

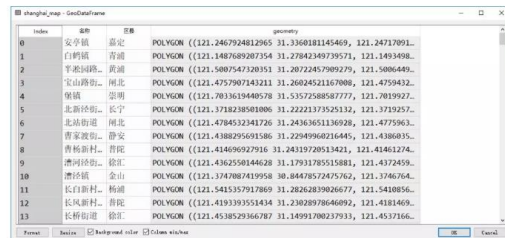
## 2018.12.7 #每周干货#

Arcgis 的功能强大而细碎，能不能用代码完成？经纬度转换、投影变换、构建缓冲区分别用什么方法？代码完成的分析在 Arcgis 中能不能正常使用？

本期【每周干货】《Geopandas——从“可视化”到“字母化”的空间数据分析》为你讲述使用 Python 完成空间数据分析的过程~

请戳这儿：<https://mp.weixin.qq.com/s/cAtRFnIPFiGhJ00nHYzx-w>

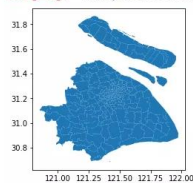
查看导入后的数据



index	名称	geometry
0	安亭镇	POLYGON ((121.2407924812965 31.3360181145469, 121.24717991...
1	白鹤镇	POLYGON ((121.14876489787354 31.27842349779571, 121.1493498...
2	平遥镇	POLYGON ((121.5087547120151 31.20722457099279, 121.5086449...
3	宝山镇	POLYGON ((121.4757907141211 31.26024521167008, 121.4759432...
4	堡镇	POLYGON ((121.7833619440578 31.53572588587777, 121.7819927...
5	北新镇	POLYGON ((121.3718238581006 31.22221373525132, 121.3719257...
6	北新镇	POLYGON ((121.4784532141726 31.24363651136528, 121.4775963...
7	曹家镇	POLYGON ((121.4382959515186 31.2249760216445, 121.4386035...
8	曹杨新村	POLYGON ((121.414606927916 31.24191720513421, 121.41461274...
9	漕河泾镇	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
10	漕河泾镇	POLYGON ((121.3747087419958 30.8447857245762, 121.3746764...
11	长白新村	POLYGON ((121.5415357917869 31.28262839026677, 121.5418856...
12	长风新村	POLYGON ((121.4191391551434 31.23028978646092, 121.4181469...
13	长桥街道	POLYGON ((121.4538529366787 31.14991788237933, 121.4537266...

和DataFrame如出一辙，但多了一列Geometry来存放地理信息，绘图看一下：

```
In [12]: shanghai_map.plot()  
Out[12]: <matplotlib.axes._su
```



嗯！是这样！

接下来，导入房源和餐厅数据



index	名称	area	price	geometry
0	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
1	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
2	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
3	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
4	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
5	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
6	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
7	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
8	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
9	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...
10	静安区	12.4	1.0	POLYGON ((121.436258144628 31.17931785515881, 121.4372459...

“这两份数据是CSV格式，导入成DataFrame，我们发现数据中会有经纬度字段，我们可以根据这两个字段，把数据转换成GeoDataFrame格式”

通过经纬度转换数据：

```
def point_to_geo(df,lon,lat):  
    df['geometry'] = gpd.GeoSeries(list(zip(df[lon],df[lat]))).apply(Point) #识别经纬度  
    df = gpd.GeoDataFrame(df) #转换GeoDataFrame格式  
    df.crs = ("init":'epsg:4326') #定义坐标系WGS84  
    del df[lon]  
    del df[lat]  
    return df  
  
house_data = point_to_geo(house_data,'lon_MES','lat_MES') #识别GeoDataFrame格式  
restaurant_data = point_to_geo(restaurant_data,'lon_MES','lat_MES') #识别GeoDataFrame格式
```

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