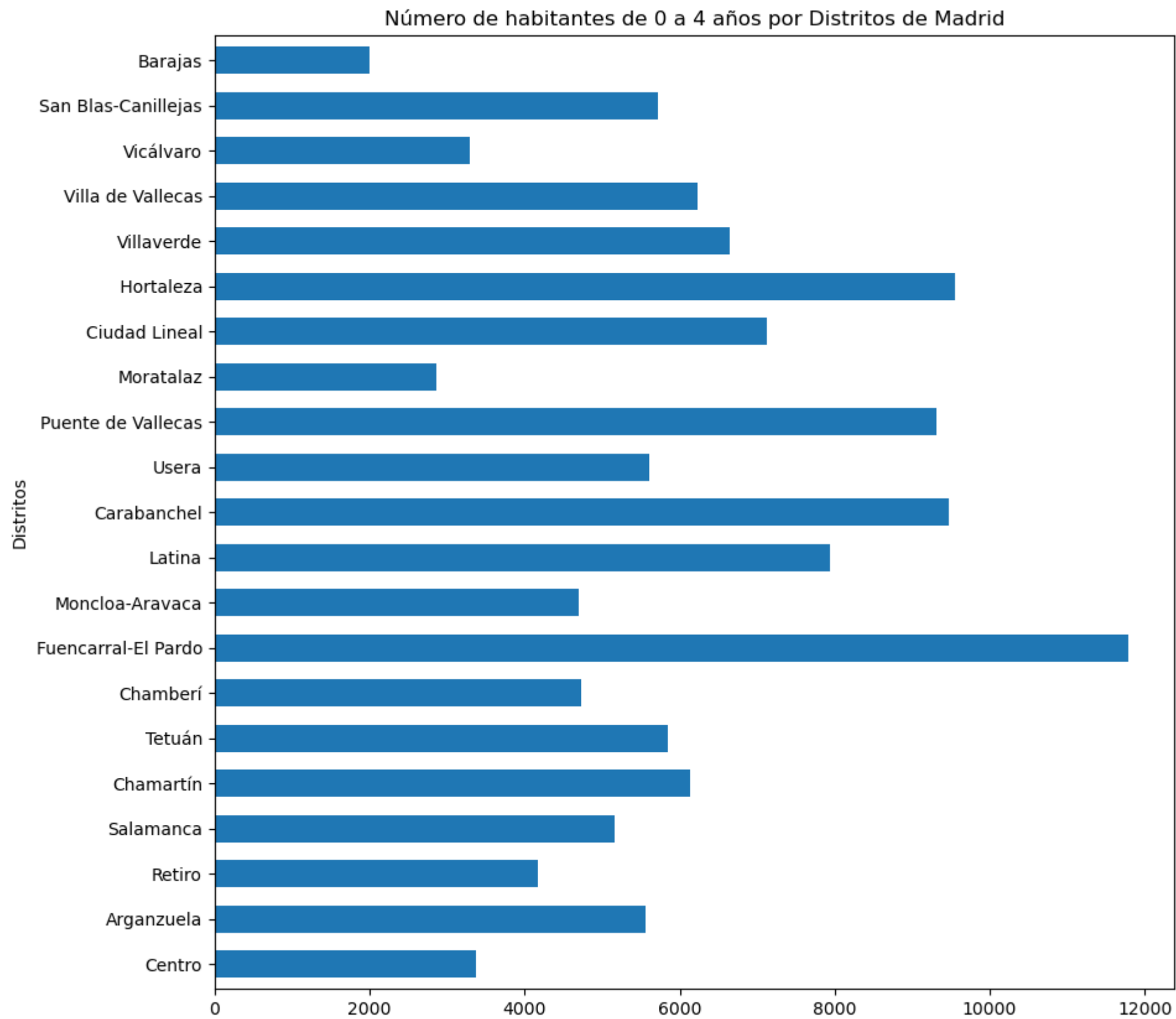
Out[6]:

	Distritos	0 a 4 años
0	Centro	3380.0
2	Arganzuela	5558.0
4	Retiro	4165.0
6	Salamanca	5161.0
8	Chamartín	6140.0
10	Tetuán	5840.0
12	Chamberí	4729.0
14	Fuencarral-El Pardo	11785.0
16	Moncloa-Aravaca	4696.0
18	Latina	7937.0
20	Carabanchel	9470.0
22	Usera	5608.0
24	Puente de Vallecas	9320.0
26	Moratalaz	2856.0
28	Ciudad Lineal	7122.0
30	Hortaleza	9558.0
32	Villaverde	6644.0
34	Villa de Vallecas	6226.0
36	Vicálvaro	3291.0
38	San Blas-Canillejas	5716.0
40	Barajas	2001.0

In [7]:

```
#Gráfico de barras de niños de 0-4 años por distrito
habitantes_0_4_anios.plot(figsize=(10,10),width=0.6, kind = 'barh',x = 'Distritos', y = '0 a 4 años' ,xlabel='Distritos',ylabel='Número de habitantes',title='Número de habitantes de 0 a 4 años p

leg = plt.legend()
leg.remove()
```



In [8]: `#Los 3 primeros distritos con mayor número de habitantes de 0 a 4 años`  
`habitantes_0_4_anios.nlargest(3, ['0 a 4 años'])`

Out[8]:

	Distritos	0 a 4 años
14	Fuencarral-El Pardo	11785.0
30	Hortaleza	9558.0
20	Carabanchel	9470.0

```
In [9]: #Datos de coordenadas de Los 3 distritos anteriormente citados.
coordenadas_df = pd.read_excel('coordenadasfinal.xlsx')
coordenadas_df.head()
```

```
Out[9]:
```

	DISTRITO	LONGITUD	LATITUD
0	Fuencarral-El Pardo	-3709722	40478611
1	Hortaleza	-3640482	40469457
2	Carabanchel	-3727989	40383669

## COORDENADAS GEOGRÁFICAS

```
In [10]: import folium
```

```
In [11]: map = folium.Map(location=[40.4165, -3.70256], tiles="Stamen Toner",zoom_start=11)
```

```
folium.Circle(
    radius=100,
    location=[40.561430,-3.744595],
    popup="Fuencarral-El Pardo",
    color="crimson",
    fill=False,
).add_to(map)
```

```
folium.CircleMarker(
    location=[40.561430,-3.744595],
    radius=80,
    popup="Fuencarral-El Pardo",
    color="#3186cc",
    fill=False,
    fill_color="#3186cc",
).add_to(map)
```

```
# Hortaleza
folium.Circle(
    radius=100,
    location=[40.469221, -3.643206],
    popup="Hortaleza",
    color="crimson",
    fill=True,
).add_to(map)
```

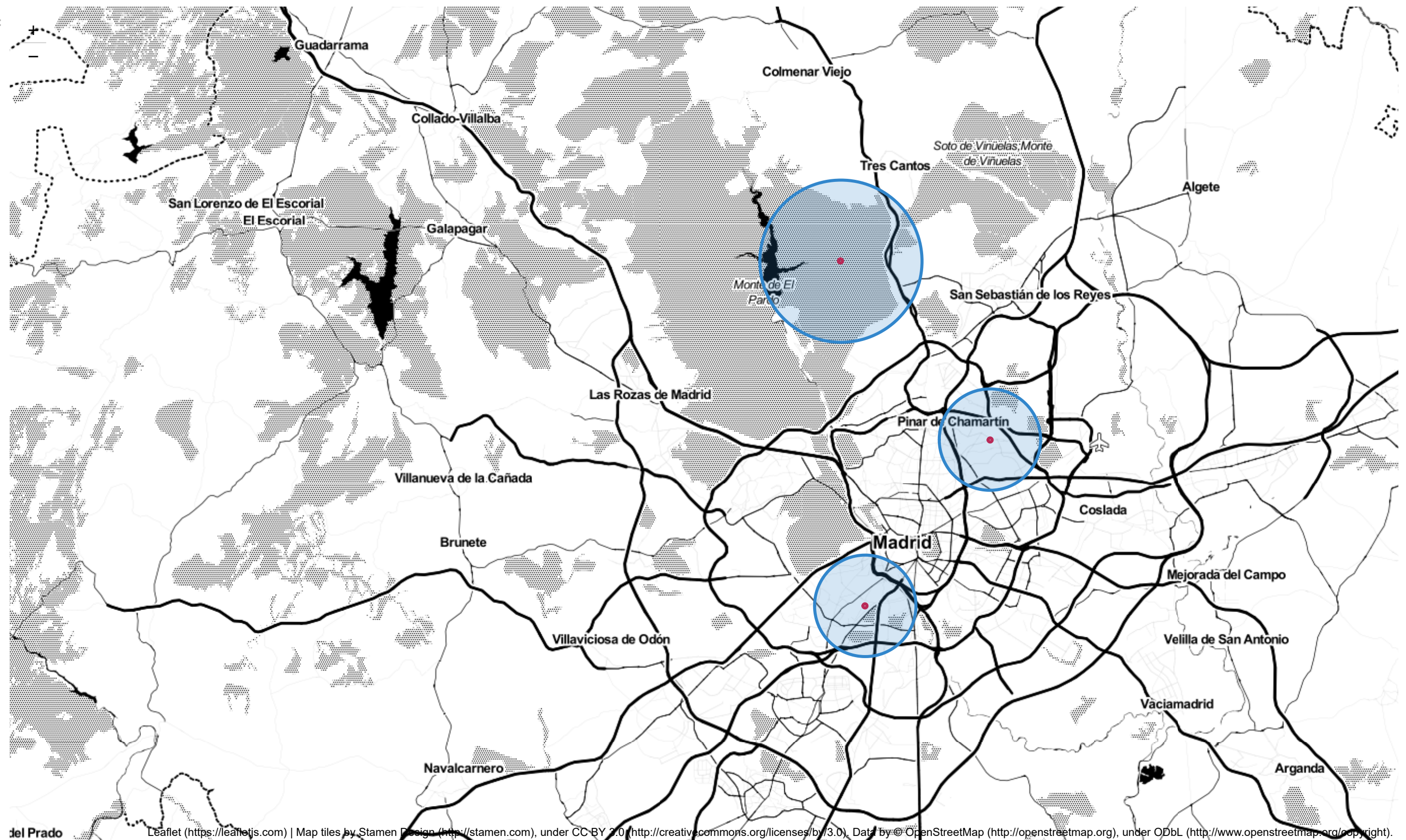
```
folium.CircleMarker(
    location=[40.469221, -3.643206],
    radius=50,
    popup="Hortaleza",
    color="#3186cc",
    fill=True,
    fill_color="#3186cc",
).add_to(map)
```

```
#Carabanchel
folium.Circle(
    radius=100,
    location=[40.383669,-3.727989],
    popup="Carabanchel",
    color="crimson",
```

```
        fill=True,  
    ).add_to(map)  
  
folium.CircleMarker(  
    location=[40.383669,-3.727989],  
    radius=50,  
    popup="Carabanchel",  
    color="#3186cc",  
    fill=True,  
    fill_color="#3186cc",  
).add_to(map)  
  
map
```



Out[11]:



## Obtención de datos con Foursquare- Búsqueda de escuelas infantiles(guarderías) en los distritos mencionados

\*\*\*Distrito Fuencarral-El Pardo

```
In [12]: import requests
import json
from pandas import json_normalize
```

```
In [13]: #Definición de URL
```

```
url = "https://api.foursquare.com/v3/places/search"

params = {

    "query": "guarderia",

    "ll": "40.478611,-3.709722",
    "radius": '5000',

    "open_now": "false",

    "sort": "DISTANCE"

}

headers = {

    "Accept": "application/json",

    "Authorization": ""

}

response = requests.request("GET", url, params=params, headers=headers)
data_fuencarral = response.json()
data_fuencarral
```



```
Out[13]: {'results': [{'fsq_id': '566aa3d8498ee8c217b0239f',
  'categories': [{'id': 11026,
    'name': 'Daycare',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/daycare_',
      'suffix': '.png'}}]},
  'chains': [],
  'distance': 1839,
  'geocodes': {'main': {'latitude': 40.484952, 'longitude': -3.68962}},
  'link': '/v3/places/566aa3d8498ee8c217b0239f',
  'location': {'address': 'Virgen de Aranzazu, 1',
    'admin_region': 'Comunidad de Madrid',
    'country': 'ES',
    'cross_street': '',
    'formatted_address': 'Virgen de Aranzazu, 1, Madrid Madrid',
    'locality': 'Madrid',
    'region': 'Madrid'},
  'name': 'Sancalo Guardería - Escuela Infantil',
  'related_places': {},
  'timezone': 'Europe/Madrid'},
  {'fsq_id': '52cfea81498e8cdf5e7ad1af',
  'categories': [{'id': 12047,
    'name': 'Student Center',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/education/studentcenter_',
      'suffix': '.png'}}]},
  'chains': [],
  'distance': 3589,
  'geocodes': {'main': {'latitude': 40.508997, 'longitude': -3.694904},
    'roof': {'latitude': 40.508997, 'longitude': -3.694904}},
  'link': '/v3/places/52cfea81498e8cdf5e7ad1af',
  'location': {'address': 'Monasterio de Oseira, 19',
    'admin_region': 'Comunidad de Madrid',
    'country': 'ES',
    'cross_street': '',
    'formatted_address': 'Monasterio de Oseira, 19, Madrid Madrid',
    'locality': 'Madrid',
    'region': 'Madrid'},
  'name': 'Guardería Montemar',
  'related_places': {},
  'timezone': 'Europe/Madrid'},
  {'fsq_id': '57555d1d498e458bcd8709e9',
  'categories': [{'id': 11026,
    'name': 'Daycare',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/daycare_',
      'suffix': '.png'}}]},
  'chains': [],
  'distance': 3886,
  'geocodes': {'main': {'latitude': 40.449944, 'longitude': -3.683381}},
  'link': '/v3/places/57555d1d498e458bcd8709e9',
  'location': {'address': 'Calle Jarama, 9',
    'admin_region': 'Comunidad de Madrid',
    'country': 'ES',
    'cross_street': '',
    'formatted_address': 'Calle Jarama, 9, 28002 Madrid Madrid',
    'locality': 'Madrid',
    'postcode': '28002',
    'region': 'Madrid'},
  'name': 'Alaria Escuelas Infantiles - Guarderia en el Viso / Paseo de la Castellana',
  'related_places': {},
  'timezone': 'Europe/Madrid'},
  {'fsq_id': '4c873d8351ada1cd6e684610',
  'categories': [{'id': 12022,
```

```

    'name': 'College Classroom',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/education/classroom_',
            'suffix': '.png'}}],
'chains': [],
'distance': 4216,
'geocodes': {'main': {'latitude': 40.446524, 'longitude': -3.68357},
             'roof': {'latitude': 40.446524, 'longitude': -3.68357}},
'link': '/v3/places/4c873d8351ada1cd6e684610',
'location': {'address': 'Calle Nervión, 10',
             'admin_region': 'Comunidad de Madrid',
             'country': 'ES',
             'formatted_address': 'Calle Nervión, 10, 28002 Madrid Madrid',
             'locality': 'Madrid',
             'neighborhood': ['El Viso'],
             'postcode': '28002',
             'region': 'Madrid'},
'name': 'Guardería Nervión',
'related_places': {},
'timezone': 'Europe/Madrid'},
{'fsq_id': '57555cc9cd1087abb1e491f1',
 'categories': [{'id': 11026,
                  'name': 'Daycare',
                  'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/daycare_',
                          'suffix': '.png'}}],
'chains': [],
'distance': 4275,
'geocodes': {'main': {'latitude': 40.443157, 'longitude': -3.690073}},
'link': '/v3/places/57555cc9cd1087abb1e491f1',
'location': {'address': 'Calle del Maestro Ripoll, 12',
             'admin_region': 'Comunidad de Madrid',
             'country': 'ES',
             'cross_street': '',
             'formatted_address': 'Calle del Maestro Ripoll, 12, 28006 Madrid Madrid',
             'locality': 'Madrid',
             'postcode': '28006',
             'region': 'Madrid'},
'name': 'Alaria Escuelas Infantiles - Guarderia en Nuevos Ministerios',
'related_places': {},
'timezone': 'Europe/Madrid'}],
'context': {'geo_bounds': {'circle': {'center': {'latitude': 40.478611,
                                                'longitude': -3.709722},
                                     'radius': 5000}}}}

```

\*\*\*Mapa de guarderías en distrito de Fuencarral

In [14]: `m = folium.Map(location=[40.561430, -3.744595], zoom_start=11, tiles="OpenStreetMap")`

```

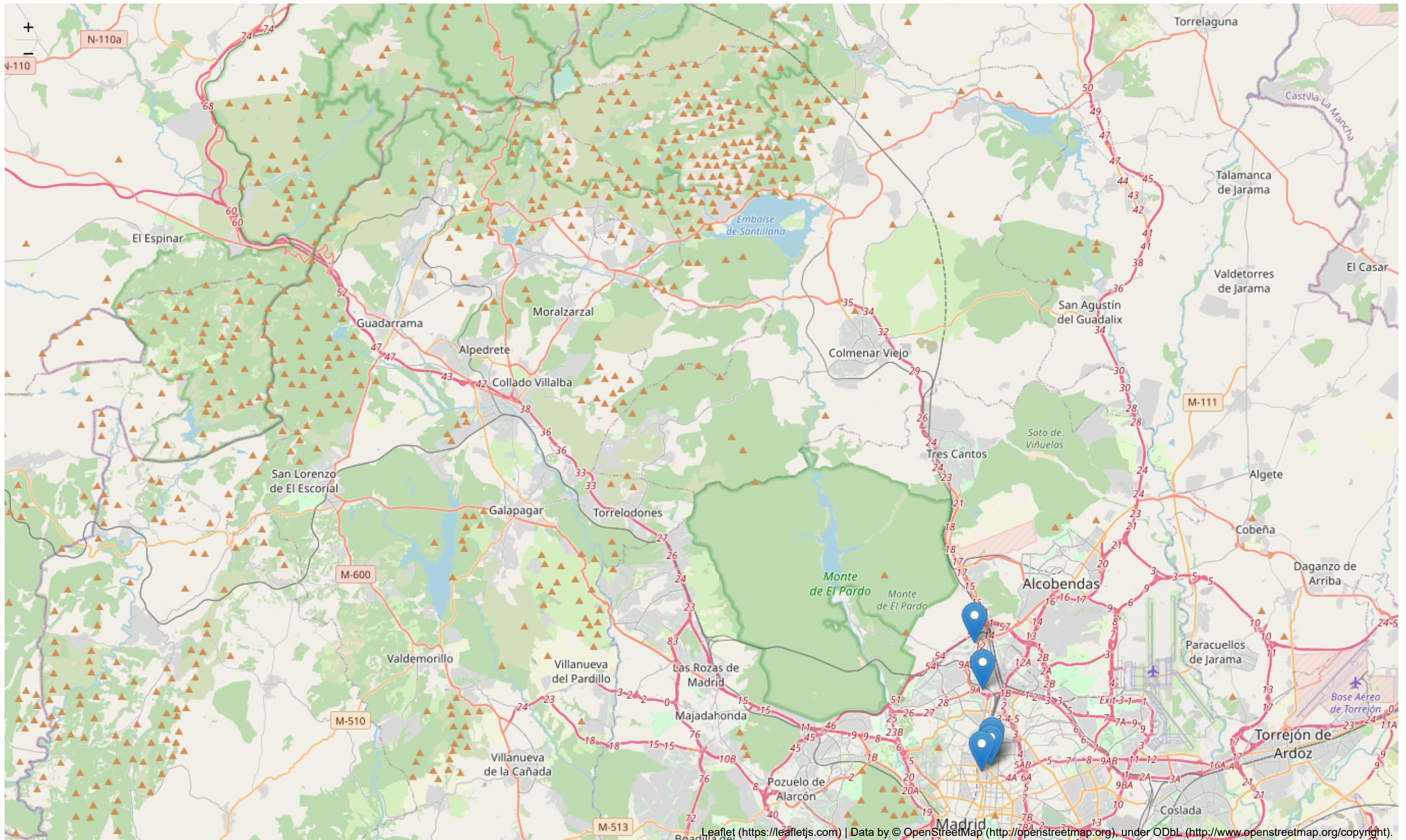
folium.Marker(
    [ 40.484952, -3.68962],
).add_to(m)
folium.Marker(
    [40.508997, -3.694904]
).add_to(m)
folium.Marker(
    [40.449944, -3.683381]
).add_to(m)
folium.Marker(
    [40.446524, -3.68357]
).add_to(m)
folium.Marker(

```

```
[40.443157, -3.690073]  
) .add_to(m)
```

m

Out[14]:



Distrito Hortaleza

```
In [15]: #Definición de URL  
url = "https://api.foursquare.com/v3/places/search"  
  
params = {
```

```
    "query": "guarderia",
    "ll": "40.469221,-3.643206",
    "radius": '5000',
    "open_now": "false",
    "sort": "DISTANCE"
}

headers = {

    "Accept": "application/json",

    "Authorization": ""

}

response = requests.request("GET", url, params=params, headers=headers)
data_hortaleza = response.json()
data_hortaleza
```



```
Out[15]: {'results': [{'fsq_id': '52148d6b11d2f67e0b9a1341',
  'categories': [{'id': 12055,
    'name': 'Nursery School',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/building/school_',
      'suffix': '.png'}}]},
  'chains': [],
  'distance': 551,
  'geocodes': {'main': {'latitude': 40.466745, 'longitude': -3.648687},
    'roof': {'latitude': 40.466745, 'longitude': -3.648687}},
  'link': '/v3/places/52148d6b11d2f67e0b9a1341',
  'location': {'address': 'Alejandro Villegas, 52',
    'admin_region': 'Comunidad de Madrid',
    'country': 'ES',
    'cross_street': '',
    'formatted_address': 'Alejandro Villegas, 52, 28043 Madrid Madrid',
    'locality': 'Madrid',
    'postcode': '28043',
    'region': 'Madrid'},
  'name': 'Guardería Gran Via de Hortaleza',
  'related_places': {},
  'timezone': 'Europe/Madrid'},
  {'fsq_id': '57555d1d498e458bcd8709e9',
  'categories': [{'id': 11026,
    'name': 'Daycare',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/daycare_',
      'suffix': '.png'}}]},
  'chains': [],
  'distance': 4015,
  'geocodes': {'main': {'latitude': 40.449944, 'longitude': -3.683381}},
  'link': '/v3/places/57555d1d498e458bcd8709e9',
  'location': {'address': 'Calle Jarama, 9',
    'admin_region': 'Comunidad de Madrid',
    'country': 'ES',
    'cross_street': '',
    'formatted_address': 'Calle Jarama, 9, 28002 Madrid Madrid',
    'locality': 'Madrid',
    'postcode': '28002',
    'region': 'Madrid'},
  'name': 'Alaria Escuelas Infantiles - Guarderia en el Viso / Paseo de la Castellana',
  'related_places': {},
  'timezone': 'Europe/Madrid'},
  {'fsq_id': '4c873d8351ada1cd6e684610',
  'categories': [{'id': 12022,
    'name': 'College Classroom',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/education/classroom_',
      'suffix': '.png'}}]},
  'chains': [],
  'distance': 4269,
  'geocodes': {'main': {'latitude': 40.446524, 'longitude': -3.68357},
    'roof': {'latitude': 40.446524, 'longitude': -3.68357}},
  'link': '/v3/places/4c873d8351ada1cd6e684610',
  'location': {'address': 'Calle Nervi3n, 10',
    'admin_region': 'Comunidad de Madrid',
    'country': 'ES',
    'formatted_address': 'Calle Nervi3n, 10, 28002 Madrid Madrid',
    'locality': 'Madrid',
    'neighborhood': ['El Viso'],
    'postcode': '28002',
    'region': 'Madrid'},
  'name': 'Guardería Nervi3n',
  'related_places': {}},
```

```

'timezone': 'Europe/Madrid'},
{'fsq_id': '566aa3d8498ee8c217b0239f',
 'categories': [{'id': 11026,
  'name': 'Daycare',
  'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/daycare_',
   'suffix': '.png'}}],
 'chains': [],
 'distance': 4295,
 'geocodes': {'main': {'latitude': 40.484952, 'longitude': -3.68962}},
 'link': '/v3/places/566aa3d8498ee8c217b0239f',
 'location': {'address': 'Virgen de Aranzazu, 1',
  'admin_region': 'Comunidad de Madrid',
  'country': 'ES',
  'cross_street': '',
  'formatted_address': 'Virgen de Aranzazu, 1, Madrid Madrid',
  'locality': 'Madrid',
  'region': 'Madrid'},
 'name': 'Sancalo Guardería - Escuela Infantil',
 'related_places': {},
 'timezone': 'Europe/Madrid'},
{'fsq_id': '57555cc9cd1087abb1e491f1',
 'categories': [{'id': 11026,
  'name': 'Daycare',
  'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/daycare_',
   'suffix': '.png'}}],
 'chains': [],
 'distance': 4908,
 'geocodes': {'main': {'latitude': 40.443157, 'longitude': -3.690073}},
 'link': '/v3/places/57555cc9cd1087abb1e491f1',
 'location': {'address': 'Calle del Maestro Ripoll, 12',
  'admin_region': 'Comunidad de Madrid',
  'country': 'ES',
  'cross_street': '',
  'formatted_address': 'Calle del Maestro Ripoll, 12, 28006 Madrid Madrid',
  'locality': 'Madrid',
  'postcode': '28006',
  'region': 'Madrid'},
 'name': 'Alaria Escuelas Infantiles - Guarderia en Nuevos Ministerios',
 'related_places': {},
 'timezone': 'Europe/Madrid'}],
'context': {'geo_bounds': {'circle': {'center': {'latitude': 40.469221,
  'longitude': -3.643206},
  'radius': 5000}}}}

```

\*\*\*Mapa de Guarderías Distrito de Hortaleza

```

In [16]: m2 = folium.Map(location=[40.469221, -3.643206], zoom_start=11, tiles="OpenStreetMap")
folium.Marker(
    [40.466745, -3.648687],
).add_to(m2)
folium.Marker(
    [40.449944, -3.683381]
).add_to(m2)
folium.Marker(
    [40.446524, -3.68357]
).add_to(m2)
folium.Marker(
    [40.484952, -3.68962]
).add_to(m2)
folium.Marker(
    [40.443157, -3.690073]

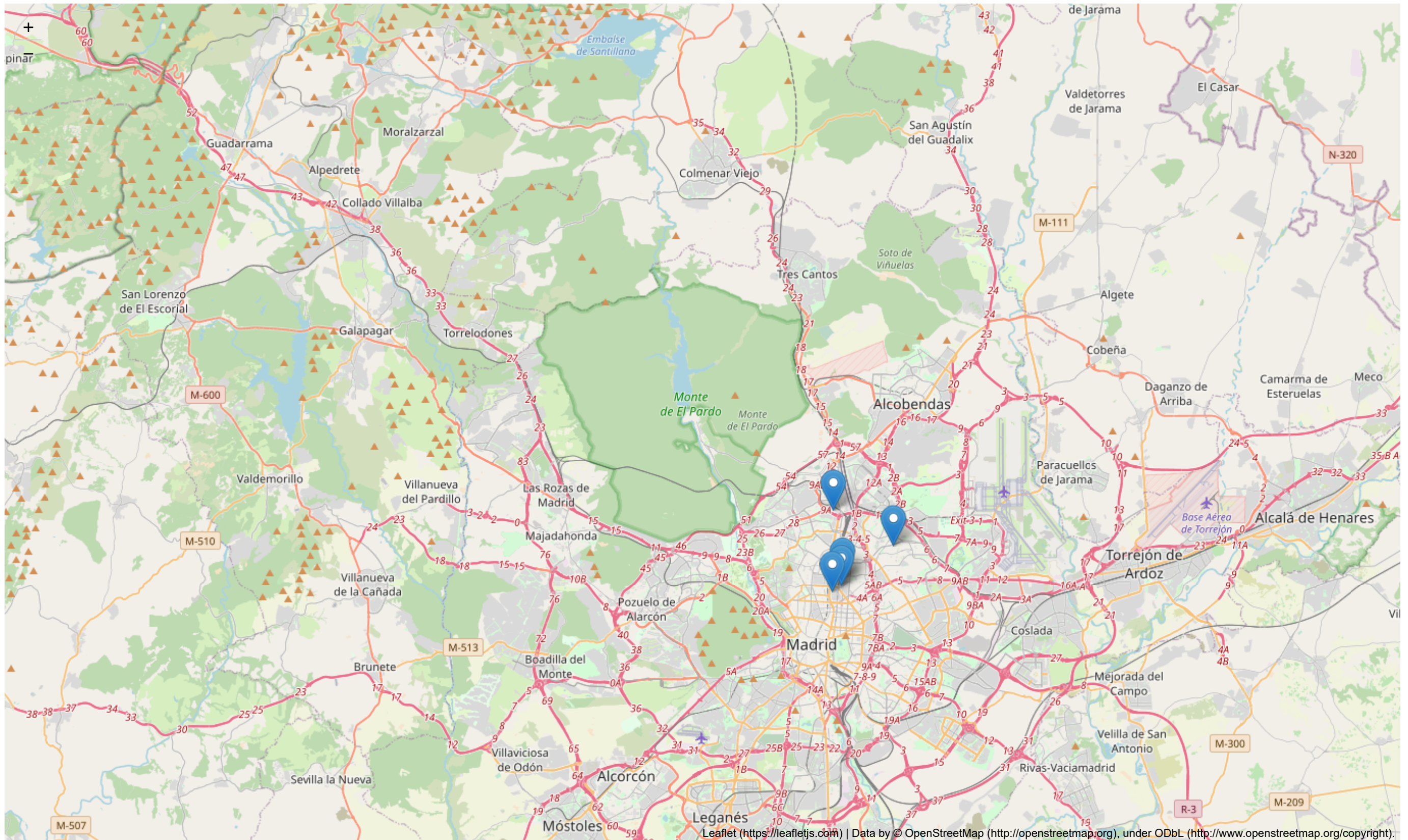
```



```
).add_to(m2)
```

m2

Out[16]:



Distrito Carabanchel

```
In [17]: #Definición de URL
url = "https://api.foursquare.com/v3/places/search"

params = {
```



```

    "query": "guarderia",

    "ll": "40.383669,-3.727989",
    "radius": '5000',

    "open_now": "false",

    "sort": "DISTANCE"

}

headers = {

    "Accept": "application/json",

    "Authorization": ""

}

response = requests.request("GET", url, params=params, headers=headers)
data_carabanchel = response.json()
data_carabanchel

```

```

Out[17]: {'results': [],
          'context': {'geo_bounds': {'circle': {'center': {'latitude': 40.383669,
                                                           'longitude': -3.727989},
                                                           'radius': 5000}}}}

```

\*\*\*Mapa de Guarderías Distrito Carabanchel

```

In [18]: m3 = folium.Map(location=[40.383669,-3.727989], zoom_start=12, tiles="OpenStreetMap")

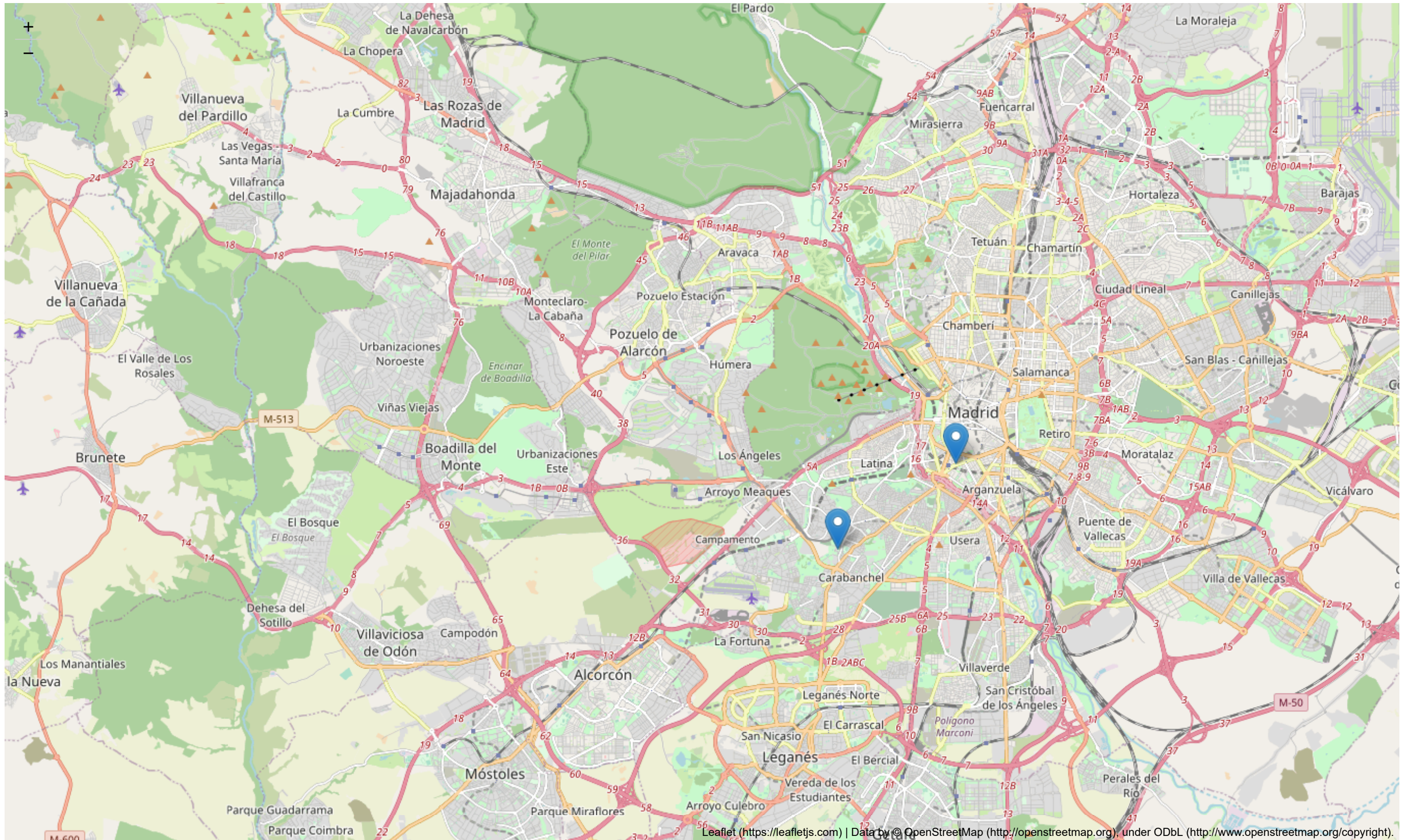
folium.Marker(
    [ 40.381328, -3.749307],
).add_to(m3)
folium.Marker(
    [40.403283, -3.709683]
).add_to(m3)

```

m3



Out[18]:



## CONCLUSIÓN

```
In [19]: resultados_foursquare = pd.read_excel('RESULTS_FOURSQUARE.xlsx')
resultados_foursquare.head()
```



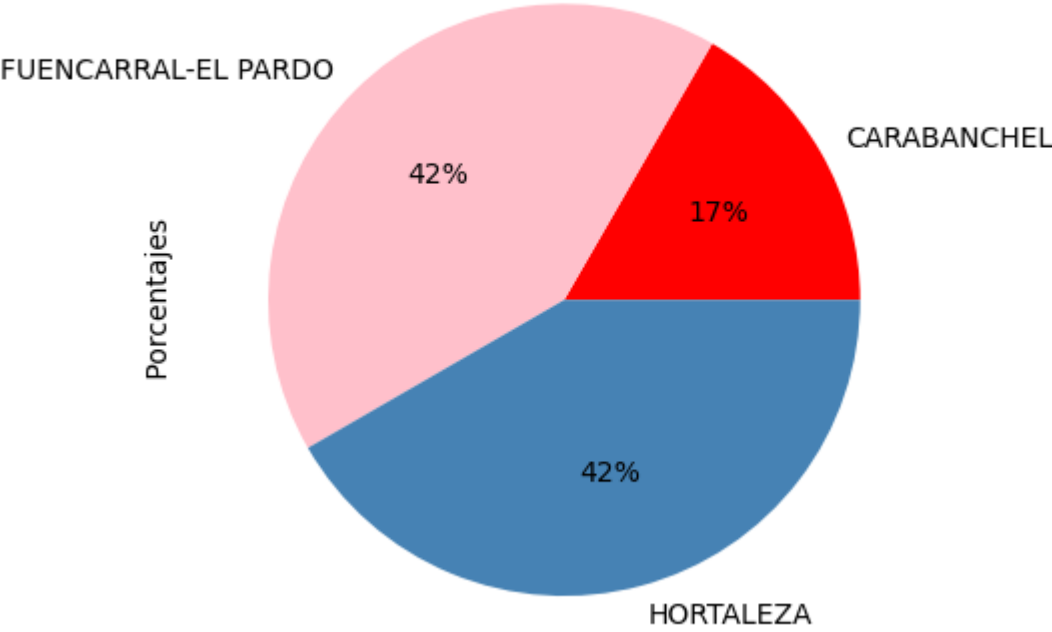
Out[19]:

	DISTRITO	NUMERO DE GUARDERIAS EN RADIO DE 5000 METROS
0	FUENCARRAL-EL PARDO	5
1	HORTALEZA	5
2	CARABANCHEL	2

```
In [20]: resultados_foursquare.groupby(['DISTRITO']).sum().plot(kind='pie', y='NUMERO DE GUARDERIAS EN RADIO DE 5000 METROS', autopct='%1.0f%%',
                                         colors = ['red', 'pink', 'steelblue'], ylabel= ' Porcentajes' ,
                                         title='Porcentaje de guarderias por distrito(en un radio de 5000 metros)')

leg = plt.legend()
leg.remove()
```

Porcentaje de guarderias por distrito(en un radio de 5000 metros)



Como se puede ver a la vista de los resultados del análisis realizado: 3 son los distritos(Fuencarral-El Pardo ; Hortaleza y Carabanchel) con mayor número de habitantes de 0-4 años , pero de estos 3 distritos el que tiene menos guarderias en un radio de 5000 metros, es Carabanchel, por lo que la elección del distrito para abrir la guarderia solicitada en el estudio, es el Distrito de Carabanchel.

```
In [21]: map.save("map.html")
m.save("m.html")
m2.save("m2.html")
m3.save("m3.html")
```

```
In [ ]:
```