```
In [10]:
             import geopandas as gpd
In [13]:
             city = gpd.read_file('BND_DCD_City_Limits.shp')
In [15]:
             city.head(10)
                 NAME
                                                URL Place
                                                                SHAPE_Leng
                                                                                SHAPE_Area
                                                                                                   geometry
Out[15]:
                                                                                                    POLYGON
                                                                                               ((6050138.670
               Hercules
                          http://www.ci.hercules.ca.us
                                                        City
                                                             139684.714049
                                                                              5.370487e+08
                                                                                                2213680.894,
                                                                                               6050138.535...
                                                                                                    POLYGON
                                                                                                ((6061361.891
            1
                  Pinole
                             http://www.ci.pinole.ca.us
                                                        City
                                                              142085.179287
                                                                              3.236353e+08
                                                                                                2185184.330,
                                                                                               6061175.032...
                                                                                                    POLYGON
                    San
                                                                                               ((6032142.047
            2
                                                                               7.262574e+07
                              http://ci.san-pablo.ca.us
                                                        City
                                                              53545.939997
                  Pablo
                                                                                                 2180044.617,
                                                                                               6032139.564...
                                                                                                    POLYGON
                Pleasant
                               http://www.ci.pleasant-
                                                                                                ((6107797.519
            3
                                                             106538.290047
                                                                               1.972874e+08
                                            hill.ca.us
                    Hill
                                                                                                 2183746.182,
                                                                                               6107795.016...
                                                                                                    POLYGON
                                                                                                ((6145189.947
            4
                Clayton
                                 http://ci.clayton.ca.us
                                                        City
                                                               56209.355613
                                                                              1.068252e+08
                                                                                                 2168359.571,
                                                                                                6145189.747...
                                                                                                    POLYGON
                      ΕI
                                                                                                ((6037746.731
            5
                              http://www.el-cerrito.org
                                                        City
                                                              52935.042504
                                                                              1.027580e+08
                 Cerrito
                                                                                                 2169209.701,
                                                                                               6037769.912...
                                                                                                    POLYGON
                                                                                               ((6073367.430
            6
                 Orinda
                          https://www.cityoforinda.org
                                                        City
                                                              124549.070027
                                                                              3.587687e+08
                                                                                                 2161972.311,
                                                                                               6073447.906...
                                                                                                    POLYGON
                                                                                               ((6091339.945
            7
                                                                              2.641224e+08
                Moraga
                              http://www.moraga.ca.us
                                                        City
                                                               101587.011015
                                                                                                2145105.692,
                                                                                                6091427.182...
                                                                                                    POLYGON
                                                                                               ((6202023.545
            8
                 Oakley
                                 http://ci.oakley.ca.us
                                                        City
                                                              125674.182645
                                                                              4.512589e+08
                                                                                                2196350.838,
                                                                                               6202174.776...
                                                                                              MULTIPOLYGON
                                                                                              (((6097550.872
               Martinez http://www.cityofmartinez.org
                                                             196485.697832 3.838058e+08
                                                        City
                                                                                                 2195314.691,
                                                                                                      60975...
```

In [16]:

city.shape

```
Out[16]: (20, 6)
In [17]:
          city.head
          <bound method NDFrame.head of</pre>
                                                        NAME
Out[17]:
          URL
                Place
                         SHAPE Leng
          0
                    Hercules
                                    http://www.ci.hercules.ca.us
                                                                      City
                                                                            1.396847e+05
          1
                      Pinole
                                      http://www.ci.pinole.ca.us
                                                                      City
                                                                            1.420852e+05
          2
                   San Pablo
                                       http://ci.san-pablo.ca.us
                                                                      City
                                                                            5.354594e+04
          3
               Pleasant Hill
                               http://www.ci.pleasant-hill.ca.us
                                                                      City
                                                                            1.065383e+05
                     Clayton
          4
                                         http://ci.clayton.ca.us
                                                                      City
                                                                            5.620936e+04
          5
                  El Cerrito
                                       http://www.el-cerrito.org
                                                                      City
                                                                            5.293504e+04
          6
                      Orinda
                                    https://www.cityoforinda.org
                                                                      City
                                                                            1.245491e+05
          7
                      Moraga
                                         http://www.moraga.ca.us
                                                                      City
                                                                            1.015870e+05
          8
                      Oakley
                                          http://ci.oakley.ca.us
                                                                      City
                                                                            1.256742e+05
          9
                    Martinez
                                   http://www.cityofmartinez.org
                                                                            1.964857e+05
                                                                      City
          10
                     Concord
                                        http://cityofconcord.org
                                                                      City
                                                                            1.866475e+05
          11
                   Brentwood
                                     https://www.brentwoodca.gov
                                                                      City
                                                                            1.430533e+05
          12
                    Danville
                                      http://www.danville.ca.gov
                                                                      City
                                                                            1.541088e+05
          13
                   Pittsburg
                                   http://www.ci.pittsburg.ca.us
                                                                      City
                                                                            1.872711e+05
          14
                    Richmond
                                    http://www.ci.richmond.ca.us
                                                                      City
                                                                            4.410034e+05
          15
                     Antioch
                                         http://ci.antioch.ca.us
                                                                      City
                                                                            1.921041e+05
          16
                Walnut Creek
                                http://www.ci.walnut-creek.ca.us
                                                                      City
                                                                            3.013035e+05
          17
                   San Ramon
                                      http://www.sanramon.ca.gov
                                                                      City
                                                                            1.788288e+05
          18
                   Lafayette
                                        http://lovelafayette.org
                                                                      City
                                                                            1.430424e+05
          19
              Unincorporated
                                http://www.co.contra-costa.ca.us
                                                                    County
                                                                            2.603815e+06
                SHAPE Area
                                                                        geometry
          0
              5.370487e+08
                             POLYGON ((6050138.670 2213680.894, 6050138.535...
                             POLYGON ((6061361.891 2185184.330, 6061175.032...
          1
              3.236353e+08
          2
              7.262574e+07
                             POLYGON ((6032142.047 2180044.617, 6032139.564...
          3
              1.972874e+08
                             POLYGON ((6107797.519 2183746.182, 6107795.016...
          4
              1.068252e+08
                             POLYGON ((6145189.947 2168359.571, 6145189.747...
          5
              1.027580e+08
                             POLYGON ((6037746.731 2169209.701, 6037769.912...
                             POLYGON ((6073367.430 2161972.311, 6073447.906...
          6
              3.587687e+08
          7
              2.641224e+08
                             POLYGON ((6091339.945 2145105.692, 6091427.182...
          8
              4.512589e+08
                             POLYGON ((6202023.545 2196350.838, 6202174.776...
          9
                            MULTIPOLYGON (((6097550.872 2195314.691, 60975...
              3.838058e+08
              8.512320e+08
                            POLYGON ((6123982.129 2198022.756, 6124195.656...
          10
          11
              4.143161e+08
                             POLYGON ((6214394.397 2174902.667, 6214396.908...
          12
              5.039213e+08
                             POLYGON ((6126766.141 2133733.789, 6127085.214...
          13
              5.504280e+08
                             POLYGON ((6167978.433 2208684.254, 6170905.866...
          14
              1.465940e+09
                             MULTIPOLYGON (((6024112.727 2177751.505, 60240...
          15
              8.347368e+08
                             POLYGON ((6183872.036 2196583.055, 6184514.823...
          16
              5.512180e+08
                             POLYGON ((6100470.716 2157812.139, 6100459.593...
          17
              5.221248e+08
                             MULTIPOLYGON (((6151013.675 2099012.584, 61510...
          18
              4.234762e+08
                             POLYGON ((6099902.510 2168174.064, 6099865.247...
              1.356946e+10
                             MULTIPOLYGON (((6131892.866 2102985.864, 61318...
In [18]:
          city.head(10)
               NAME
                                         URL Place
                                                      SHAPE_Leng
                                                                   SHAPE_Area
                                                                                    geometry
Out[18]:
                                                                                    POLYGON
                                                                                ((6050138.670
             Hercules
                      http://www.ci.hercules.ca.us
                                               City
                                                    139684.714049
                                                                  5.370487e+08
                                                                                 2213680.894,
```

https://jupyter.idre.ucla.edu/user/natalielamberg@gmail.com/nbconvert/html/up206a/Weeks/week02hw/Week2.ipynb?download=falser/download=falser

6050138.535...

	NAME	URL	Place	SHAPE_Leng	SHAPE_Area	geometry
1	Pinole	http://www.ci.pinole.ca.us	City	142085.179287	3.236353e+08	POLYGON ((6061361.891 2185184.330, 6061175.032
2	San Pab l o	http://ci.san-pablo.ca.us	City	53545.939997	7.262574e+07	POLYGON ((6032142.047 2180044.617, 6032139.564
3	Pleasant Hill	http://www.ci.pleasant- hill.ca.us	City	106538.290047	1.972874e+08	POLYGON ((6107797.519 2183746.182, 6107795.016
4	Clayton	http://ci.clayton.ca.us	City	56209.355613	1.068252e+08	POLYGON ((6145189.947 2168359.571, 6145189.747
5	El Cerrito	http://www.el-cerrito.org	City	52935.042504	1.027580e+08	POLYGON ((6037746.731 2169209.701, 6037769.912
6	Orinda	https://www.cityoforinda.org	City	124549.070027	3.587687e+08	POLYGON ((6073367.430 2161972.311, 6073447.906
7	Moraga	http://www.moraga.ca.us	City	101587.011015	2.641224e+08	POLYGON ((6091339.945 2145105.692, 6091427.182
8	Oakley	http://ci.oakley.ca.us	City	125674.182645	4.512589e+08	POLYGON ((6202023.545 2196350.838, 6202174.776
9	Martinez	http://www.cityofmartinez.org	City	196485.697832	3.838058e+08	MULTIPOLYGON (((6097550.872 2195314.691, 60975

[19]:	city.info							
[19]:		nd method DataF						
	URL		E_Leng \	- • •				
	0	Hercules	http://www.ci.hercules.ca.us	City	1.396847e+05			
	1	Pinole	http://www.ci.pinole.ca.us	City	1.420852e+05			
	2	San Pablo	http://ci.san-pablo.ca.us	City	5.354594e+04			
	3	Pleasant Hill	http://www.ci.pleasant-hill.ca.us	City	1.065383e+05			
	4	Clayton	http://ci.clayton.ca.us	City	5.620936e+04			
	5	El Cerrito	http://www.el-cerrito.org	City	5.293504e+04			
	6	Orinda	https://www.cityoforinda.org	City	1.245491e+05			
	7	Moraga	http://www.moraga.ca.us	City	1.015870e+05			
	8	Oakley	http://ci.oakley.ca.us	City	1.256742e+05			
	9	Martinez	http://www.cityofmartinez.org	City	1.964857e+05			
	10	Concord	http://cityofconcord.org	City	1.866475e+05			
	11	Brentwood	https://www.brentwoodca.gov	City	1.430533e+05			
	12	Danville	http://www.danville.ca.gov	City	1.541088e+05			

```
13
                   Pittsburg
                                  http://www.ci.pittsburg.ca.us
                                                                     City 1.872711e+05
         14
                    Richmond
                                   http://www.ci.richmond.ca.us
                                                                           4.410034e+05
                                                                     City
         15
                                         http://ci.antioch.ca.us
                                                                           1.921041e+05
                     Antioch
                                                                    City
                               http://www.ci.walnut-creek.ca.us
         16
               Walnut Creek
                                                                     City
                                                                           3.013035e+05
         17
                                     http://www.sanramon.ca.gov
                   San Ramon
                                                                     City
                                                                           1.788288e+05
         18
                                       http://lovelafayette.org
                   Lafayette
                                                                     City
                                                                           1.430424e+05
         19
             Unincorporated
                               http://www.co.contra-costa.ca.us
                                                                  County
                                                                           2.603815e+06
               SHAPE Area
                                                                       geometry
         0
             5.370487e+08
                            POLYGON ((6050138.670 2213680.894, 6050138.535...
             3.236353e+08
                            POLYGON ((6061361.891 2185184.330, 6061175.032...
         1
         2
             7.262574e+07
                            POLYGON ((6032142.047 2180044.617, 6032139.564...
         3
             1.972874e+08
                            POLYGON ((6107797.519 2183746.182, 6107795.016...
         4
             1.068252e+08
                            POLYGON ((6145189.947 2168359.571, 6145189.747...
         5
                            POLYGON ((6037746.731 2169209.701, 6037769.912...
             1.027580e+08
         6
             3.587687e+08
                            POLYGON ((6073367.430 2161972.311, 6073447.906...
         7
             2.641224e+08
                            POLYGON ((6091339.945 2145105.692, 6091427.182...
         8
             4.512589e+08
                            POLYGON ((6202023.545 2196350.838, 6202174.776...
                            MULTIPOLYGON (((6097550.872 2195314.691, 60975...
         9
             3.838058e+08
         10
             8.512320e+08
                            POLYGON ((6123982.129 2198022.756, 6124195.656...
         11
             4.143161e+08
                            POLYGON ((6214394.397 2174902.667, 6214396.908...
         12
             5.039213e+08
                            POLYGON ((6126766.141 2133733.789, 6127085.214...
         13
             5.504280e+08
                            POLYGON ((6167978.433 2208684.254, 6170905.866...
             1.465940e+09
                            MULTIPOLYGON (((6024112.727 2177751.505, 60240...
         15
             8.347368e+08
                            POLYGON ((6183872.036 2196583.055, 6184514.823...
                            POLYGON ((6100470.716 2157812.139, 6100459.593...
             5.512180e+08
         16
         17
             5.221248e+08
                            MULTIPOLYGON (((6151013.675 2099012.584, 61510...
                            POLYGON ((6099902.510 2168174.064, 6099865.247...
             4.234762e+08
                            MULTIPOLYGON (((6131892.866 2102985.864, 61318...
             1.356946e+10
In [20]:
          city.info(10)
         <class 'geopandas.geodataframe.GeoDataFrame'>
         RangeIndex: 20 entries, 0 to 19
         Data columns (total 6 columns):
              Column
          #
                           Non-Null Count
                                           Dtype
                           -----
                                           ----
          0
              NAME
                           20 non-null
                                           object
              URL
          1
                           20 non-null
                                           object
          2
              Place
                           20 non-null
                                           object
          3
              SHAPE Leng
                           20 non-null
                                            float64
          4
              SHAPE Area
                           20 non-null
                                            float64
          5
                           20 non-null
              geometry
                                            geometry
         dtypes: float64(2), geometry(1), object(3)
         memory usage: 1.1+ KB
In [21]:
          city.tail(10)
                                              URL
                    NAME
                                                    Place
                                                           SHAPE_Leng
                                                                        SHAPE_Area
                                                                                        geome
Out[21]:
                                                                                         POLYG
                                                                                     ((6123982.
         10
                   Concord
                               http://cityofconcord.org
                                                     City 1.866475e+05
                                                                       8.512320e+08
                                                                                      2198022.7
                                                                                     6124195.65
                                                                                         POLYG
                                                                                     ((6214394.
          11
                 Brentwood https://www.brentwoodca.gov
                                                     City 1.430533e+05
                                                                       4.143161e+08
                                                                                      2174902.6
                                                                                     6214396.90
```

	NAME	URL	Place	SHAPE_Leng	SHAPE_Area	geome
12	Danville	http://www.danville.ca.gov	City	1.541088e+05	5.039213e+08	POLYC ((6126766 2133733.7 6127085.2
13	Pittsburg	http://www.ci.pittsburg.ca.us	City	1.872711e+05	5.504280e+08	POLYG ((6167978. 2208684.2 6170905.86
14	Richmond	http://www.ci.richmond.ca.us	City	4.410034e+05	1.465940e+09	MULTIPOLYG (((6024112. 2177751.5 6024
15	Antioch	http://ci.antioch.ca.us	City	1.921041e+05	8.347368e+08	POLYG ((6183872.) 2196583.0 6184514.82
16	Walnut Creek	http://www.ci.walnut- creek.ca.us	City	3.013035e+05	5.512180e+08	POLYG ((6100470. 2157812.′ 6100459.5§
17	San Ramon	http://www.sanramon.ca.gov	City	1.788288e+05	5.221248e+08	MULTIPOLYG (((6151013. 2099012.5 615
18	Lafayette	http://lovelafayette.org	City	1.430424e+05	4.234762e+08	POLYC ((6099902. 2168174.C 6099865.2
19	Unincorporated	http://www.co.contra- costa.ca.us	County	2.603815e+06	1.356946e+10	MULTIPOLYC (((6131892.) 2102985.8 613'

In []: