

**Puntajes PSU (<http://www.t13.cl/noticia/nacional/te-puede-servir/ranking-colegios-mejor-promedio-psu-2016>)**

```
In [3]: from robobrowser import RoboBrowser
import geocoder
import folium
import pandas
import os
cwd = os.getcwd()

browser = RoboBrowser(history=True, parser='html5lib')
url = 'http://www.tl3.cl/noticia/nacional/te-puede-servir/ranking-colegios-mejor-promedio-psu-2016'
browser.open(url)
```

```
In [4]: table=browser.select('.article-content table')[0]
        t=table.__str__()
        t[:1000]
```

[illegible]

```
In [5]: t=t.replace(',','.')
df=pandas.read_html(t, header=0)[0]
df.head(10)
```

Out[5]:

	Posición en el ranking	Tipo de establecimiento	Comuna	Colegio	Alumnos que rindieron la prueba	Promedio PSU
0	1	Particular	Providencia	Cambridge College	29	704.4
1	2	Particular	Las Condes	Cordillera	63	699.0
2	3	Particular	Concón	Montemar	22	694.0
3	4	Particular	Maipú	Internacional Alba	26	693.4
4	5	Particular	Vitacura	Los Andes	69	692.9
5	6	Particular	Puerto Montt	Instituto Alemán	46	690.9
6	7	Particular	Lo Barnechea	Maimonides School	10	689.7
7	8	Particular	Chiguayante	Pinares	16	685.5
8	9	Particular	Angol	San José	19	683.7
9	10	Particular	La Reina	The Grange School	133	682.6

```
In [6]: g=geocoder.google('colegio the grange school, la reina, chile')
print(g)
print(g.latlng)
```

```
<[ERROR - No results found] Google - Geocode [empty]>
```

```
-----
ValueError                                Traceback (most recent call last)
```

```
<ipython-input-6-361371feab2d> in <module>()
```

```
1 g=geocoder.google('colegio the grange school, la reina, chile')
```

```
2 print(g)
```

```
----> 3 print(g.latlng)
```

```
~/anaconda/envs/dataviz2/lib/python3.6/site-packages/geocoder/base.py in __getattr__(self, name)
```

```
917     """
```

```
918         if not self.ok:
```

```
--> 919             raise ValueError(self.status)
```

```
920
```

```
921         if self.current_result is None:
```

```
ValueError: ERROR - No results found
```

```
In [ ]: g.latlng
```

```
-36.8883627, -73.0351594
```

```
(https://www.google.cl/maps/@-33.4382165,-70.5686165,3a,75y,3.98h,101.74t/data=!3m7!1e1!3m5!1sxP13kKF1tvm6pau-
```

```
DNnsPA!2e0!6s%2F%2Fgeo1.ggpht.com%2Fcbk%3Fpanoid%3DxP13kKF1tvm6pau-
```

```
DNnsPA%26output%3Dthumbnail%26cb_client%3Dmaps_sv.tactile.gps%26thumb%3D2%26w%3D203%26h%3D100%26yaw%3D33.01:
```

```
In [25]: from joblib import Memory
import warnings
warnings.filterwarnings('ignore')
memory = Memory(cachedir='colegios', verbose=0)
import time
from memorize.memorize import Memorize

import json

def persist_to_file(file_name):
    def decorator(original_func):

        try:
            cache = json.load(open(file_name, 'r'))
        except (IOError, ValueError):
            cache = {}

        def new_func(param):
            if param not in cache:
                cache[param] = original_func(param)
                json.dump(cache, open(file_name, 'w'))
            return cache[param]

        return new_func

    return decorator

@persist_to_file('cache.dat')
def get_latlng(query):
    providers = geocoder.osm, geocoder.google
    for provider in providers:
        #print(provider)
        try:
            g=provider(query)
        except ValueError:
            continue
        if g:
            return g.latlng
    return None, None

def get_latlng_nocache(query):
    providers = geocoder.osm, geocoder.google
```

```

for provider in providers:
    #print(provider)
    try:
        g=provider(query)
    except ValueError:
        continue
    if g:
        return g.latlng
return None, None

for index,row in df.iterrows():
    stopwords = 'colegio', 'liceo', 'school', 'instituto', 'college'
    query = row.Colegio + ", "+ row.Comuna + ", chile"
    query = query.lower()
    for i in stopwords:
        if i in query:
            break
    else:
        query = 'colegio ' + query
    print(query),
    g=get_latlng(query)
    time.sleep(0.1)
    if g ==[None, None]:
        g = get_latlng_nocache(query)
        if not g:
            print('ERROR', query)
            continue
    if g:
        lat, lng = g
        df.set_value(index,'lat', lat)
        df.set_value(index,'lng', lng)
        print(g)
    else:
        print(g, 'ERROR', query)

```

```

cambridge college, providencia, chile
[-33.4297301, -70.6171096621219]
colegio cordillera, las condes, chile
[-33.39712965, -70.5143209449632]
colegio montemar, concón, chile
[-32.95104785, -71.5354626703725]
colegio internacional alba, maipú, chile
[-33.4805743, -70.74499]

```

colegio los andes, vitacura, chile  
[-33.37579495, -70.5270086976089]  
instituto alemán, puerto montt, chile  
[-41.4703149, -72.9327801328877]  
maimonides school, lo barnechea, chile  
[-33.362362, -70.485016]  
colegio pinares, chiguayante, chile  
[-36.9329182, -73.0240795401104]  
colegio san josé, angol, chile  
(None, None)  
the grange school, la reina, chile  
[-33.43693825, -70.5678364497786]  
instituto hebreo, lo barnechea, chile  
[-33.36782585, -70.50897645]  
colegio trebulco, talagante, chile  
[-33.68492175, -70.9181438684788]  
colegio tabancura, vitacura, chile  
[-33.3803347, -70.5348377]  
the kent school, providencia, chile  
[-33.442454, -70.606202]  
colegio la girouette, las condes, chile  
[-33.42014435, -70.5684437802117]  
colegio arauco, arauco, chile  
[-37.24882155, -73.3061872870916]  
colegio los alerces, lo barnechea, chile  
[-33.36445855, -70.5183101905381]  
the newland school, lo barnechea, chile  
[-33.3599392, -70.5327805]  
colegio francisco encina, ñuñoa, chile  
[-33.4637602, -70.60044585]  
colegio josefino santísima trinidad, providencia, chile  
[-33.43587615, -70.6188793531496]  
andree english school, la reina, chile  
[-33.439611, -70.551921]  
colegio puerto varas, puerto varas, chile  
[-41.3084803, -72.9931364]  
colegio particular montessori, talca, chile  
(None, None)  
colegio albamar, viña del mar, chile  
[-32.96045675, -71.5406954610588]  
colegio nido de águilas, lo barnechea, chile  
[-33.3511194, -70.5031656]  
colegio itahue, chiguayante, chile

[-36.8883627, -73.0351594]  
colegio cumbres, las condes, chile  
[-33.3933483, -70.5021064]  
the southern cross school, las condes, chile  
(None, None)  
trewhela's english school, providencia, chile  
[-33.4226143, -70.5973636]  
instituto alemán c. anwandter, valdivia, chile  
[-39.8121837, -73.2529625]  
saint george's college, vitacura, chile  
[-33.38274525, -70.59655052429]  
colegio ss.cc de apoquindo, las condes, chile  
[-33.410922, -70.549691]  
instituto alonso de ercilla, santiago, chile  
[-33.43709455, -70.6666589741227]  
liceo augusto d'halmar, ñuñoa, chile  
[-33.46016265, -70.5812653049313]  
colegio huelén, vitacura, chile  
[-33.37760185, -70.5751837243297]  
colegio del verbo divino, las condes, chile  
[-33.420037, -70.58666889999999]  
saint gabriel's school, providencia, chile  
[-33.4271401, -70.59261055]  
colegio san jorge, laja, chile  
[-37.2825293, -72.7091183]  
colegio villa maría academy, las condes, chile  
[-33.4210241, -70.5889657966817]  
colegio dunalastair, las condes, chile  
[-33.37493645, -70.5206063232946]  
santiago college, lo barnechea, chile  
[-33.3395149, -70.5450678256533]  
colegio san benito, vitacura, chile  
[-33.3713969, -70.5808853281962]  
colegio internacional sek chile, las condes, chile  
[-33.40304, -70.564276]  
colegio san ignacio el bosque, providencia, chile  
[-33.43500655, -70.5942887]  
colegio alianza francesa j. mermoz, curicó, chile  
(None, None)  
colegio amalia errázuriz, ovalle, chile  
[-30.61201255, -71.2171419776463]  
colegio charles de gaulle, concepción, chile  
[-36.829532, -73.0464155]

colegio champagnat, villa alemana, chile  
[-33.0466949, -71.3647156776244]  
colegio alemán de concepción, san pedro de la paz, chile  
[-36.8506206, -73.0927243]  
colegio lincoln international academy, lo barnechea, chile  
[-33.3695059, -70.5111826825731]  
colegio tabor y nazareth, lo barnechea, chile  
[-33.32443, -70.5414538]  
colegio alemán de santiago, las condes, chile  
[-33.39849825, -70.5698888938327]  
colegio alemán sankt thomas morus, providencia, chile  
[-33.42625505, -70.6107939984346]  
colegio de los sagrados corazones, vitacura, chile  
[-33.3784759, -70.5501737]  
colegio pedro de valdivia, providencia, chile  
[-33.440636, -70.6077678]  
colegio akros, ñuñoa, chile  
[-33.4551968, -70.5891055]  
the thomas jefferson school, talcahuano, chile  
[-36.784576, -73.060369]  
colegio lycée antoine de saint-exupéry, vitacura, chile  
[-33.3947866, -70.5820801]  
colegio san francisco javier de huechuraba, huechuraba, chile  
[-33.35034715, -70.6839407930914]  
colegio sagrada familia, viña del mar, chile  
[-32.953214, -71.5375367524631]  
colegio everest, lo barnechea, chile  
[-33.3335136, -70.5552317519729]  
colegio serena, la serena, chile  
[-29.9176152, -71.2551169932687]  
colegio santa úrsula, vitacura, chile  
[-33.3933445, -70.5990144520582]  
colegio san isidro, buin, chile  
[-33.7627216, -70.7464091]  
colegio el salvador, san vicente, chile  
[-34.43929895, -71.0847090631952]  
instituto o'higgins, rancagua, chile  
[-34.1736889, -70.7421855124169]  
colegio calasanz, ñuñoa, chile  
[-33.4489771, -70.5848915]  
colegio pedro de valdivia agustinas, santiago, chile  
[-33.4419773, -70.6645155]  
colegio particular san lorenzo, copiapó, chile



[-27.38770715, -70.296433063246]  
colegio sagrados corazones, hualpén, chile  
[-36.8003046, -73.0859965]  
colegio cruz del sur, punta arenas, chile  
[-53.1554773, -70.9050057]  
colegio santa cruz de chicureo, colina, chile  
[-33.28656355, -70.6933838351205]  
colegio alemán, temuco, chile  
[-38.7370222, -72.6137053]  
colegio padre hurtado y juanita de los andes, las condes, chile  
[-33.4136656, -70.5124946]  
colegio suizo de santiago, ñuñoa, chile  
[-33.4566587, -70.6084014]  
colegio pumahue, peñalolén, chile  
[-33.4970005, -70.5467595888828]  
colegio scuola italiana alcide de gasperi, la serena, chile  
[-29.9344285, -71.2657064]  
colegio pedro de valdivia - peñalolén, peñalolén, chile  
[-33.49310465, -70.5765969648749]  
instituto inglés rancagua, rancuagua, chile  
[-34.1774722, -70.744939]  
colegio wenlock school, las condes, chile  
[-33.410778, -70.5220646]  
colegio alemán de valparaíso, viña del mar, chile  
[-33.0390072, -71.5260857]  
colegio british royal school, la reina, chile  
(None, None)  
liceo maría luisa bombal, vitacura, chile  
[-33.388298, -70.5796385]  
colegio craighouse, lo barnechea, chile  
[-33.3630003, -70.5101596]  
colegio inglés, talca, chile  
[-35.4509891, -71.5969145]  
colegio constitución, constitución, chile  
[-35.32940015, -72.4131335016564]  
colegio gerónimo rendic, la serena, chile  
[-29.90419045, -71.2437038239713]  
colegio saint gaspar college, ñuñoa, chile  
[-33.4599669, -70.6050505]  
colegio internacional antofagasta limitada, antofagasta, chile  
[-23.7282478, -70.43684449999999]  
colegio francisco de asis, las condes, chile  
[-33.3919505, -70.5094592]

```

green house school, temuco, chile
[-38.7411643, -72.6377808496584]
colegio pedro de valdivia las condes, las condes, chile
[-33.37071395, -70.5080432049527]
colegio inglés saint john, rancagua, chile
[-34.1754052, -70.7231044]
colegio san ignacio, calama, chile
[-22.4403566, -68.92432509999999]
colegio británico st. margaret´s s.a., concón, chile
[-32.9396604, -71.5305072]
colegio campanario, buin, chile
[-33.73853195, -70.6924615460235]
colegio san francisco de la selva, copiapó, chile
[-27.387174, -70.305078]
colegio dunalastair valle norte, colina, chile
[-33.30656115, -70.6664782184677]
colegio escuela el maitén, la unión, chile
[-40.3071504, -73.08733509999999]
sun valley college, calle larga, chile
[-32.8600102, -70.589402]

```

```
In [26]: df[df.isnull().any(axis=1)]
```

```
Out[26]:
```

	Posición en el ranking	Tipo de establecimiento	Comuna	Colegio	Alumnos que rindieron la prueba	Promedio PSU	lat	Ing
8	9	Particular	Angol	San José	19	683.7	NaN	NaN
22	23	Particular	Talca	Particular Montessori	53	669.8	NaN	NaN
27	28	Particular	Las Condes	The Southern Cross School	31	668.6	NaN	NaN
44	45	Particular	Curicó	Alianza Francesa J. Mermoz	28	660.1	NaN	NaN
81	82	Particular	La Reina	Colegio British Royal School	63	648.0	NaN	NaN

```
In [27]: df=df.dropna()
df.head(25)
```

```
Out[27]:
```

	Posición en el ranking	Tipo de establecimiento	Comuna	Colegio	Alumnos que rindieron la prueba	Promedio PSU	lat	lng
0	1	Particular	Providencia	Cambridge College	29	704.4	-33.429730	-70.617110
1	2	Particular	Las Condes	Cordillera	63	699.0	-33.397130	-70.514321
2	3	Particular	Concón	Montemar	22	694.0	-32.951048	-71.535463
3	4	Particular	Maipú	Internacional Alba	26	693.4	-33.480574	-70.744990
4	5	Particular	Vitacura	Los Andes	69	692.9	-33.375795	-70.527009
5	6	Particular	Puerto Montt	Instituto Alemán	46	690.9	-41.470315	-72.932780
6	7	Particular	Lo Barnechea	Maimonides School	10	689.7	-33.362362	-70.485016
7	8	Particular	Chiguayante	Pinares	16	685.5	-36.932918	-73.024080
9	10	Particular	La Reina	The Grange School	133	682.6	-33.436938	-70.567836
10	11	Particular	Lo Barnechea	Instituto Hebreo	76	681.0	-33.367826	-70.508976
11	12	Particular	Talagante	Trebulco	22	680.8	-33.684922	-70.918144
12	13	Particular	Vitacura	Tabancura	107	679.4	-33.380335	-70.534838
13	14	Particular	Providencia	The Kent School	61	678.5	-33.442454	-70.606202
14	15	Particular	Las Condes	La Girouette	55	678.2	-33.420144	-70.568444
15	16	Particular	Arauco	Arauco	21	676.0	-37.248822	-73.306187
16	17	Particular	Lo Barnechea	Los Alerces	61	675.6	-33.364459	-70.518310

	Posición en el ranking	Tipo de establecimiento	Comuna	Colegio	Alumnos que rindieron la prueba	Promedio PSU	lat	lng
<b>17</b>	18	Particular	Lo Barnechea	The Newland School	82	675.6	-33.359939	-70.532781
<b>18</b>	19	Particular	Ñuñoa	Francisco Encina	24	675.6	-33.463760	-70.600446
<b>19</b>	20	Subvencionado	Providencia	Josefino Santísima Trinidad	27	673.5	-33.435876	-70.618879
<b>20</b>	21	Particular	La Reina	André English School	138	672.6	-33.439611	-70.551921
<b>21</b>	22	Particular	Puerto Varas	Puerto Varas	46	671.8	-41.308480	-72.993136
<b>23</b>	24	Particular	Viña del Mar	Albamar	31	669.7	-32.960457	-71.540695
<b>24</b>	25	Particular	Lo Barnechea	Nido de Águilas	27	669.7	-33.351119	-70.503166
<b>25</b>	26	Particular	Chiguayante	Itahue	7	669.6	-36.888363	-73.035159
<b>26</b>	27	Particular	Las Condes	Cumbres	202	668.8	-33.393348	-70.502106

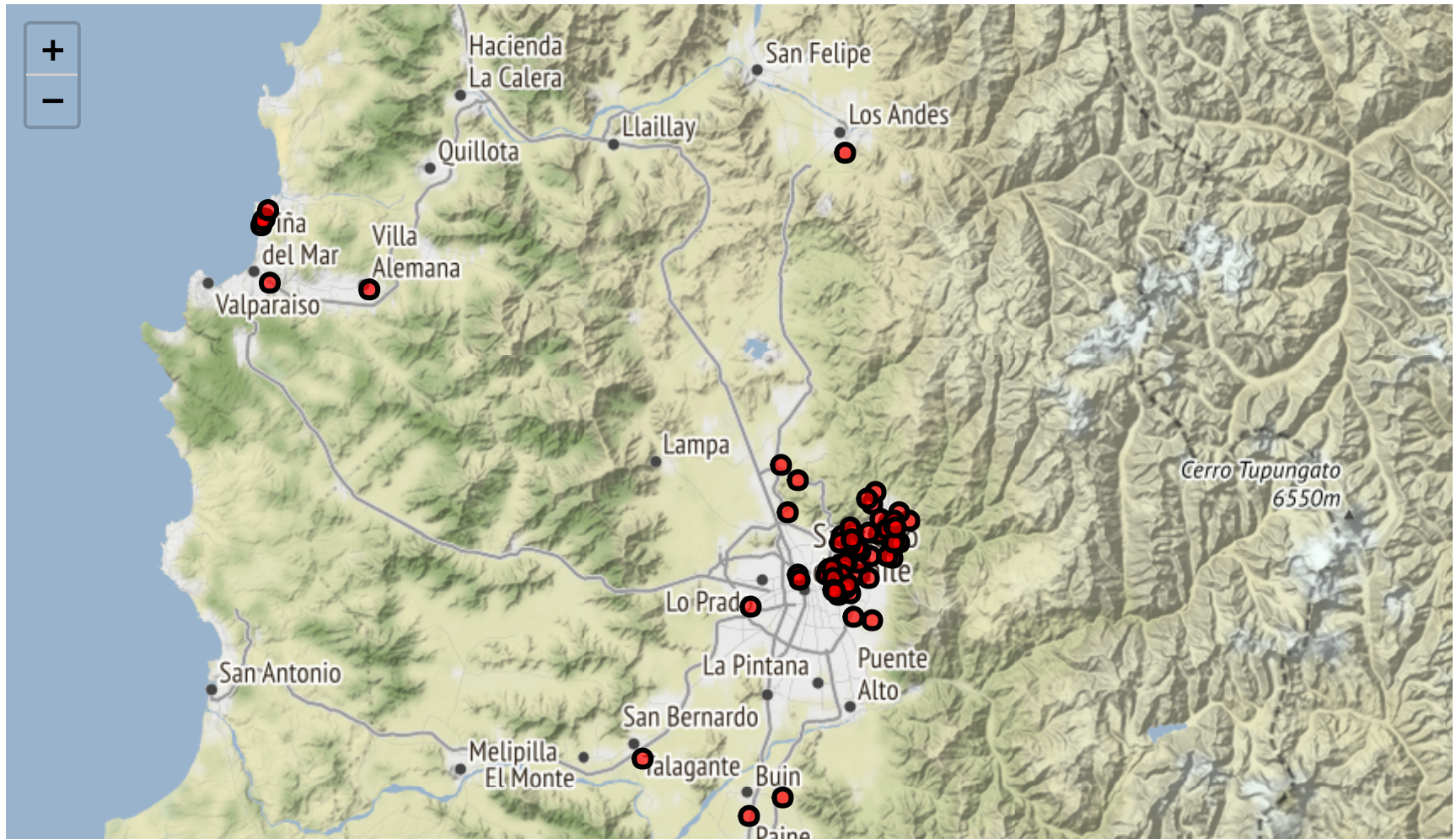
```

In [28]: map = folium.Map(location=[-33.39, -70.57], zoom_start=8, tiles='Stamen Terrain')
i=0
for index, row in df.iterrows():
    map.add_child(
        folium.CircleMarker([row.lat,row.lng],
                             color='#000000',
                             fill_color='#ff0000',
                             fill=True,
                             fill_opacity=0.7,
                             radius=5,
                             popup=u"%s %s %s" % (row.Colegio, row['Promedio PSU'], row['Comuna'])))

map.save('colegios.html')
map

```

Out[28]:



In [27]: `df.head()`

Out[27]:

	Posición en el ranking	Tipo de establecimiento	Comuna	Colegio	Alumnos que rindieron la prueba	Promedio PSU	lat	lng
0	1	Particular	Providencia	Cambridge College	29	704.4	-33.429787	-70.616853
1	2	Particular	Las Condes	Cordillera	63	699.0	-33.396461	-70.513284
2	3	Particular	Concón	Montemar	22	694.0	-32.950793	-71.535073
3	4	Particular	Maipú	Internacional Alba	26	693.4	-33.480762	-70.745021
4	5	Particular	Vitacura	Los Andes	69	692.9	-33.375544	-70.526525

```

In [44]: map = folium.Map(location=[-33.39, -70.57], zoom_start=8, tiles='Stamen Toner')
i=0
for index, row in df2.iterrows():
    map.add_child(
        folium.CircleMarker([row.lat,row.lng],
                             color='#ff0000',
                             fill_color='#ff0000',
                             fill=True,
                             fill_opacity=0.7,
                             radius=5*row['Alumnos que rindieron la prueba']/100.0,
                             popup=u"%s %s %s" % (row.Colegio, row['Promedio PSU'], row['Comuna'])))

map.save('colegios.html')
map

```

Out[44]:



```
In [28]: df.head()
```

...

```
In [13]: df3 = df[df['Tipo de establecimiento'] != 'Particular']
df3
```

```
Out[13]:
```

	Posición en el ranking	Tipo de establecimiento	Comuna	Colegio	Alumnos que rindieron la prueba	Promedio PSU	lat	lng
<b>19</b>	20	Subvencionado	Providencia	Josefino Santísima Trinidad	27	673.5	-33.435800	-70.619132
<b>33</b>	34	Municipal	Ñuñoa	Liceo Augusto D 'Halmar	60	665.0	-33.460248	-70.580760
<b>64</b>	65	Subvencionado	San Vicente	Colegio El Salvador	65	652.5	-34.439336	-71.085276
<b>82</b>	83	Subvencionado	Vitacura	Liceo María Luisa Bombal	35	648.0	-33.388045	-70.579640
<b>86</b>	87	Subvencionado	La Serena	Colegio Gerónimo Rendic	112	647.5	-29.904211	-71.243276
<b>96</b>	97	Subvencionado	Copiapó	Colegio San Francisco de la Selva	15	643.2	-27.387174	-70.305078
<b>98</b>	99	Municipal	La Unión	Escuela El Maitén	1	643.0	-40.307150	-73.087335

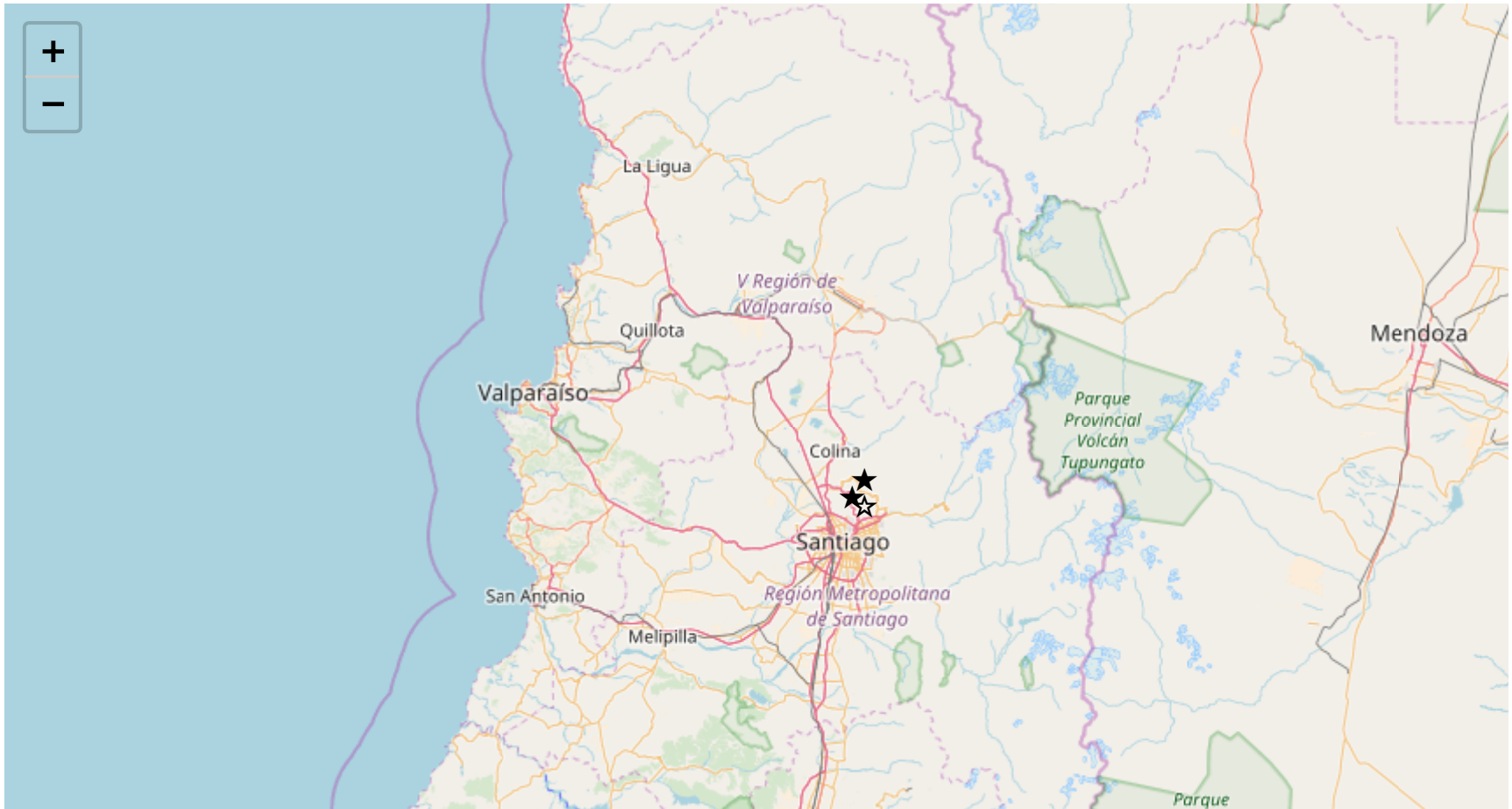


```

In [72]: map = folium.Map(location=[-33.39, -70.57], zoom_start=8, tiles='OpenStreetMap')
        colors = {
            'Particular': ('green', ''),
            'Subvencionado': ('red', 'star'),
            'Municipal': ('red', 'star-empty'),
        }
        for index, row in df.iterrows():
            color, icon = colors[row['Tipo de establecimiento']]
            folium.Marker(
                location=[row.lat, row.lng],
                popup=u"%s - %s - %s - %s" % (row['Tipo de establecimiento'], row.Colegio, row['Promedio PSU'],
                icon=folium.Icon(color=color, icon=icon)
            ).add_to(map)
        map.save('colegios.html')
        map

```

Out[72]:





[mapa \(colegios.html\)](#)

## <https://flightaware.com/live/fleet/LAN> (https://flightaware.com/live/fleet/LAN)

```
In [ ]: 1 from robobrowser import RoboBrowser
        2 import plotly.plotly as py
        3 import pandas as pd
        4 import networkx as nx
        5 from cachier import cachier
        6 import geocoder
        7 browser = RoboBrowser(history=True, parser='html5lib')
```

```
In [30]: 1 url = 'https://flightaware.com/live/fleet/LAN'
        2 browser.open(url)
        3 table=browser.select('.prettyTable')[0]
        4 table_code=table.__str__()
        5 table_code[:1000]
```

```
Out[30]: '<table class="prettyTable fullWidth" style="background-color: white;"><thead><tr><th class="mainHeader" colspan="8">Airborne LAN Airlines "LAN Chile" (LAN) Aircraft</th></tr><tr><th><a href="http://flightaware.com/live/fleet/LAN?;offset=0;sort=ASC;order=ident">Ident</a><a href="http://flightaware.com/live/fleet/LAN?;offset=0;order=ident;sort=DESC"></a></th><th><a href="http://flightaware.com/live/fleet/LAN?;offset=0;sort=ASC;order=aircrafttype">Type</a></th><th><a href="http://flightaware.com/live/fleet/LAN?;offset=0;sort=ASC;order=origin">Origin</a></th><th><a href="http://flightaware.com/live/fleet/LAN?;offset=0;sort=ASC;order=destination">Destination</a></th><th><a href="http://flightaware.com/live/fleet/LAN?;offset=0;sort=ASC;order=actualdeparturetime">Departure</a></th><th><a href="http://flightaware.com/live/fleet/LAN?;offset=0;sort=ASC;order=estimatedarrivaltime">Estimated<br/>Arrival Time</a></th></tr></thead><tbody><tr><td>LAN</td><td>Airbus A320</td><td>Santiago</td><td>Santiago</td><td>2017-07-20 18:00</td><td>2017-07-20 19:00</td><td>2017-07-20 19:00</td><td>2017-07-20 19:00</td></tr></tbody></table>'
```

```
In [31]: 1 tdf=pd.read_html(table_code, header=1)[0]
        2 tdf
```

Out[31]:

	Ident	Type	Origin	Destination	Departure	EstimatedArrival Time
0	LAN137	A321	Cerro Moreno Int'l (ANF / SCFA)	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:47PM -03	Mon 07:18PM -03
1	LAN138	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Cerro Moreno Int'l (ANF / SCFA)	Mon 05:21PM -03	Mon 06:52PM -03
2	LAN155	A320	El Loa (CJC / SCCF)	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:28PM -03	Mon 07:07PM -03
3	LAN156	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	El Loa (CJC / SCCF)	Mon 05:33PM -03	Mon 07:13PM -03
4	LAN168	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Diego Aracena Int'l (IQQ / SCDA)	Mon 05:39PM -03	Mon 07:33PM -03
5	LAN188	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Chacalluta Int'l (ARI / SCAR)	Mon 06:08PM -03	Mon 08:28PM -03
6	LAN433	A320	Governor Francisco Gabrielli Int'l (El Plumeri...	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:45PM -03	Mon 06:24PM -03
7	LAN443	A320	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Ministro Pistarini Int'l (EZE / SAEZ)	Mon 05:06PM -03	Mon 06:47PM -03
8	LAN461	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Jorge Newbery (AEP / SABE)	Mon 05:24PM -03	Mon 07:04PM -03
9	LAN486	A320	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Ingeniero Ambrosio L.V. Taravella Int'l (COR / ...)	Mon 05:42PM -03	Mon 06:47PM -03
10	LAN576	B788	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	El Dorado Int'l (BOG / SKBO)	Mon 03:35PM -03	Mon 06:48PM -05
11	LAN600	B788	Jorge Chavez Int'l (LIM / SPJC)	Los Angeles Intl (KLAX)	Mon 12:46PM -05	Mon 06:57PM PDT
12	LAN632	A320	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Jorge Chavez Int'l (LIM / SPJC)	Mon 04:37PM -03	Mon 06:02PM -05
13	LAN642	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Jorge Chavez Int'l (LIM / SPJC)	Mon 03:54PM -03	Mon 05:00PM -05
14	LAN702	B789	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	São Paulo-Guarulhos Int'l (GRU / SBGR)	Mon 04:04PM -03	Mon 08:49PM -02
15	LAN703	B789	Barajas Int'l (MAD / LEMD)	São Paulo-Guarulhos Int'l (GRU / SBGR)	Mon 09:55PM CET	Tue 05:55AM -02

Ident		Type	Origin	Destination	Departure	EstimatedArrival Time
16	LAN751	B789	São Paulo-Guarulhos Int'l (GRU / SBGR)	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 04:37PM -02	Mon 07:13PM -03
17	LAN801	B789	Auckland (AKL / NZAA)	Sydney (SYD / YSSY)	Tue 07:28AM NZDT	Tue 08:22AM AEDT
18	LAN805	B789	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Melbourne Tullamarine (MEL / YMML)	Mon 12:57PM -03	Tue 04:23PM AEDT

```
In [32]: 1 browser = RoboBrowser(history=True, parser='html5lib')
2 base_url = 'https://flightaware.com/live/fleet/'
3 query = 'JAL' ##
4 airlines = "LAN", "JAL", "DLH", "AAL", "CCA", 'AFR', 'IGO', 'MSR'
5 df = pd.DataFrame()
6
7 for query in airlines:
8     print()
9     print(query)
10    for i in range(2):
11        url = base_url + query + "?;offset=" + str(i*20)
12        browser.open(url)
13        table=browser.select('.prettyTable')[0]
14        t=table.__str__()
15        if 'Sorry' in t:
16            break
17        tdf=pd.read_html(t, header=1)[0]
18        df = df.append(tdf)
19        print(tdf.head(3))
```

LAN

	Ident	Type	Origin \
0	LAN137	A321	Cerro Moreno Int'l (ANF / SCFA)
1	LAN138	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)
2	LAN155	A320	El Loa (CJC / SCCF)

	Destination	Departure \
0	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:47PM -03
1	Cerro Moreno Int'l (ANF / SCFA)	Mon 05:21PM -03
2	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:28PM -03

	EstimatedArrival Time
0	Mon 07:18PM -03
1	Mon 06:52PM -03
2	Mon 07:07PM -03

JAL

	Ident	Type	Origin	Destination \
0	JAL11	B788	Dallas-Fort Worth Intl (KDFW)	Narita Int'l (NRT / RJAA)
1	JAL17	B788	Vancouver Int'l (CYVR)	Narita Int'l (NRT / RJAA)
2	JAL3	B77W	John F Kennedy Intl (KJFK)	Narita Int'l (NRT / RJAA)

		Departure	EstimatedArrival	Time
0	Mon 12:38PM CDT		Tue 03:46PM JST	
1	Mon 02:21PM PDT		Tue 03:50PM JST	
2	Mon 12:26PM EDT		Tue 02:39PM JST	

	Ident	Type	Origin	\
0	JAL726	B789	Jakarta-Soekarno-Hatta Int'l (CGK / WIII)	
1	JAL727	B788	Kansai Int'l (KIX / RJBB)	
2	JAL738	B788	Suvarnabhumi Bangkok Int'l (BKK / VTBS)	

		Destination	Departure	\
0		Narita Int'l (NRT / RJAA)	Mon 09:54PM WIB	
1		Suvarnabhumi Bangkok Int'l (BKK / VTBS)	Tue 01:03AM JST	
2		Chubu Centrair Int'l (Centrair) (NGO / RJGG)	Tue 01:15AM +07	

	EstimatedArrival	Time
0	Tue 06:36AM JST	
1	Tue 04:29AM +07	
2	Tue 08:08AM JST	

DLH

	Ident	Type	Origin	Destination	\
0	DLH1068	A320	Frankfurt Int'l (FRA / EDDF)	Nice Cote d'Azur (NCE / LFMN)	
1	DLH1082	A319	Frankfurt Int'l (FRA / EDDF)	Lyon (LYS / LFLN)	
2	DLH1120	A321	Frankfurt Int'l (FRA / EDDF)	Barajas Int'l (MAD / LEMD)	

		Departure	EstimatedArrival	Time
0	Mon 09:23PM CET		Mon 10:43PM CET	
1	Mon 10:06PM CET		Mon 11:04PM CET	
2	Mon 08:58PM CET		Mon 11:04PM CET	

	Ident	Type	Origin	\
0	DLH1792	A320	Munich Int'l (MUC / EDDM)	
1	DLH1864	A319	Munich Int'l (MUC / EDDM)	
2	DLH1930	A320	Munich Int'l (MUC / EDDM)	

		Destination	Departure	\
0	Lisbon / Lisboa,Portela (Lisbon)	(LIS / LPPT)	Mon 08:36PM CET	
1		Malpensa Int'l (MXP / LIMC)	Mon 10:17PM CET	
2		Naples Int'l (Capodichino) (NAP / LIRN)	Mon 09:36PM CET	

	EstimatedArrival	Time
0	Mon 10:14PM WET	
1	Mon 11:05PM CET	
2	Mon 10:50PM CET	

## AAL

	Ident	Type	Origin \	Destination	Departure	EstimatedArrival Time
0	AAL1005	A319	Miami Intl (KMIA)		Mon 03:52PM EDT	Mon 05:55PM EDT
1	AAL101	B738	John F Kennedy Intl (KJFK)		Mon 05:02PM EDT	Mon 06:30PM EDT
2	AAL1014	MD83	Detroit Metro Wayne Co (KDTW)		Mon 05:19PM EDT	Mon 06:50PM CDT
	Ident	Type	Origin	Destination \		
0	AAL1095	A321	San Diego Intl (KSAN)	Dallas-Fort Worth Intl (KDFW)		
1	AAL1109	B738	Miami Intl (KMIA)	Chicago O'Hare Intl (KORD)		
2	AAL1112	A321	LaGuardia (KLGA)	Dallas-Fort Worth Intl (KDFW)		
					Departure	EstimatedArrival Time
0	Mon 12:51PM PDT				Mon 05:19PM CDT	
1	Mon 05:05PM EDT				Mon 06:55PM CDT	
2	Mon 02:50PM EDT				Mon 05:19PM CDT	

## CCA

	Ident	Type	Origin \	Destination	Departure \	EstimatedArrival Time
0	CCA173	B77W	Beijing Capital Int'l (PEK / ZBAA)			
1	CCA177	A332	Shanghai Pudong Int'l (PVG / ZSPD)			
2	CCA430	A332	Sydney (SYD / YSSY)			
				Destination	Departure \	EstimatedArrival Time
0				Sydney (SYD / YSSY)	Tue 02:11AM CST	
1				Melbourne Tullamarine (MEL / YMML)	Mon 07:51PM CST	
2				Chengdu Shuangliu Int'l (CTU / ZUUU)	Mon 09:38PM AEDT	
						EstimatedArrival Time
0						Tue 03:25PM AEDT
1						Tue 08:57AM AEDT
2						Tue 05:28AM CST

	Ident	Type	Origin \
0	CCA862	A330	Geneva Cointrin Int'l (GVA / LSGG)
1	CCA906	B738	Yangon Int'l (RGN / VYYY)
2	CCA910	A333	Sheremetyevo Int'l (SVO / UUEE)

	Destination	Departure	EstimatedArrival Time
0	Beijing Capital Int'l (PEK / ZBAA)	Mon 08:02PM CET	Tue 01:04PM CST



1	Beijing Capital Int'l (PEK / ZBAA)	Tue 12:38AM +0630	Tue 06:24AM CST
2	Beijing Capital Int'l (PEK / ZBAA)	Mon 09:17PM MSK	Tue 08:10AM CST

# AFR

	Ident	Type	Origin \		Destination	Departure \
0	AFR1004	A321	Charles de Gaulle/Roissy (CDG / LFPG)			
1	AFR1016	A318	Charles de Gaulle/Roissy (CDG / LFPG)			
2	AFR1028	A318	Charles de Gaulle/Roissy (CDG / LFPG)			
0	Leonardo da Vinci Int'l (Fiumicino Int'l)	(FCO...)	Mon 09:26PM CET			
1		Dublin Int'l (DUB / EIDW)	Mon 09:01PM CET			
2		Bologna (Guglielmo Marconi) (BLQ / LIPE)	Mon 09:22PM CET			

## EstimatedArrival Time

0	Mon 11:13PM CET
1	Mon 09:32PM GMT
2	Mon 10:42PM CET

	Ident	Type	Origin \
0	AFR166	B77W	Charles de Gaulle/Roissy (CDG / LFPG)
1	AFR1694	A320	Charles de Gaulle/Roissy (CDG / LFPG)
2	AFR178	A388	Charles de Gaulle/Roissy (CDG / LFPG)

		Destination	Departure \
0		Suvarnabhumi Bangkok Int'l (BKK / VTBS)	Mon 04:32PM CET
1	Budapest Ferenc Liszt International Airport (B...)	Mon 09:12PM CET	
2		Lic. Benito Juarez Int'l (MEX / MMMX)	Mon 11:00AM CET

## EstimatedArrival Time

0	Tue 09:07AM +07
1	Mon 11:03PM CET
2	Mon 04:27PM CST

# IGO

	Ident	Type	Origin \
0	IGO1304	A320	Seeb Int'l (MCT / OOMS)
1	IGO154	A320	Chatrapati Shivaji Int'l (BOM / VABB)
2	IGO164	A320	Bengaluru Int'l (BLR / VOBL)

		Destination	Departure	EstimatedArrival Time
0	Calicut Int'l (Karipur)	(CCJ / VOCL)	Mon 11:00PM +04	Tue 03:35AM IST
1	Indira Gandhi Int'l	(DEL / VIDP)	Tue 02:12AM IST	Tue 03:47AM IST
2	Jaipur (Sanganer)	(JAI / VIJP)	Tue 12:40AM IST	Tue 02:45AM IST

Ident	Type	Origin \
0 IGO948	A320	Dabolim (Goa) / Dabolim Navy Airbase (GOI / VOGO)

Destination	Departure \
0 Sardar Vallabhbhai Patel Int'l (Ahmadabad) (AM...	Tue 02:00AM IST

EstimatedArrival Time
0 Tue 03:35AM IST

MSR

Ident	Type	Origin	Destination \
0 MSR20	B738	Cairo Int'l (CAI / HECA)	Sharm El Sheikh (SSH / HESH)
1 MSR364	E170	Luxor Int'l (LXR / HELX)	Cairo Int'l (CAI / HECA)
2 MSR42	B738	Cairo Int'l (CAI / HECA)	Hurghada (HRG / HEGN)

Departure	EstimatedArrival Time
0 Mon 10:37PM EET	Mon 11:30PM EET
1 Mon 10:30PM EET	Mon 11:35PM EET
2 Mon 10:53PM EET	Mon 11:33PM EET

In [23]:

```
1 from joblib import Memory
2 memory = Memory(cachedir='tmp', verbose=0)
3
4 @memory.cache
5 def get_latlng(query):
6     g=geocoder.google(query)
7     if g:
8         return g.latlng
9     else:
10        return None, None
11
12 great_lines = []
13 airports = []
14 airport_data = []
15 seen=[]
16 great_lines_2=[]
17 airports = pd.DataFrame(columns=['label','lat','lon','size'])
18
19
20 i=0
21 for index,row in df.iterrows():
22     origin = row.Origin
23     destination = row.Destination
24     olat, olon = get_latlng(origin)
25     dlat, dlon = get_latlng(destination)
26     if olat and dlat:
27         if origin not in seen:
28             seen.append(origin)
29             print(origin, olat, olon)
30         if destination not in seen:
31             seen.append(destination)
32             print(destination, dlat, dlon)
33         great_lines.append(dict(
34             type = 'scattergeo',
35             lat = [ olat, dlat ],
36             lon = [ olon, dlon ],
37             hoverinfo = 'Ident',
38             text = 'Ident',
39             mode = 'lines',
40             line = dict(
41                 width = 1,
42                 color = 'rgba(255,0,0,0.2)',
```

```

43         ),
44         )
45     )
46     airports.loc[i]=[origin, olat, olon, 0.0]
47     airports.loc[i+1]= [destination, dlat, dlon, 0.0]
48     i+=2
49

```

```

Cerro Moreno Int'l (ANF / SCFA) -23.4486944 -70.4409348
Comodoro Arturo Merino Benitez Int'l (SCL / SCEL) -33.3911894 -70.79723539999999
El Loa (CJC / SCCF) -22.4989612 -68.90696609999999
Diego Aracena Int'l (IQQ / SCDA) -20.5364084 -70.1805181
Governor Francisco Gabrielli Int'l (El Plumerillo Int'l) (MDZ / SAME) -32.8278642 -68.7984902
Ministro Pistarini Int'l (EZE / SAEZ) -34.8150044 -58.53482839999999
Jorge Newbery (AEP / SABE) -34.5580305 -58.4170088
El Dorado Int'l (BOG / SKBO) 4.7014128 -74.1444969
Jorge Chavez Int'l (LIM / SPJC) -12.0240527 -77.112036
Melbourne Tullamarine (MEL / YMLL) -37.6690123 144.8410273
Dallas-Fort Worth Intl (KDFW) 32.8998091 -97.0403352
Narita Int'l (NRT / RJAA) 35.7719867 140.3928501
Tokyo Int'l (Haneda) (HND / RJTT) 35.5493932 139.7798386
Suvarnabhumi Bangkok Int'l (BKK / VTBS) 13.6899991 100.7501124
London Heathrow (LHR / EGLL) 51.4700223 -0.4542955
Helsinki-Vantaa (HEL / EFHK) 60.32104159999999 24.9528604
Charles de Gaulle/Roissy (CDG / LFPG) 49.0096906 2.5479245
San Diego Intl (KSAN) 32.7338006 -117.1933038
Boston Logan Intl (KBOS) 42.3656132 -71.0095602
Tan Son Nhat Int'l (SGN / VVTS) 10.8184631 106.6588245
Kuala Lumpur Int'l (KUL / WMKK) 2.7350439 101.7010435
Kansai Int'l (KIX / RJBB) 34.4320024 135.2303939
Chubu Centrair Int'l (Centrair) (NGO / RJGG) 34.8590935 136.8146005
Indira Gandhi Int'l (DEL / VIDP) 28.5561624 77.0999578
Daniel K Inouye Intl (PHNL) 21.3324959 -157.9210801
Chicago O'Hare Intl (KORD) 41.9741625 -87.9073214
Munich Int'l (MUC / EDDM) 48.3536621 11.7750279
Athens Int'l, Eleftherios Venizelos (ATH / LGAV) 37.9356467 23.9484156
Naples Int'l (Capodichino) (NAP / LIRN) 40.8829943 14.2865792
Dusseldorf Int'l (DUS / EDDL) 51.2876146 6.7667912
Tegel Int'l (TXL / EDDT) 52.5588327 13.2884374
Hamburg (HAM / EDDH) 53.633622 9.9974128
Hanover/Langenhagen Int'l (HAJ / EDDV) 52.4618486 9.6889919
Bremen (BRE / EDDW) 53.0479741 8.7858793
Brussels (BRU / EBBR) 50.900999 4.4855744

```

Geneva Cointrin Int'l (GVA / LSGG) 46.23700969999999 6.1091564  
Stockholm-Arlanda (ARN / ESSA) 59.6497622 17.9237807  
Oslo, Gardermoen (OSL / ENGM) 60.1975501 11.1004152  
Pittsburgh Intl (KPIT) 40.4957722 -80.24131129999999  
McCarran Intl (KLAS) 36.0839998 -115.1537389  
San Jose Int'l (KSJC) 37.3639472 -121.9289375  
Los Cabos Int'l (SJD / MMSD) 23.1455358 -109.7182665  
LaGuardia (KLGA) 40.7769271 -73.8739659  
Indianapolis Intl (KIND) 39.7168593 -86.2955952  
Tampa Intl (KTPA) 27.9834776 -82.5370781  
Vancouver Int'l (CYVR) 49.1966913 -123.1815123  
John Glenn Columbus Intl Airport (KCMH) 39.9999399 -82.8871767  
Sacramento Intl (KSMF) 38.6950854 -121.5900648  
Shanghai Pudong Int'l (PVG / ZSPD) 31.1443439 121.808273  
Dubai Int'l (DXB / OMDB) 25.2531745 55.3656728  
Chongqing Jiangbei Int'l (CKG / ZUCK) 29.7191667 106.6416667  
Chengdu Shuangliu Int'l (CTU / ZUUU) 30.567456 103.9492936  
Budapest Ferenc Liszt International Airport (BUD / LHBP) 47.4384587 19.2522958  
Beijing Capital Int'l (PEK / ZBAA) 40.0798573 116.6031121  
Zurich (Kloten) (ZRH / LSZH) 47.4582165 8.5554755  
Washington Dulles Intl (KIAD) 38.9531162 -77.45653879999999  
Phuket Int'l (HKT / VTSP) 8.1110951 98.3064646  
Barcelona Int'l (BCN / LEBL) 41.297445 2.0832941  
Vienna Int'l (Schwechat) (VIE / LOWW) 48.1158333 16.5665751  
Yangon Int'l (RGN / VYYY) 16.9028408 96.13546339999999  
Jinnah Int'l (KHI / OPKC) 24.9008297 67.16808259999999  
Malpensa Int'l (MXP / LIMC) 45.6300625 8.7255307  
Leonardo da Vinci Int'l (Fiumicino Int'l) (FCO / LIRF) 41.7998868 12.2462384  
Bologna (Guglielmo Marconi) (BLQ / LIPE) 44.5345216 11.2878593  
Ben Gurion Int'l (TLV / LLBG) 32.005532 34.8854112  
Amerigo Vespucci (Florence) (FLR / LIRQ) 43.8086534 11.2012247  
Wuhan Tianhe (WUH / ZHHH) 30.7766171 114.2124495  
Marco Polo Int'l (Marco Polo Venice) (VCE / LIPZ) 45.5034546 12.3446927  
Houari Boumedienne (ALG / DAAG) 36.6981425 3.2067834  
Lic. Benito Juarez Int'l (MEX / MMMX) 19.4360762 -99.07190829999999  
Chatrapati Shivaji Int'l (BOM / VABB) 19.0895595 72.8656144  
Incheon Int'l (ICN / RKSI) 37.4601908 126.4406957  
Pune / Lohegaon Air Force Base (PNQ / VAPO) 18.579343 73.9089168  
Jaipur (Sanganer) (JAI / VIJP) 26.8286281 75.7642025  
Seeb Int'l (MCT / OOMS) 23.6012845 58.29072859999999  
Calicut Int'l (Karipur) (CCJ / VOCL) 11.1396508 75.9517496  
Bengaluru Int'l (BLR / VOBL) 13.1986348 77.7065928  
Hamad Int'l (DOH / OTHH) 25.2605946 51.6137665

Chennai Int'l (MAA / VOMM) 12.994112 80.1708668  
Cochin Int'l (Kochi Int'l) (COK / VOCI) 10.1517834 76.392958  
Dabolim (Goa) / Dabolim Navy Airbase (GOI / VOGO) 15.3803485 73.8349952  
Netaji Subhash Chandra Bose Int'l (CCU / VECC) 22.6520429 88.4463299  
Sardar Vallabhbhai Patel Int'l (Ahmadabad) (AMD / VAAH) 23.0734262 72.626571  
Cairo Int'l (CAI / HECA) 30.1123632 31.4002893  
Sharm El Sheikh (SSH / HESH) 27.9768276 34.3935273  
Luxor Int'l (LXR / HELX) 25.6738827 32.7014938  
Hurghada (HRG / HEGN) 27.180494 33.807566  
Prince Nayef bin Abdulaziz Regional Airport (ELQ / OEGS) 26.3051734 43.7686247  
King Khalid Int'l (RUH / OERK) 24.9597126 46.7029144  
King Abdulaziz Int'l (JED / OEJN) 21.6658971 39.1717627  
Asmara Int'l (ASM / HHAS) 15.285 38.901667  
OR Tambo Int'l (JNB / FAOR) -26.1366728 28.2411459  
Jomo Kenyatta Int'l (NBO / HKJK) -1.3227102 36.9260693  
Daraw (ASW / HESN) 23.9664425 32.8244756  
Toronto Pearson Int'l (CYYZ) 43.67771760000001 -79.6248197

In [24]: 1 airports.head(20)

Out[24]:

	label	lat	lon	size
0	Cerro Moreno Int'l (ANF / SCFA)	-23.448694	-70.440935	0.0
1	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
2	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
3	Cerro Moreno Int'l (ANF / SCFA)	-23.448694	-70.440935	0.0
4	El Loa (CJC / SCCF)	-22.498961	-68.906966	0.0
5	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
6	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
7	El Loa (CJC / SCCF)	-22.498961	-68.906966	0.0
8	Diego Aracena Int'l (IQQ / SCDA)	-20.536408	-70.180518	0.0
9	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
10	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
11	Diego Aracena Int'l (IQQ / SCDA)	-20.536408	-70.180518	0.0
12	Governor Francisco Gabrielli Int'l (El Plumeri...	-32.827864	-68.798490	0.0
13	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
14	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
15	Ministro Pistarini Int'l (EZE / SAEZ)	-34.815004	-58.534828	0.0
16	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
17	Jorge Newbery (AEP / SABE)	-34.558031	-58.417009	0.0
18	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	0.0
19	El Dorado Int'l (BOG / SKBO)	4.701413	-74.144497	0.0

In [35]:

```
1 df.head()
```

Out[35]:

	Ident	Type	Origin	Destination	Departure	EstimatedArrival Time
0	LAN137	A321	Cerro Moreno Int'l (ANF / SCFA)	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:47PM -03	Mon 07:18PM -03
1	LAN138	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Cerro Moreno Int'l (ANF / SCFA)	Mon 05:21PM -03	Mon 06:52PM -03
2	LAN155	A320	El Loa (CJC / SCCF)	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Mon 05:28PM -03	Mon 07:07PM -03
3	LAN156	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	El Loa (CJC / SCCF)	Mon 05:33PM -03	Mon 07:13PM -03
4	LAN168	A321	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	Diego Aracena Int'l (IQQ / SCDA)	Mon 05:39PM -03	Mon 07:33PM -03

In [37]:

```
1 import networkx as nx
2 G = nx.from_pandas_dataframe(df, 'Origin', 'Destination')
```

...



In [42]:

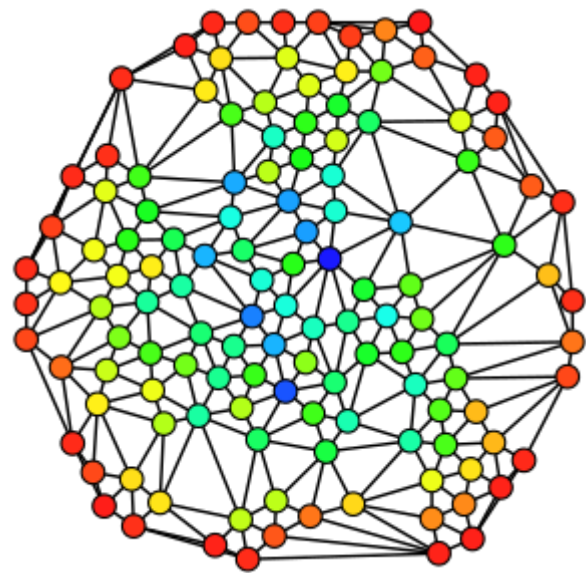
```
1 for node in G.nodes():  
2     print(node)
```

```
Cerro Moreno Int'l (ANF / SCFA)  
Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)  
El Loa (CJC / SCCF)  
Diego Aracena Int'l (IQQ / SCDA)  
Chacalluta Int'l (ARI / SCAR)  
Governor Francisco Gabrielli Int'l (El Plumerillo Int'l) (MDZ / SAME)  
Ministro Pistarini Int'l (EZE / SAEZ)  
Jorge Newbery (AEP / SABE)  
Ingeniero Ambrosio L.V. Taravella Int'l (COR / SACO)  
El Dorado Int'l (BOG / SKBO)  
Jorge Chavez Int'l (LIM / SPJC)  
Los Angeles Intl (KLAX)  
São Paulo-Guarulhos Int'l (GRU / SBGR)  
Barajas Int'l (MAD / LEMD)  
Auckland (AKL / NZAA)  
Sydney (SYD / YSSY)  
Melbourne Tullamarine (MEL / YMLL)  
Dallas-Fort Worth Intl (KDFW)  
Narita Int'l (NRT / RJAA)  
Managua Intl (MGA)
```

```
In [41]: 1 for edge in G.edges():
        2     print(edge)

("Cerro Moreno Int'l (ANF / SCFA)", "Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", 'El Loa (CJC / SCCF)')
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "Diego Aracena Int'l (IQQ / SCDA)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "Chacalluta Int'l (ARI / SCAR)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "Governor Francisco Gabrielli Int'l (El Plumerillo Int'l) (MDZ / SAME)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "Ministro Pistarini Int'l (EZE / SAEZ)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", 'Jorge Newbery (AEP / SABE)')
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "Ingeniero Ambrosio L.V. Taravella Int'l (COR / SACO)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "El Dorado Int'l (BOG / SKBO)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "Jorge Chavez Int'l (LIM / SPJC)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", "São Paulo-Guarulhos Int'l (GRU / SBGR)")
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", 'Melbourne Tullamarine (MEL / YMML)')
("Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)", 'Charles de Gaulle/Roissy (CDG / LFPG)')
("Ministro Pistarini Int'l (EZE / SAEZ)", 'Charles de Gaulle/Roissy (CDG / LFPG)')
("Jorge Chavez Int'l (LIM / SPJC)", 'Los Angeles Intl (KLAX)')
('Los Angeles Intl (KLAX)', "Narita Int'l (NRT / RJAA)")
('Los Angeles Intl (KLAX)', "Kansai Int'l (KIX / RJBB)")
('Los Angeles Intl (KLAX)', "Miami Intl (MIA)")
```

## Betweenness Centrality



```
In [33]: 1 centrality=nx.betweenness_centrality(G)
        2 centrality
```

```
Out[33]: {'Amerigo Vespucci (Florence) (FLR / LIRQ)': 0.0,
'Amsterdam Schiphol (AMS / EHAM)': 0.0,
"Asmara Int'l (ASM / HHAS)": 0.0,
"Athens Int'l, Eleftherios Venizelos (ATH / LGAV)": 0.0017515193211787641,
'Auckland (AKL / NZAA)': 0.0,
'Austin-Bergstrom Intl (KAUS)': 0.0,
'Baltimore/Washington Intl (KBWI)': 0.0,
"Barajas Int'l (MAD / LEMD)": 0.01087442065254244,
"Barcelona Int'l (BCN / LEBL)": 0.0034168469797984753,
"Beijing Capital Int'l (PEK / ZBAA)": 0.25379995175565756,
"Belgrade Nikola Tesla Int'l (BEG / LYBE)": 0.0,
"Bengaluru Int'l (BLR / VOBL)": 0.014668752491249909,
'Bilbao (BIO / LEBB)': 0.0,
'Bologna (Guglielmo Marconi) (BLQ / LIPE)': 0.0,
'Borg El Arab (HBE / HEBA)': 0.0,
'Boston Logan Intl (KBOS)': 0.03514041094020452,
'Bremen (BRE / EDDW)': 0.0,
'Brussels (BRU / EBBR)': 0.0,
"Bucharest Henri Coandă Int'l (OTP / LROP)": 0.0,
'Budapest Ferenc Liszt International Airport (BUD / LHBP)': 0.008876221845031259,
"Cairo Int'l (CAI / HECA)": 0.16094707269005243,
"Calicut Int'l (Karipur) (CCJ / VOCL)": 0.0004069647604762482,
"Cerro Moreno Int'l (ANF / SCFA)": 0.0,
"Chacalluta Int'l (ARI / SCAR)": 0.0,
'Charles de Gaulle/Roissy (CDG / LFPG)': 0.4260613387436343,
'Charlotte/Douglas Intl (KCLT)': 0.0,
"Chatrapati Shivaji Int'l (BOM / VABB)": 0.04609349442804987,
"Chengdu Shuangliu Int'l (CTU / ZUUU)": 0.006422045160435256,
"Chennai Int'l (MAA / VOMM)": 0.0032300932068733894,
"Chicago O'Hare Intl (KORD)": 0.07764018508342552,
"Chongqing Jiangbei Int'l (CKG / ZUCK)": 0.0,
"Chubu Centrair Int'l (Centrair) (NGO / RJGG)": 0.0,
"Cochin Int'l (Kochi Int'l) (COK / VOICI)": 0.0005575622061690176,
'Cologne Bonn (CGN / EDDK)': 0.0,
"Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)": 0.10802728139578395,
'Copenhagen (CPH / EKCH)': 0.0,
'Dabolim (Goa) / Dabolim Navy Airbase (GOI / VOGO)': 0.007655849864312194,
'Dallas-Fort Worth Intl (KDFW)': 0.0957362655118074,
'Daniel K Inouye Intl (PHNL)': 0.0017249197291020102,
'Daraw (ASW / HESN)': 0.0,
```

'Detroit Metro Wayne Co (KDTW)': 0.009509612811986388,  
"Diego Aracena Int'l (IQQ / SCDA)": 0.0,  
"Diori Hamani Int'l (NIM / DRRN)": 0.0,  
"Domodedovo Int'l (DME / UUDD)": 0.0,  
"Dubai Int'l (DXB / OMDB)": 0.043916970843808044,  
"Dublin Int'l (DUB / EIDW)": 0.0,  
"Dusseldorf Int'l (DUS / EDDL)": 0.0,  
"El Dorado Int'l (BOG / SKBO)": 0.0,  
"El Loa (CJC / SCCF)": 0.0,  
"Frankfurt Int'l (FRA / EDDF)": 0.17598721987300833,  
"Geneva Cointrin Int'l (GVA / LSGG)": 0.00370785554405401,  
"Governor Francisco Gabrielli Int'l (El Plumerillo Int'l) (MDZ / SAME)": 0.0,  
"Grantley Adams Int'l (BGI / TBPB)": 0.0,  
"Guangzhou Baiyun Int'l (CAN / ZGGG)": 0.01673003390251231,  
"Hamad Int'l (DOH / OTHH)": 0.004842170786443232,  
"Hamburg (HAM / EDDH)": 0.0,  
"Hanover/Langenhagen Int'l (HAJ / EDDV)": 0.0,  
"Helsinki-Vantaa (HEL / EFHK)": 0.00432709108534702,  
"Hong Kong Int'l (HKG / VHHH)": 0.0,  
"Houari Boumedienne (ALG / DAAG)": 0.0,  
"Hurghada (HRG / HEGN)": 0.0,  
"Incheon Int'l (ICN / RKSI)": 0.0,  
"Indianapolis Intl (KIND)": 0.0,  
"Indira Gandhi Int'l (DEL / VIDP)": 0.0994521502784226,  
"Ingeniero Ambrosio L.V. Taravella Int'l (COR / SACO)": 0.0,  
"Istanbul Ataturk Int'l (IST / LTBA)": 0.0,  
"Jaipur (Sanganer) (JAI / VIJP)": 0.0003368306386882238,  
"Jakarta-Soekarno-Hatta Int'l (CGK / WIII)": 0.0,  
"Jinnah Int'l (KHI / OPKC)": 0.0,  
"John F Kennedy Intl (KJFK)": 0.043169015088316026,  
"John Glenn Columbus Intl Airport (KCMH)": 0.0,  
"John Wayne (KSNA)": 0.0,  
"Jomo Kenyatta Int'l (NBO / HKJK)": 0.0,  
"Jorge Chavez Int'l (LIM / SPJC)": 0.004699862401100792,  
"Jorge Newbery (AEP / SABE)": 0.0,  
"Jose Maria Cordova Int'l (MDE / SKRG)": 0.0,  
"Kansai Int'l (KIX / RJBB)": 0.0018138346956716395,  
"King Abdulaziz Int'l (JED / OEJN)": 0.0,  
"King Fahd Int'l (DMM / OEDF)": 0.0,  
"King Khalid Int'l (RUH / OERK)": 0.0,  
"Krakow Int'l (KRK / EPKK)": 0.0017515193211787641,  
"Kuala Lumpur Int'l (KUL / WMKK)": 0.0,  
"LaGuardia (KLGA)": 0.0,

'Leipzig/Halle (LEJ / EDDP)': 0.0,  
"Leonardo da Vinci Int'l (Fiumicino Int'l) (FCO / LIRF)": 0.0034168469797984753,  
"Lic. Benito Juarez Int'l (MEX / MMMX)": 0.0,  
"Lisbon / Lisboa,Portela (Lisbon) (LIS / LPPT)": 0.005168366300977242,  
"Lome (LFW / DXXX)": 0.0,  
"London Heathrow (LHR / EGLL)": 0.014965740389400161,  
"Los Angeles Intl (KLAX)": 0.04767130340123385,  
"Los Cabos Int'l (SJD / MMSD)": 0.0006535947712418299,  
"Luis Munoz Marin Intl (SJU / TJSJ)": 0.0,  
"Luxor Int'l (LXR / HELX)": 0.0,  
"Lyon (LYS / LFLH)": 0.0,  
"Malpensa Int'l (MXP / LIMC)": 0.0,  
"Marco Polo Int'l (Marco Polo Venice) (VCE / LIPZ)": 0.0,  
"Marseille Provence (MRS / LFML)": 0.0,  
"McCarran Intl (KLAS)": 0.0,  
"Melbourne Tullamarine (MEL / YMLL)": 0.00816750639377058,  
"Miami Intl (KMIA)": 0.0874238477953648,  
"Ministro Pistarini Int'l (EZE / SAEZ)": 0.0,  
"Montreal-Trudeau (CYUL)": 0.0,  
"Munich Int'l (MUC / EDDM)": 0.1255905537174209,  
"Munster Osnabruck Int'l (FMO / EDDG)": 0.0,  
"Naples Int'l (Capodichino) (NAP / LIRN)": 0.0,  
"Narita Int'l (NRT / RJAA)": 0.18768695843270816,  
"Netaji Subhash Chandra Bose Int'l (CCU / VECC)": 0.0,  
"Newark Liberty Intl (KEWR)": 0.0,  
"Nice Cote d'Azur (NCE / LFMN)": 0.0,  
"Noi Bai Int'l (HAN / VVNB)": 0.0,  
"Norfolk Intl (KORF)": 0.0,  
"OR Tambo Int'l (JNB / FAOR)": 0.0,  
"Orlando Intl (KMCO)": 0.0,  
"Oslo, Gardermoen (OSL / ENGM)": 0.0,  
"Phoenix Sky Harbor Intl (KPHX)": 0.0,  
"Phuket Int'l (HKT / VTSP)": 0.0,  
"Porto / Oporto (OPO / LPPR)": 0.0,  
"Prince Nayef bin Abdulaziz Regional Airport (ELQ / OEGS)": 0.0,  
"Pune / Lohegaon Air Force Base (PNQ / VAPO)": 0.004412378986682393,  
"Queen Beatrix Int'l (AUA / TNCA)": 0.0,  
"Reagan National (KDCA)": 0.0,  
"Sacramento Intl (KSMF)": 0.0,  
"Sale (RBA / GMME)": 0.0,  
"San Diego Intl (KSAN)": 0.0,  
"San Francisco Intl (KSFO)": 0.0003567016918410107,  
"San Jose Int'l (KSJC)": 0.0006535947712418299,

"Sardar Vallabhbhai Patel Int'l (Ahmadabad) (AMD / VAAH)": 0.0001719986240110079,  
"Seeb Int'l (MCT / OOMS)": 0.0021256163284027055,  
"Shanghai Pudong Int'l (PVG / ZSPD)": 0.015130584085285066,  
'Sharm El Sheikh (SSH / HESH)': 0.0,  
"Shenzhen Bao'an Int'l (SZX / ZGSZ)": 0.0,  
"Sheremetyevo Int'l (SVO / UUEE)": 0.0,  
'Singapore Changi (SIN / WSSS)': 0.001087891296869624,  
'Stockholm-Arlanda (ARN / ESSA)': 0.00370785554405401,  
"Suvarnabhumi Bangkok Int'l (BKK / VTBS)": 0.04023684496703343,  
'Sydney (SYD / YSSY)': 0.0006980277491113403,  
"São Paulo-Guarulhos Int'l (GRU / SBGR)": 0.0012828230707487675,  
'Tampa Intl (KTPA)': 0.0006535947712418299,  
"Tan Son Nhat Int'l (SGN / VVTS)": 0.0,  
"Tegel Int'l (TXL / EDDT)": 0.0017515193211787641,  
"Thiruvananthapuram Int'l (TRV / VOTV)": 0.0,  
"Tianjin Binhai Int'l (TSN / ZBTJ)": 0.0,  
"Tokyo Int'l (Haneda) (HND / RJTT)": 0.015379416430758007,  
"Toronto Pearson Int'l (CYYZ)": 0.0,  
'Tucson Intl (KTUS)': 0.0,  
'Valencia (VLC / LEVC)': 0.0,  
"Vancouver Int'l (CYVR)": 0.02217695937618809,  
"Vienna Int'l (Schwechat) (VIE / LOWW)": 0.0,  
'Václav Havel Airport (PRG / LKPR)': 0.0,  
'Warsaw Frederic Chopin (WAW / EPWA)': 0.0,  
'Washington Dulles Intl (KIAD)': 0.0,  
'Wuhan Tianhe (WUH / ZHHH)': 0.0,  
"Yangon Int'l (RGN / VYYY)": 0.0,  
'Zurich (Kloten) (ZRH / LSZH)': 0.0}

```
In [34]: 1 for key, item in centrality.items():
2         airports.loc[airports.label==key, 'size'] = (item*100)+10
3 airports.head(20)
```

```
Out[34]:
```

	label	lat	lon	size
0	Cerro Moreno Int'l (ANF / SCFA)	-23.448694	-70.440935	10.000000
1	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
2	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
3	Cerro Moreno Int'l (ANF / SCFA)	-23.448694	-70.440935	10.000000
4	El Loa (CJC / SCCF)	-22.498961	-68.906966	10.000000
5	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
6	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
7	El Loa (CJC / SCCF)	-22.498961	-68.906966	10.000000
8	Diego Aracena Int'l (IQQ / SCDA)	-20.536408	-70.180518	10.000000
9	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
10	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
11	Diego Aracena Int'l (IQQ / SCDA)	-20.536408	-70.180518	10.000000
12	Governor Francisco Gabrielli Int'l (El Plumeri...	-32.827864	-68.798490	10.000000
13	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
14	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
15	Ministro Pistarini Int'l (EZE / SAEZ)	-34.815004	-58.534828	10.000000
16	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
17	Jorge Newbery (AEP / SABE)	-34.558031	-58.417009	10.000000
18	Comodoro Arturo Merino Benitez Int'l (SCL / SCEL)	-33.391189	-70.797235	20.802728
19	El Dorado Int'l (BOG / SKBO)	4.701413	-74.144497	10.000000

**<https://plot.ly/> (<https://plot.ly/>)**



```

In [28]: 1 import plotly.plotly as py
          2
          3 airport_markers = [ dict(
          4     type = 'scattergeo',
          5     lon = airports['lon'],
          6     lat = airports['lat'],
          7     hoverinfo = 'label',
          8     text = airports['label'],
          9     mode = 'markers',
         10     marker = dict(
         11         size=airports['size'],
         12         color='red',
         13     ) )]
         14
         15 layout = dict(
         16     title = 'Great lines over globe<br>(Click and drag to rotate)',
         17     showlegend = False,
         18     width = 800,
         19     height = 800,
         20     geo = dict(
         21         showland = True,
         22         showcountries = True,
         23         showocean = True,
         24         countrywidth = 0.5,
         25         landcolor = '#fff',
         26         oceancolor = '#eee',
         27         projection = dict(
         28             type = 'orthographic',
         29             rotation = dict(
         30                 lon = -100,
         31                 lat = 40,
         32                 roll = 0
         33             )
         34         ),
         35
         36     )
         37 )
         38
         39 fig = dict( data=great_lines+airport_markers, layout=layout )
         40 py.iplot( fig, validate=False, filename='d3-globe' )

```

Out[28]:





**<https://www.setlist.fm/search?query=scorpions> (<https://www.setlist.fm/search?query=scorpions>)**

In [2]:

```
1 from robobrowser import RoboBrowser
2 import geocoder
3 import folium
4 import pandas as pd
5 import dateparser
6 from joblib import Memory
7 import difflib
8 import pycountry
9 from iso3166 import countries
10 memory = Memory(cachedir='tmp', verbose=0)
```

```
In [4]: 1 url = 'https://www.setlist.fm/search?query=scorpions'
        2 browser = RoboBrowser(history=True, parser='html5lib')
        3 browser.open(url)
        4 concert = browser.select('.setlistPreview')[0]
        5 concert
```

```
Out[4]: <div class="col-xs-12 setlistPreview">
<div>
<div class="condensed dateBlock">
<span class="month">Nov</span>
<span class="day">1</span>
<span class="year">2017</span>

</div>
</div>
<div>
<h2><a href="setlist/scorpions/2017/olympijskiy-stadium-moscow-russia-23e36c7b.html" title="View this
Scorpions setlist">Scorpions at Olympijskiy Stadium, Moscow, Russia</a></h2>
<div class="details">
<span>Artist: <strong><a href="setlists/scorpions-3d63ddf.html" title="More Scorpions setlists"><span>
Scorpions</span></a></strong></span>,

<span>
Tour:
<strong><a href="search?artist=3d63ddf&query=tour:%28Crazy+World+2017+Tour%29" rel="nofollow" titl
e="Search Scorpions setlists by tour: "Crazy World 2017 Tour"">Crazy World 2017 Tour</a></strong>
```

```
In [5]: 1 day = concert.select('.day')[0].text
        2 month = concert.select('.month')[0].text
        3 year = concert.select('.year')[0].text
        4 desc = concert.select('h2 a')[0].text
        5 print(day,month,year,desc)
```

```
1 Nov 2017 Scorpions at Olympijskiy Stadium, Moscow, Russia
```

```
In [6]: 1 idx = desc.find(' at ')+4
        2 loc = desc[idx:]
        3 loc_pieces = loc.split(',')
        4 if len(loc_pieces)>=3:
        5     loc = ','.join(loc_pieces[-3:])
        6 print(loc)
```

```
Olympijskiy Stadium, Moscow, Russia
```

In [7]:

```
1 g=geocoder.google(loc)
2 print(g.geojson)
3
```

```
{'type': 'FeatureCollection', 'features': [{'type': 'Feature', 'properties': {'accuracy': 'ROOFTOP',
  'address': 'Olimpiyskiy pr., 16c1, Moskva, Russia, 129090', 'bbox': [37.6251080197085, 55.77970101970
85, 37.6278059802915, 55.7823989802915], 'city': 'Moskva', 'confidence': 9, 'country': 'RU', 'county':
'Moskva', ' housenumber': '16c1', 'lat': 55.78105, 'lng': 37.626456999999999, 'ok': True, 'place': 'ChIJ
QcqpSwlKtUYRrBjnAynHt5E', 'postal': '129090', 'quality': 'establishment', 'raw': {'address_component
s': [{'long_name': '16 строение 1', 'short_name': '16c1', 'types': ['street_number']}, {'long_name': 'O
limpiyskiy prospekt', 'short_name': 'Olimpiyskiy pr.', 'types': ['route']}, {'long_name': 'Tsentrálny
administrativnyy okrug', 'short_name': 'Tsentrálny administrativnyy okrug', 'types': ['political', 's
ublocality', 'sublocality_level_1']}, {'long_name': 'Moskva', 'short_name': 'Moskva', 'types': ['local
ity', 'political']}, {'long_name': 'Moskva', 'short_name': 'Moskva', 'types': ['administrative_area_le
vel_2', 'political']}, {'long_name': 'Russia', 'short_name': 'RU', 'types': ['country', 'political']},
{'long_name': '129090', 'short_name': '129090', 'types': ['postal_code']}], 'formatted_address': 'Olim
piyskiy pr., 16c1, Moskva, Russia, 129090', 'geometry': {'location': {'lat': 55.78105, 'lng': 37.62645
6999999999}, 'location_type': 'ROOFTOP', 'viewport': {'northeast': {'lat': 55.7823989802915, 'lng': 37.
6278059802915}, 'southwest': {'lat': 55.7797010197085, 'lng': 37.6251080197085}}}, 'partial_match': Tr
ue, 'place_id': 'ChIJQcqpSwlKtUYRrBjnAynHt5E', 'types': ['establishment', 'point_of_interest'], 'locat
ion': {'lat': 55.78105, 'lng': 37.626456999999999}, 'location_type': 'ROOFTOP', 'bounds': {}, 'northeas
t': {'lat': 55.7823989802915, 'lng': 37.6278059802915}, 'southwest': {'lat': 55.7797010197085, 'lng':
37.6251080197085}, 'street_number': {'long_name': '16 строение 1', 'short_name': '16c1'}, 'route': {'l
ong_name': 'Olimpiyskiy prospekt', 'short_name': 'Olimpiyskiy pr.'}, 'political': {'long_name': 'Russi
a', 'short_name': 'RU'}, 'sublocality': {'long_name': 'Tsentrálny administrativnyy okrug', 'short_nam
e': 'Tsentrálny administrativnyy okrug'}, 'sublocality_level_1': {'long_name': 'Tsentrálny administr
ativnyy okrug', 'short_name': 'Tsentrálny administrativnyy okrug'}, 'locality': {'long_name': 'Moskv
a', 'short_name': 'Moskva'}, 'administrative_area_level_2': {'long_name': 'Moskva', 'short_name': 'Mos
kva'}, 'country': {'long_name': 'Russia', 'short_name': 'RU'}, 'postal_code': {'long_name': '129090',
'short_name': '129090'}}, 'status': 'OK', 'street': 'Olimpiyskiy pr.', 'sublocality': 'Tsentrálny ad
ministrativnyy okrug'}, 'bbox': [37.6251080197085, 55.7797010197085, 37.6278059802915, 55.782398980291
5], 'geometry': {'type': 'Point', 'coordinates': [37.626456999999999, 55.78105]}}]}
```

In [8]:

```
1 code=g.geojson['features'][0]['properties']['country']
2 print(code)
```

RU

```
In [9]: 1 from iso3166 import countries
        2 code=countries.get(code).alpha3
        3 print(code)
```

RUS

In [10]:

```
1 @memory.cache
2 def get_latlng(query):
3     try:
4         g=geocoder.google(query)
5         if g:
6             country = g.geojson['features'][0]['properties']['country']
7             code=countries.get(country).alpha3
8             print(query, g.latlng, code)
9             return g.latlng+[code]
10        else:
11            return None, None, None
12    except:
13        return None, None, None
14
15
16 @memory.cache
17 def get_data_paged(query, page):
18     url = 'https://www.setlist.fm/search?page={}&query={}'.format(page, query)
19     browser.open(url.format(page))
20     data = []
21     for concert in browser.select('.setlistPreview'):
22         month = concert.select('.month')[0].text
23         day = concert.select('.day')[0].text
24         year = concert.select('.year')[0].text
25         datetext = "{} {}, {}".format(year, month, day)
26         date = dateparser.parse(datetext)
27         desc = concert.select('h2 a')[0].text
28         idx = desc.find(' at ')+4
29         loc = desc[idx:]
30         loc_pieces = loc.split(',')
31         #print(loc_pieces[-1],country)
32         if loc == None:
33             continue
34         if len(loc_pieces)>=3:
35             loc = ','.join(loc_pieces[-3:])
36             lat, lng, code = get_latlng(loc)
37             if lat and lng:
38                 data.append([loc, lat, lng, code, date, desc])
39     return data
40
41 columns = ['loc', 'lat', 'lon', 'code', 'date', 'desc']
42 concerts = pd.DataFrame(columns = columns)
```



```

43 for page in range(1,15):
44     data = get_data_paged('Scorpions', page)
45     df = pd.DataFrame(data, columns = columns)
46     concerts = concerts.append(df)
47
48 concerts.head(20)

```

Out[10]:

		loc	lat	lon	code	date	desc
0		Olympiiskiy Stadium, Moscow, Russia	55.781050	37.626457	RUS	2017-11-01	Scorpions at Olympiiskiy Stadium, Moscow, Russia
1		SK "Basket Hall", Krasnodar, Russia	45.117544	38.981297	RUS	2017-10-30	Scorpions at SK "Basket Hall", Krasnodar, Russia
2		Ledovaya Arena 'Shayba', Sochi, Russia	43.402260	39.951905	RUS	2017-10-28	Scorpions at Ledovaya Arena 'Shayba', Sochi, R...
3		Inglewood, CA, USA	33.961680	-118.353131	USA	2017-10-07	Scorpions at The Forum, Inglewood, CA, USA
4		Oakland, CA, USA	37.804364	-122.271114	USA	2017-10-04	Scorpions at Oracle Arena, Oakland, CA, USA
5		Reno, NV, USA	39.529633	-119.813803	USA	2017-10-03	Scorpions at Grand Sierra Theatre, Reno, NV, USA
6		Tacoma, WA, USA	47.252877	-122.444291	USA	2017-09-30	Scorpions at Tacoma Dome, Tacoma, WA, USA
7		Spokane, WA, USA	47.658780	-117.426046	USA	2017-09-29	Scorpions at Spokane Arena, Spokane, WA, USA
8		West Valley, UT, USA	40.691613	-112.001050	USA	2017-09-26	Scorpions at USANA Amphitheatre, West Valley, ...
0		Rosemont, IL, USA	41.986751	-87.872160	USA	2017-09-23	Scorpions at Allstate Arena, Rosemont, IL, USA
1		Toronto, ON, Canada	43.653226	-79.383184	CAN	2017-09-22	Scorpions at Budweiser Stage, Toronto, ON, Canada
2		Laval, QC, Canada	45.606649	-73.712409	CAN	2017-09-19	Scorpions at Place Bell, Laval, QC, Canada
3		New York, NY, USA	40.712775	-74.005973	USA	2017-09-16	Scorpions at Madison Square Garden, New York, ...
4		Reading, PA, USA	40.335648	-75.926875	USA	2017-09-14	Scorpions at Santander Arena, Reading, PA, USA
5		Münsterplatz, Ulm, Germany	48.399008	9.991753	DEU	2017-07-23	Scorpions at Münsterplatz, Ulm, Germany
6		Guitare en scène Festival 2017	46.139233	6.071985	FRA	2017-07-19	Scorpions at Guitare en scène Festival 2017
7		Festival de Nîmes 2017	43.834904	4.359615	FRA	2017-07-17	Scorpions at Festival de Nîmes 2017
8		Festival Marés Vivas 2017	41.139685	-8.653662	PRT	2017-07-15	Scorpions at Festival Marés Vivas 2017
9		Albergue Municipal Juvenil El Prado, Mérida, S...	38.930452	-6.401968	ESP	2017-07-14	Scorpions at Albergue Municipal Juvenil El Pra...
0		Campos del Malecón, Torrelavega, Spain	43.350213	-4.062679	ESP	2017-07-12	Scorpions at Campos del Malecón, Torrelavega, ...

```
In [11]: 1 import plotly.plotly as py
2
3 great_lines = [
4     dict(
5         type = 'scattergeo',
6         lon = concerts['lon'],
7         lat = concerts['lat'],
8         mode = 'lines',
9         line = dict(
10             width = 1,
11             color = 'rgba(255,0,0,0.5)',
12         ),
13     )
14 ]
15 venue_markers = [ dict(
16     type = 'scattergeo',
17     lon = concerts['lon'],
18     lat = concerts['lat'],
19     hoverinfo = 'loc',
20     text = concerts['loc'],
21     mode = 'markers',
22     marker = dict(
23         size=10,
24         color='rgba(255,0,0,0.5)',
25     )
26 )]
27 layout = dict(
28     title = 'recitales',
29     width = 1000,
30     height = 800,
31     showlegend = False,
32
33     showland = True,
34     showcountries = True,
35     showocean = True,
36     countrywidth = 0.5,
37     landcolor = '#fff',
38     oceancolor = '#eee',
39
40     geo = dict(
41         projection = dict(
42             type = 'Mercator',
```

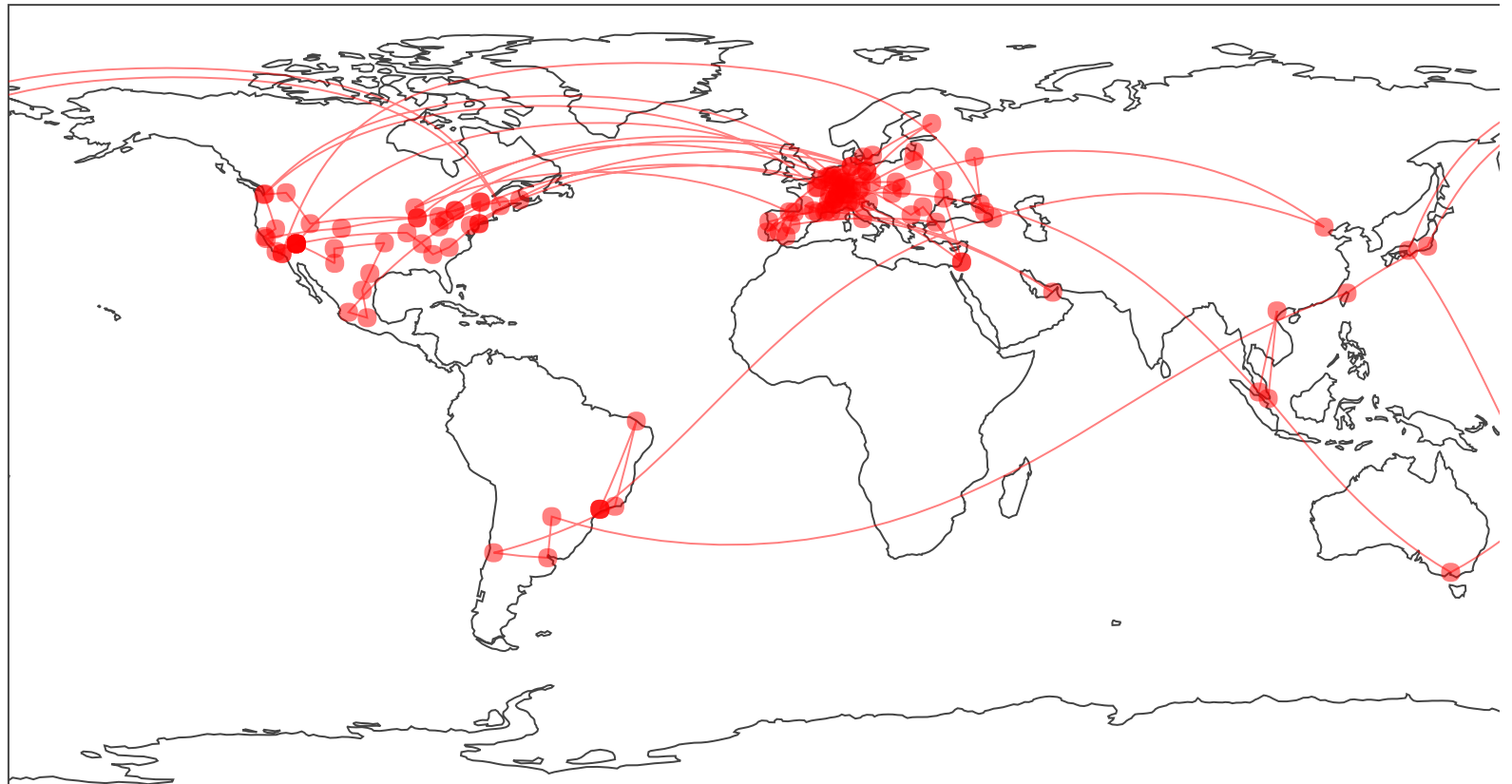
```

43         ),
44
45     )
46 )
47
48 fig = dict( data=great_lines+venue_markers, layout=layout )
49 py.iplot( fig, validate=False, filename='d3-globe' )

```

Out[11]:

recitales



---

```
In [12]: 1 df = concerts.groupby('code').count()  
        2 df.head(20)
```

Out[12]:

	loc	lat	lon	date	desc
code					
ARE	1	1	1	1	1
ARG	1	1	1	1	1
AUS	1	1	1	1	1
BEL	3	3	3	3	3
BGR	1	1	1	1	1
BRA	5	5	5	5	5
CAN	6	6	6	6	6
CHE	3	3	3	3	3
CHL	1	1	1	1	1
CHN	1	1	1	1	1
CZE	1	1	1	1	1
DEU	14	14	14	14	14
DNK	1	1	1	1	1
ESP	5	5	5	5	5
FIN	1	1	1	1	1
FRA	16	16	16	16	16
GEO	1	1	1	1	1
HUN	1	1	1	1	1
ISR	2	2	2	2	2
ITA	5	5	5	5	5

```
In [13]: 1 df=df.reset_index()
          2 df.head(20)
```

Out[13]:

	code	loc	lat	lon	date	desc
0	ARE	1	1	1	1	1
1	ARG	1	1	1	1	1
2	AUS	1	1	1	1	1
3	BEL	3	3	3	3	3
4	BGR	1	1	1	1	1
5	BRA	5	5	5	5	5
6	CAN	6	6	6	6	6
7	CHE	3	3	3	3	3
8	CHL	1	1	1	1	1
9	CHN	1	1	1	1	1
10	CZE	1	1	1	1	1

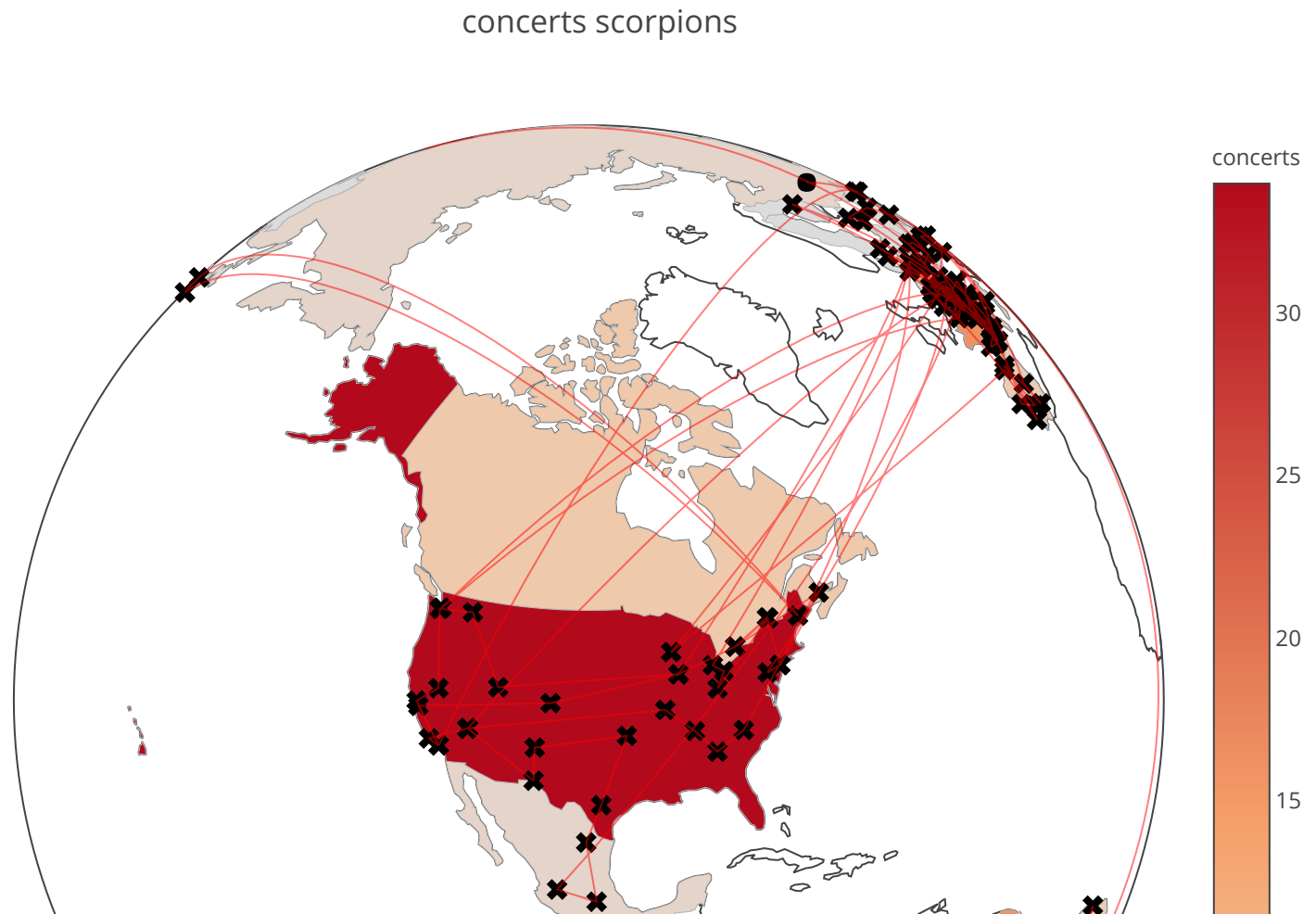
```
In [14]: 1 data = [ dict(
2         type = 'choropleth',
3         locations = df['code'],
4         z = df['loc'],
5         autocolorscale = True,
6         marker = dict(
7             line = dict (
8                 color = 'rgb(180,180,180)',
9                 width = 0.5
10            ) ),
11         colorbar = dict(
12             autotick = False,
13             tickprefix = '',
14             title = 'concerts'),
15     ) ]
16
17 markers = [ dict(
18     type = 'scattergeo',
19     lon = concerts['lon'],
20     lat = concerts['lat'],
21     hovertext = concerts['loc'],
22     text = concerts['loc'] ,
23     textposition = 'top center',
24     mode = 'markers',
25     string = concerts['loc'],
26     marker = dict(
27         symbol = ['4'],
28         size=10,
29         color='black',
30         linecolor = 'white'
31     )
32 )]]
33
34 layout = dict(
35     width = 800,
36     height = 800,
37     showlegend = False,
38     title = 'concerts scorpions',
39     geo = dict(
40         showframe = True,
41         showcoastlines = True,
42         projection = dict(
```

```

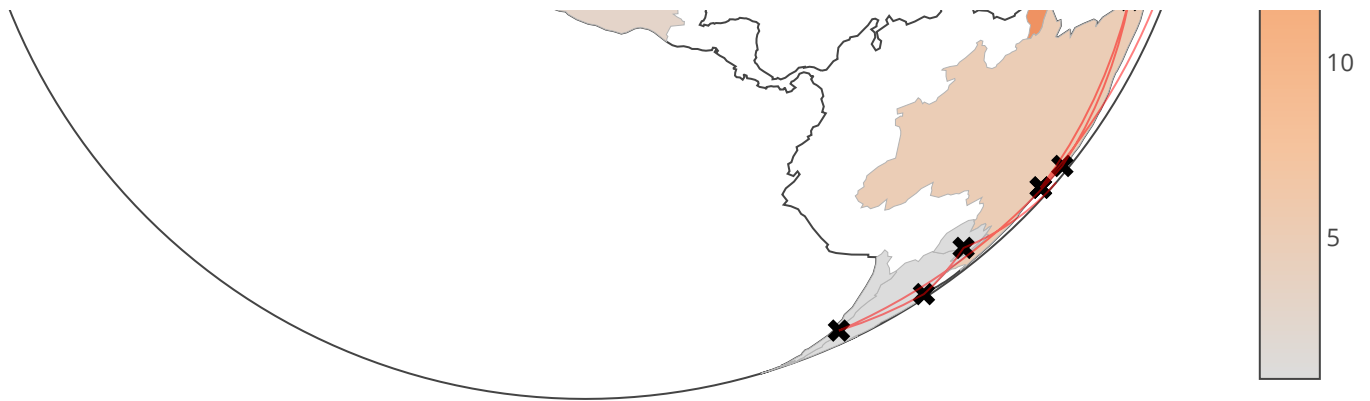
43         type = 'orthographic',
44         rotation = dict(
45             lon = -100,
46             lat = 40,
47             roll = 0
48         )
49     ),
50 )
51 )
52
53 fig = dict( data=data+markers+great_lines, layout=layout )
54 py.ipplot( fig, validate=False, filename='d3-world-map' )

```

Out[14]:







EDIT CHART

In [ ]:

1