

```
In [1]: import numpy as np  
import pandas as pd
```

```
In [10]: import xml.etree.ElementTree as ET
```

```
In [5]: df = pd.read_excel(r'C:\Users\taylo\OneDrive\Documents\School\Data Engineering  
Platforms\Final Project\Data\city_of_chicago-sample-Zillow-v2.xlsx')
```

```
In [8]: print (df)
```

	LAT	LON	NUMBER	STREET \
0	41.920345	-87.755167	2158	N LEAMINGTON AVE
1	41.741348	-87.701373	3153	W 83RD PL
2	41.725274	-87.641757	9257	S EMERALD AVE
3	41.959761	-87.726220	4319	N HARDING AVE
4	41.837151	-87.655139	3124	S MAY ST
5	41.706938	-87.621605	41	E 103RD ST
6	41.949504	-87.663220	3716	N WAYNE AVE
7	41.942002	-87.654528	3304	N SHEFFIELD AVE
8	41.871496	-87.728173	728	S KARLOV AVE
9	41.962509	-87.735300	4457	N KILDARE AVE
10	41.791870	-87.686785	5600	S CAMPBELL AVE
11	41.910260	-87.721287	3758	W NORTH AVE
12	41.711505	-87.658698	9988	S BEVERLY AVE
13	41.998308	-87.702469	6424	N FRANCISCO AVE
14	41.769769	-87.594390	6900	S KIMBARK AVE
15	41.690116	-87.701643	11149	S SAWYER AVE
16	42.018980	-87.669555	7536	N ROGERS AVE
17	41.778548	-87.712585	3555	W 63RD ST
18	41.692911	-87.650700	1123	W 110TH PL
19	41.991307	-87.820376	6141	N OZARK AVE
20	41.695947	-87.635602	10900	S NORMAL AVE
21	41.789178	-87.770366	5653	S MASON AVE
22	41.925558	-87.742142	4608	W MONTANA ST
23	41.769413	-87.588714	1459	E 69TH ST
24	41.693415	-87.708599	10958	S ST LOUIS AVE
25	41.938081	-87.683526	3108	N LEAVITT ST
26	41.995131	-87.663780	6219	N WAYNE AVE
27	41.783739	-87.663464	6040	S JUSTINE ST
28	41.695889	-87.531325	10947	S AVENUE G
29	41.969938	-87.719876	4854	N MONTICELLO AVE
...
26034	41.777973	-87.779793	6324	W 63RD ST
26035	41.887494	-87.657142	326	N RACINE AVE
26036	41.797252	-87.661904	5311	S LAFLIN ST
26037	41.736983	-87.553798	8709	S ESCANABA AVE
26038	41.959869	-87.702449	4312	N RICHMOND ST
26039	41.763163	-87.706102	7139	S CHRISTIANA AVE
26040	41.820107	-87.608899	711	E 41ST ST
26041	41.934284	-87.746299	2927	N CICERO AVE
26042	41.879860	-87.676872	100	S DAMEN AVE
26043	41.701562	-87.606615	10610	S LANGLEY AVE
26044	41.923129	-87.691764	2250	N MAPLEWOOD AVE
26045	41.694554	-87.623510	10954	S STATE ST
26046	41.654144	-87.543172	13247	S BUFFALO AVE
26047	41.854387	-87.632649	2116	S ARCHER AVE
26048	41.806062	-87.642730	4835	S UNION AVE
26049	41.732237	-87.612418	450	E 89TH PL
26050	41.795057	-87.678652	2142	W 54TH PL
26051	41.791284	-87.778981	5537	S MOBILE AVE
26052	41.779276	-87.768237	6214	S MONITOR AVE
26053	41.887111	-87.692555	315	N TALMAN AVE
26054	41.750889	-87.643367	744	W 79TH ST
26055	41.945541	-87.808589	3606	N OCONTO AVE
26056	41.707581	-87.622736	23	E 103RD ST
26057	41.698302	-87.697879	10718	S WHIPPLE ST
26058	41.700307	-87.611751	400	E 107TH ST

26059	41.765791	-87.567380	7115	S OGLESBY AVE
26060	41.970935	-87.756810	5140	W STRONG ST
26061	41.760268	-87.645164	7343	S GREEN ST
26062	41.978882	-87.662079	5325	N LAKEWOOD AVE
26063	41.989350	-87.742750	5951	N FOREST GLEN AVE

	Number+Street+	\
0	2158+N+LEAMINGTON+AVE	
1	3153+W+83RD+PL	
2	9257+S+EMERALD+AVE	
3	4319+N+HARDING+AVE	
4	3124+S+MAY+ST	
5	41+E+103RD+ST	
6	3716+N+WAYNE+AVE	
7	3304+N+SHEFFIELD+AVE	
8	728+S+KARLOV+AVE	
9	4457+N+KILDARE+AVE	
10	5600+S+CAMPBELL+AVE	
11	3758+W+NORTH+AVE	
12	9988+S+BEVERLY+AVE	
13	6424+N+FRANCISCO+AVE	
14	6900+S+KIMBARK+AVE	
15	11149+S+SAWYER+AVE	
16	7536+N+ROGERS+AVE	
17	3555+W+63RD+ST	
18	1123+W+110TH+PL	
19	6141+N+OZARK+AVE	
20	10900+S+NORMAL+AVE	
21	5653+S+MASON+AVE	
22	4608+W+MONTANA+ST	
23	1459+E+69TH+ST	
24	10958+S+ST+LOUIS+AVE	
25	3108+N+LEAVITT+ST	
26	6219+N+WAYNE+AVE	
27	6040+S+JUSTINE+ST	
28	10947+S+AVENUE+G	
29	4854+N+MONTICELLO+AVE	
...	...	
26034	6324+W+63RD+ST	
26035	326+N+RACINE+AVE	
26036	5311+S+LAFLIN+ST	
26037	8709+S+ESCANABA+AVE	
26038	4312+N+RICHMOND+ST	
26039	7139+S+CHRISTIANA+AVE	
26040	711+E+41ST+ST	
26041	2927+N+CICERO+AVE	
26042	100+S+DAMEN+AVE	
26043	10610+S+LANGLEY+AVE	
26044	2250+N+MAPLEWOOD+AVE	
26045	10954+S+STATE+ST	
26046	13247+S+BUFFALO+AVE	
26047	2116+S+ARCHER+AVE	
26048	4835+S+UNION+AVE	
26049	450+E+89TH+PL	
26050	2142+W+54TH+PL	
26051	5537+S+MOBILE+AVE	
26052	6214+S+MONITOR+AVE	

26053 315+N+TALMAN+AVE
 26054 744+W+79TH+ST
 26055 3606+N+OCONTO+AVE
 26056 23+E+103RD+ST
 26057 10718+S+WHIPPLE+ST
 26058 400+E+107TH+ST
 26059 7115+S+OGLESBY+AVE
 26060 5140+W+STRONG+ST
 26061 7343+S+GREEN+ST
 26062 5325+N+LAKEWOOD+AVE
 26063 5951+N+FOREST+GLEN+AVE

	Zillow_Results_All	City	State
0	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
1	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
2	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
3	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
4	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
5	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
6	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
7	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
8	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
9	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
10	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
11	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
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18	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
19	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
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22	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
23	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
24	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
25	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
26	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
27	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
28	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
29	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
...
26034	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
26035	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
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26037	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
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26060	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
26061	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
26062	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL
26063	<?xml version="1.0" encoding="utf-8"?><SearchR...	Chicago	IL

[26064 rows x 8 columns]

In [9]: `df.Zillow_Results_All`

• •


```

26060    <?xml version="1.0" encoding="utf-8"?><SearchR...
26061    <?xml version="1.0" encoding="utf-8"?><SearchR...
26062    <?xml version="1.0" encoding="utf-8"?><SearchR...
26063    <?xml version="1.0" encoding="utf-8"?><SearchR...
Name: Zillow_Results_All, Length: 26064, dtype: object

```

```

In [18]: zillowdf = df.Zillow_Results_All
         zillowdf[0]

```

```

Out[18]: '<?xml version="1.0" encoding="utf-8"?><SearchResults:searchresults xsi:schem
aLocation="http://www.zillow.com/static/xsd/SearchResults.xsd http://www.zill
owstatic.com/vstatic/80d5e73/static/xsd/SearchResults.xsd" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance" xmlns:SearchResults="http://www.zillow.co
m/static/xsd/SearchResults.xsd"><request><address>2158 N LEAMINGTON AVE</addr
ess><citystatezip>Chicago, IL</citystatezip></request><message><text>Request
successfully processed</text><code>0</code></message><response><results><resu
lt><zpId>3684759</zpId><links><homedetails>http://www.zillow.com/homedetails/
2158-N-Leamington-Ave-Chicago-IL-60639/3684759_zpid/</homedetails><graphsandd
ata>http://www.zillow.com/homedetails/2158-N-Leamington-Ave-Chicago-IL-60639/
3684759_zpid/#charts-and-data</graphsanddata><mapthishome>http://www.zillow.c
om/homes/3684759_zpid/</mapthishome><comparables>http://www.zillow.com/homes/
comps/3684759_zpid/</comparables></links><address><street>2158 N Leamington A
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tude>41.92034</latitude><longitude>-87.755159</longitude></address><zestimate
><amount currency="USD">216839</amount><last-updated>08/07/2019</last-updated
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</low><high currency="USD">238523</high></valuationRange><percentile>0</perce
ntile></zestimate><localRealEstate><region name="Cragin" id="28173" type="nei
ghborhood"><zindexValue>240,300</zindexValue><links><overview>http://www.zill
ow.com/local-info/IL-Chicago/Cragin/r_28173/</overview><forSaleByOwner>htt
p://www.zillow.com/cragin-chicago-il/fsbo/</forSaleByOwner><forSale>http://ww
w.zillow.com/cragin-chicago-il/</forSale></links></region></localRealEstate>
</result></results></response></SearchResults:searchresults><!-- H:002 T:57m
s S:869 R:Thu Aug 08 20:59:39 PDT 2019 B:5.0.61262-master.be42d82~delivery
_ready.b8e86b8 -->'

```

```

In [19]: root = ET.fromstring(zillowdf[0])
         for child in root:
             print(child.tag, child.attrib)

```

```

request {}
message {}
response {}

```

```

Out[19]: <Element 'graphsanddata' at 0x19b8bb2e588>

```

```

In [26]: root[2][0][0][2][1].text

```

```

Out[26]: '60639'

```

```
In [69]: rows = len(zillowdf)
#rows = 5
zipcodes = []
for i in range(rows):
    try:
        root = ET.fromstring(zillowdf[i])
        zipcodes.append(root[2][0][0][2][1].text)
    except:
        zipcodes.append(0)
```

```
In [79]: rows = len(zillowdf)
#rows = 6
zestimates = []
for i in range(rows):
    try:
        root = ET.fromstring(zillowdf[i])
        if root[2][0][0][3][0].text == None:
            zestimates.append(0)
        else:
            zestimates.append(root[2][0][0][3][0].text)
    except:
        zestimates.append(0)
```

In [70]: zipcodes

```
Out[70]: ['60639',
          '60652',
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'443127',  
'149653',  
'283486',  
'281353',  
'221007',  
'189657',  
0,  
...]
```



```
In [84]: zip sdf = pd.DataFrame(zipcodes, columns=['Zipcode'])  
zip sdf
```

Out[84]:

	Zipcode
0	60639
1	60652
2	60620
3	60618
4	0
5	60628
6	60613
7	0
8	60624
9	60630
10	0
11	0
12	60643
13	60645
14	60637
15	60655
16	60626
17	0
18	60643
19	60631
20	60628
21	60638
22	60639
23	60637
24	60655
25	0
26	0
27	60636
28	60617
29	0
...	...
26034	60638
26035	0
26036	0
26037	60617

	Zipcode
26038	60618
26039	60629
26040	60653
26041	0
26042	0
26043	60628
26044	60622
26045	60628
26046	60633
26047	0
26048	0
26049	60619
26050	0
26051	60638
26052	60638
26053	0
26054	0
26055	60634
26056	60628
26057	60655
26058	0
26059	60649
26060	0
26061	60621
26062	60640
26063	60646

26064 rows × 1 columns

```
In [85]: zestsdf = pd.DataFrame(zestimates, columns = ['Zestimate'])
```

```
In [87]: combineddf = pd.concat([df, zip sdf, zestsdf], axis = 1)
combineddf
```

Out[87]:

	LAT	LON	NUMBER	STREET	Number+Street+	Zillow_Resul
0	41.920345	-87.755167	2158	N LEAMINGTON AVE	2158+N+LEAMINGTON+AVE	<?xml version encoding="ut <Seai
1	41.741348	-87.701373	3153	W 83RD PL	3153+W+83RD+PL	<?xml version encoding="ut <Seai
2	41.725274	-87.641757	9257	S EMERALD AVE	9257+S+EMERALD+AVE	<?xml version encoding="ut <Seai
3	41.959761	-87.726220	4319	N HARDING AVE	4319+N+HARDING+AVE	<?xml version encoding="ut <Seai
4	41.837151	-87.655139	3124	S MAY ST	3124+S+MAY+ST	<?xml version encoding="ut <Seai
5	41.706938	-87.621605	41	E 103RD ST	41+E+103RD+ST	<?xml version encoding="ut <Seai
6	41.949504	-87.663220	3716	N WAYNE AVE	3716+N+WAYNE+AVE	<?xml version encoding="ut <Seai
7	41.942002	-87.654528	3304	N SHEFFIELD AVE	3304+N+SHEFFIELD+AVE	<?xml version encoding="ut <Seai
8	41.871496	-87.728173	728	S KARLOV AVE	728+S+KARLOV+AVE	<?xml version encoding="ut <Seai
9	41.962509	-87.735300	4457	N KILDARE AVE	4457+N+KILDARE+AVE	<?xml version encoding="ut <Seai
10	41.791870	-87.686785	5600	S CAMPBELL AVE	5600+S+CAMPBELL+AVE	<?xml version encoding="ut <Seai
11	41.910260	-87.721287	3758	W NORTH AVE	3758+W+NORTH+AVE	<?xml version encoding="ut <Seai
12	41.711505	-87.658698	9988	S BEVERLY AVE	9988+S+BEVERLY+AVE	<?xml version encoding="ut <Seai
13	41.998308	-87.702469	6424	N FRANCISCO AVE	6424+N+FRANCISCO+AVE	<?xml version encoding="ut <Seai
14	41.769769	-87.594390	6900	S KIMBARK AVE	6900+S+KIMBARK+AVE	<?xml version encoding="ut <Seai
15	41.690116	-87.701643	11149	S SAWYER AVE	11149+S+SAWYER+AVE	<?xml version encoding="ut <Seai
16	42.018980	-87.669555	7536	N ROGERS AVE	7536+N+ROGERS+AVE	<?xml version encoding="ut <Seai

	LAT	LON	NUMBER	STREET	Number+Street+	Zillow_Resul
17	41.778548	-87.712585	3555	W 63RD ST	3555+W+63RD+ST	<?xml version encoding="ut <Seai
18	41.692911	-87.650700	1123	W 110TH PL	1123+W+110TH+PL	<?xml version encoding="ut <Seai
19	41.991307	-87.820376	6141	N OZARK AVE	6141+N+OZARK+AVE	<?xml version encoding="ut <Seai
20	41.695947	-87.635602	10900	S NORMAL AVE	10900+S+NORMAL+AVE	<?xml version encoding="ut <Seai
21	41.789178	-87.770366	5653	S MASON AVE	5653+S+MASON+AVE	<?xml version encoding="ut <Seai
22	41.925558	-87.742142	4608	W MONTANA ST	4608+W+MONTANA+ST	<?xml version encoding="ut <Seai
23	41.769413	-87.588714	1459	E 69TH ST	1459+E+69TH+ST	<?xml version encoding="ut <Seai
24	41.693415	-87.708599	10958	S ST LOUIS AVE	10958+S+ST+LOUIS+AVE	<?xml version encoding="ut <Seai
25	41.938081	-87.683526	3108	N LEAVITT ST	3108+N+LEAVITT+ST	<?xml version encoding="ut <Seai
26	41.995131	-87.663780	6219	N WAYNE AVE	6219+N+WAYNE+AVE	<?xml version encoding="ut <Seai
27	41.783739	-87.663464	6040	S JUSTINE ST	6040+S+JUSTINE+ST	<?xml version encoding="ut <Seai
28	41.695889	-87.531325	10947	S AVENUE G	10947+S+AVENUE+G	<?xml version encoding="ut <Seai
29	41.969938	-87.719876	4854	N MONTICELLO AVE	4854+N+MONTICELLO+AVE	<?xml version encoding="ut <Seai
...	
26034	41.777973	-87.779793	6324	W 63RD ST	6324+W+63RD+ST	<?xml version encoding="ut <Seai
26035	41.887494	-87.657142	326	N RACINE AVE	326+N+RACINE+AVE	<?xml version encoding="ut <Seai
26036	41.797252	-87.661904	5311	S LAFLIN ST	5311+S+LAFLIN+ST	<?xml version encoding="ut <Seai
26037	41.736983	-87.553798	8709	S ESCANABA AVE	8709+S+ESCANABA+AVE	<?xml version encoding="ut <Seai

	LAT	LON	NUMBER	STREET	Number+Street+	Zillow_Resul
26038	41.959869	-87.702449	4312	N RICHMOND ST	4312+N+RICHMOND+ST	<?xml version encoding="utf-8" type="text" /> <Search>
26039	41.763163	-87.706102	7139	S CHRISTIANA AVE	7139+S+CHRISTIANA+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26040	41.820107	-87.608899	711	E 41ST ST	711+E+41ST+ST	<?xml version encoding="utf-8" type="text" /> <Search>
26041	41.934284	-87.746299	2927	N CICERO AVE	2927+N+CICERO+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26042	41.879860	-87.676872	100	S DAMEN AVE	100+S+DAMEN+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26043	41.701562	-87.606615	10610	S LANGLEY AVE	10610+S+LANGLEY+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26044	41.923129	-87.691764	2250	N MAPLEWOOD AVE	2250+N+MAPLEWOOD+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26045	41.694554	-87.623510	10954	S STATE ST	10954+S+STATE+ST	<?xml version encoding="utf-8" type="text" /> <Search>
26046	41.654144	-87.543172	13247	S BUFFALO AVE	13247+S+BUFFALO+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26047	41.854387	-87.632649	2116	S ARCHER AVE	2116+S+ARCHER+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26048	41.806062	-87.642730	4835	S UNION AVE	4835+S+UNION+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26049	41.732237	-87.612418	450	E 89TH PL	450+E+89TH+PL	<?xml version encoding="utf-8" type="text" /> <Search>
26050	41.795057	-87.678652	2142	W 54TH PL	2142+W+54TH+PL	<?xml version encoding="utf-8" type="text" /> <Search>
26051	41.791284	-87.778981	5537	S MOBILE AVE	5537+S+MOBILE+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26052	41.779276	-87.768237	6214	S MONITOR AVE	6214+S+MONITOR+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26053	41.887111	-87.692555	315	N TALMAN AVE	315+N+TALMAN+AVE	<?xml version encoding="utf-8" type="text" /> <Search>
26054	41.750889	-87.643367	744	W 79TH ST	744+W+79TH+ST	<?xml version encoding="utf-8" type="text" /> <Search>

	LAT	LON	NUMBER	STREET	Number+Street+	Zillow_Resul
26055	41.945541	-87.808589	3606	N OCONTO AVE	3606+N+OCONTO+AVE	<?xml version encoding="utf-8"> <Search>
26056	41.707581	-87.622736	23	E 103RD ST	23+E+103RD+ST	<?xml version encoding="utf-8"> <Search>
26057	41.698302	-87.697879	10718	S WHIPPLE ST	10718+S+WHIPPLE+ST	<?xml version encoding="utf-8"> <Search>
26058	41.700307	-87.611751	400	E 107TH ST	400+E+107TH+ST	<?xml version encoding="utf-8"> <Search>
26059	41.765791	-87.567380	7115	S OGLESBY AVE	7115+S+OGLESBY+AVE	<?xml version encoding="utf-8"> <Search>
26060	41.970935	-87.756810	5140	W STRONG ST	5140+W+STRONG+ST	<?xml version encoding="utf-8"> <Search>
26061	41.760268	-87.645164	7343	S GREEN ST	7343+S+GREEN+ST	<?xml version encoding="utf-8"> <Search>
26062	41.978882	-87.662079	5325	N LAKEWOOD AVE	5325+N+LAKEWOOD+AVE	<?xml version encoding="utf-8"> <Search>
26063	41.989350	-87.742750	5951	N FOREST GLEN AVE	5951+N+FOREST+GLEN+AVE	<?xml version encoding="utf-8"> <Search>

26064 rows × 10 columns



In [89]: combineddf.to_excel('Chicago_Values_Zillow.xlsx')