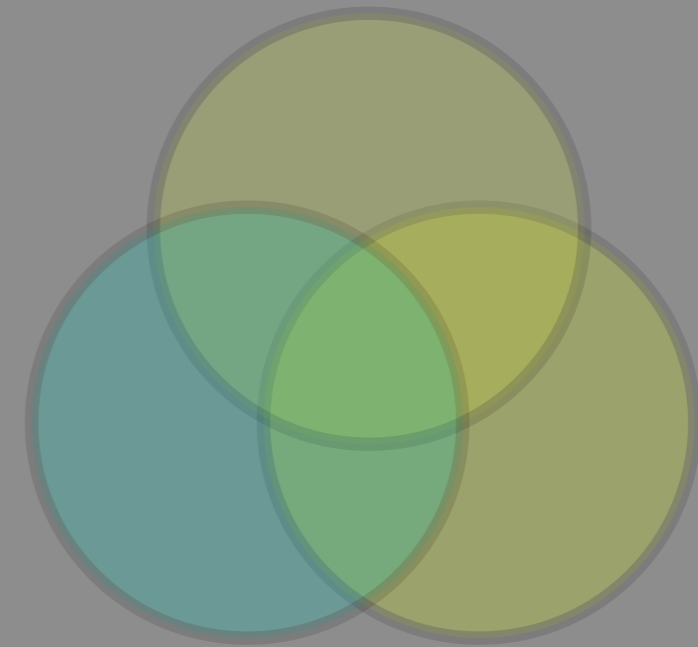


# SHP, SHX, DBF, KML 등 GIS 용어 개념 정리

맵핑스터디



SHP, SHX, DBF, KML

# SHP, SHX, DBF, KML

용어정의와 활용

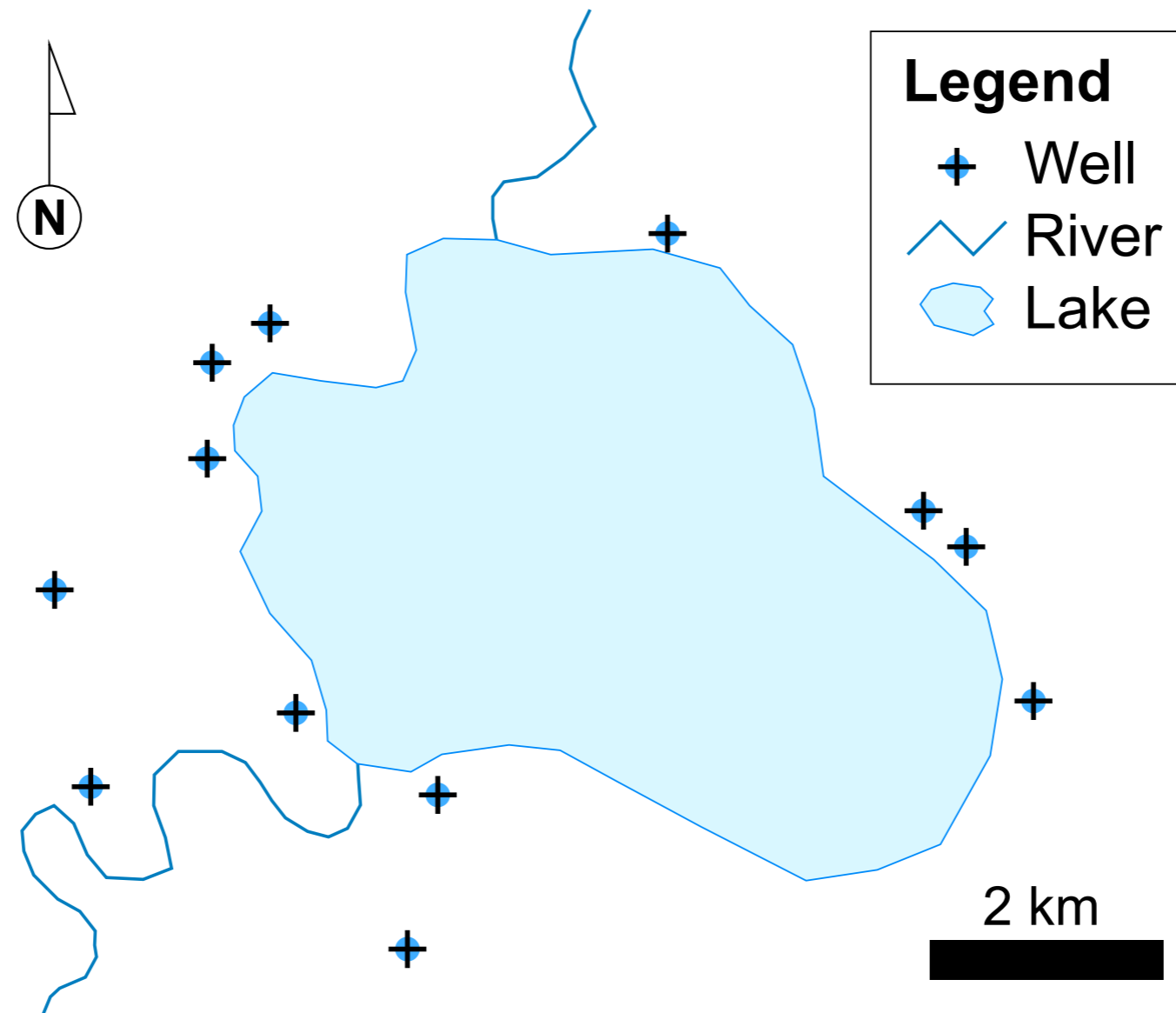


## 김정호의 입장에서 지도를 만든다고 생각해봤음

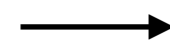
- ❖ 행정구역 경계
- ❖ 산, 강, 하천 등을 표시
- ❖ 성, 관문 등 인공물 경계 등
- ❖ 거기에 자연, 행정구역명, 인공물 이름 등에 대한 속성값 (attribution)
- ❖ 그 속성의 값 (ex. 남대문 높이 = 몇 척)

# SHP, SHX, DBF, KML

용어정의와 활용



오늘날 별반 다를 것이 없음  
디지털에서도 모든 것들이 내포됨



어디에? Shapefile

## Shapefile을 알자

The shapefile format is a popular geospatial **vector** data format for geographic information system (GIS) software. It is developed and regulated by Esri as a (mostly) open specification for data interoperability among Esri and other GIS software products. The shapefile format can spatially describe vector features: **points, lines, and polygons**, representing, for example, water wells, rivers, and lakes. Each item usually has **attributes** that describe it, such as name or temperature.

중요한건 shapefile은 벡터 형식이며 점, 선, 도형으로 표현된다  
또한 그 속성을 지니고 있음

# SHP, SHX, DBF, KML

용어정의와 활용

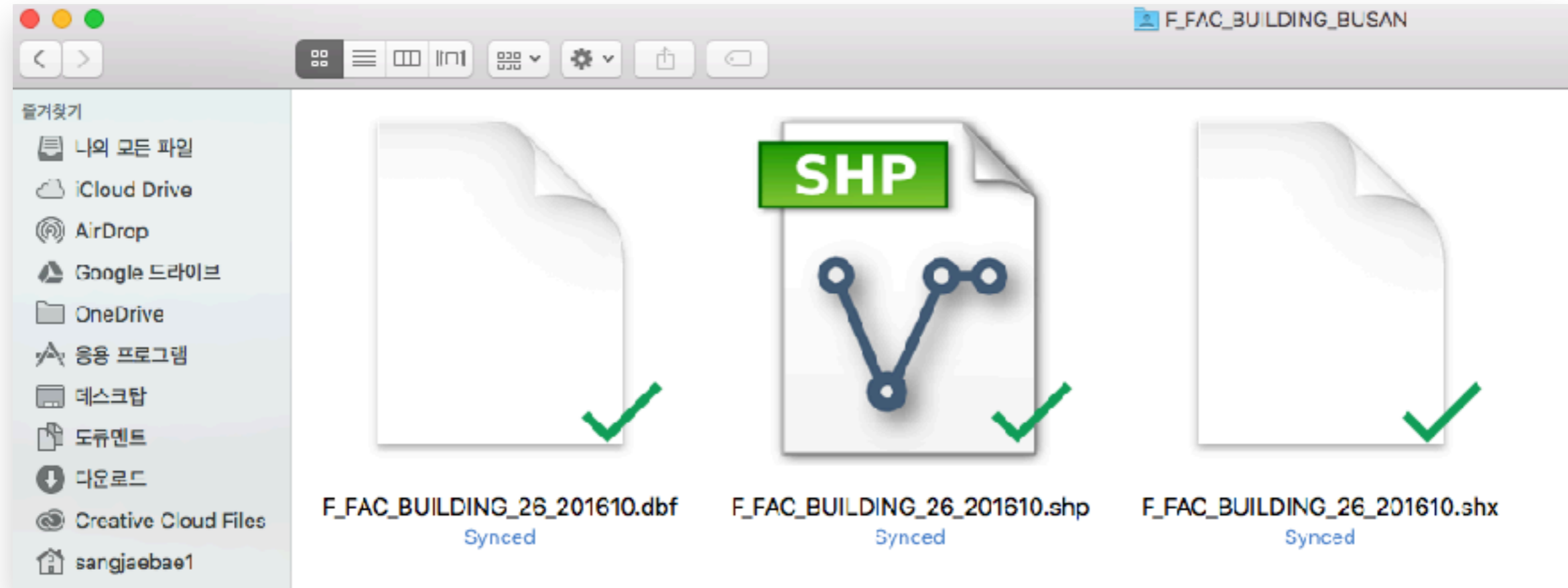
## 오해

The term "shapefile" is quite common, but is **misleading** since the **format consists of a collection of files** with a common filename prefix, stored in the same directory. The three mandatory files have filename extensions **.shp, .shx, and .dbf.**

shapefile을 하나의 파일 포맷이라고 생각하지만  
사실, 3개의 확장 포맷을 통틀어 shapefile이라고 하며  
shp, shx, dbf가 해당 포맷을 뜻함

# SHP, SHX, DBF, KML

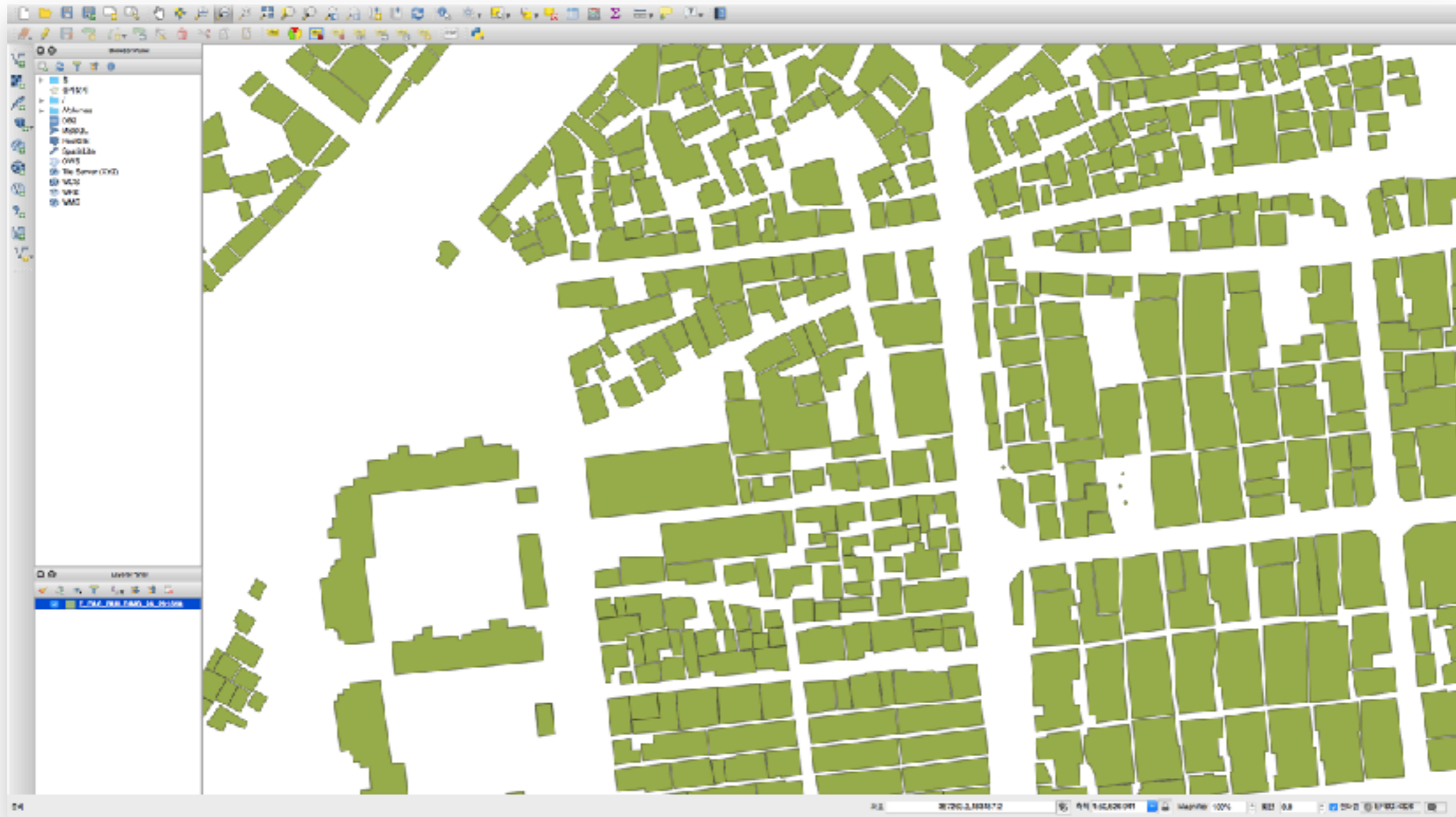
## 용어정의와 활용



국가공간정보포털 오픈마켓에서 건물통합정보\_마스터\_부산광역시 데이터 다운로드  
폴더를 열어보면 앞서 언급했듯이 shp, shx, dbf로 구성된 것을 확인할 수 있었음  
shp는 QGIS바로 실행

# SHP, SHX, DBF, KML

## 용어정의와 활용

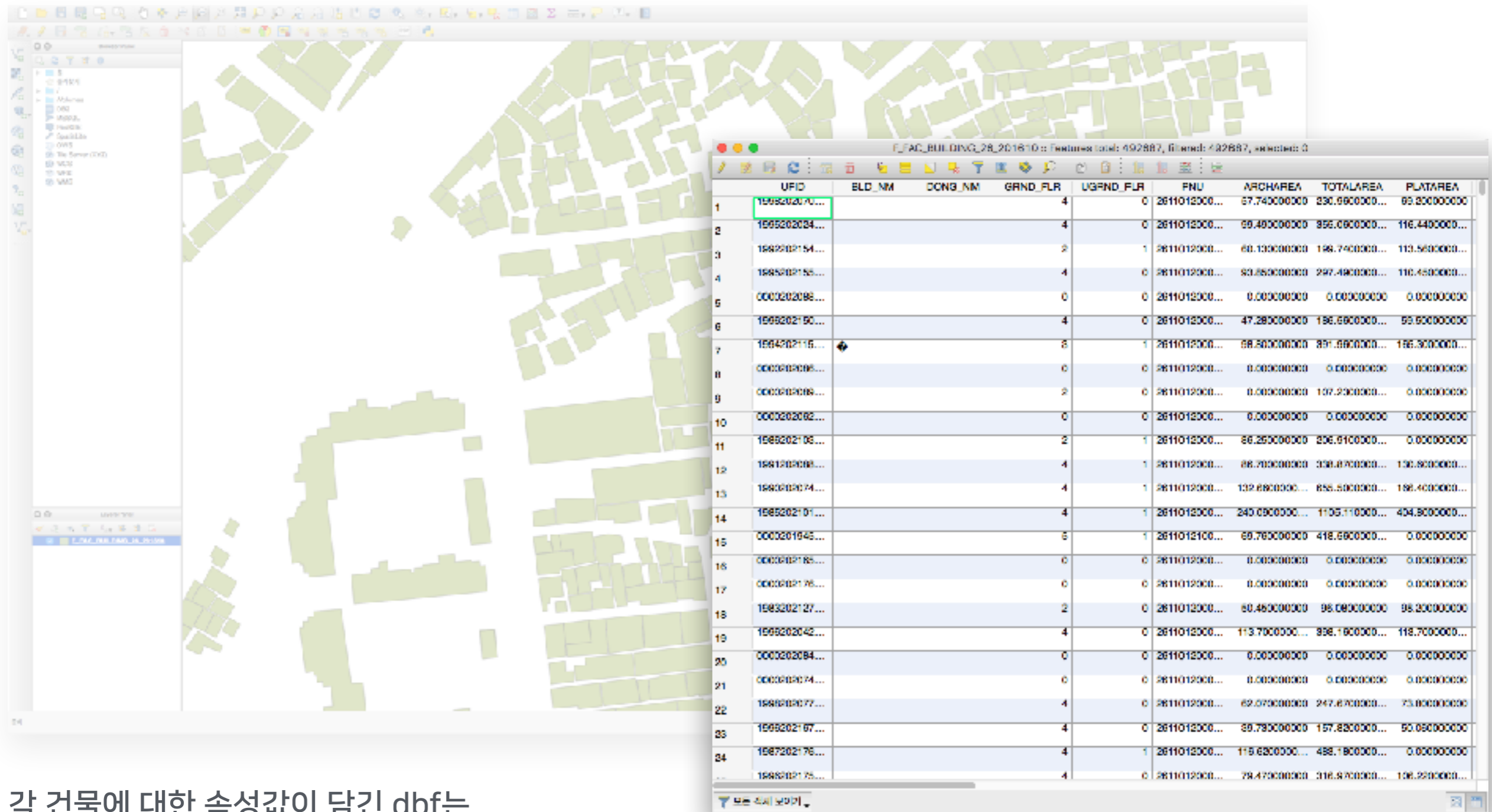


벡터 형식의 건물들이 세밀하게 그려져있음



# SHP, SHX, DBF, KML

## 용어정의와 활용



The image shows a GIS application interface. On the left, a map displays numerous green building footprints. On the right, a data table window is open, showing a list of building features with columns for various attributes. The table has 24 rows and 9 columns. The first row is highlighted in green, corresponding to a building on the map.

|     | UFID          | BLD_NM | DCNG_NM | GRND_FLR | UGRND_FLR | FNU           | ARCHAREA      | TOTALAREA      | PLATAREA      |
|-----|---------------|--------|---------|----------|-----------|---------------|---------------|----------------|---------------|
| 1   | 1995202070... |        |         | 4        | 0         | 261101200...  | 67.74000000   | 230.660000...  | 69.20000000   |
| 2   | 1995202034... |        |         | 4        | 0         | 261101200...  | 69.48000000   | 356.060000...  | 116.440000... |
| 3   | 1995202154... |        |         | 2        | 1         | 261101200...  | 60.10000000   | 198.740000...  | 113.560000... |
| 4   | 1995202155... |        |         | 4        | 0         | 261101200...  | 83.86000000   | 297.490000...  | 110.450000... |
| 5   | 0000202098... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 6   | 1995202150... |        |         | 4        | 0         | 261101200...  | 47.28000000   | 196.660000...  | 59.60000000   |
| 7   | 1995202115... |        |         | 8        | 1         | 261101200...  | 68.50000000   | 351.660000...  | 166.900000... |
| 8   | 0000202095... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 9   | 0000202096... |        |         | 2        | 0         | 261101200...  | 0.00000000    | 107.200000...  | 0.00000000    |
| 10  | 0000202082... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 11  | 1995202108... |        |         | 2        | 1         | 261101200...  | 86.25000000   | 256.610000...  | 0.00000000    |
| 12  | 1995202098... |        |         | 4        | 1         | 261101200...  | 86.70000000   | 358.870000...  | 130.900000... |
| 13  | 1995202074... |        |         | 4        | 1         | 261101200...  | 102.680000... | 355.500000...  | 196.400000... |
| 14  | 1995202101... |        |         | 4        | 1         | 261101200...  | 240.090000... | 1105.110000... | 404.900000... |
| 15  | 0000201945... |        |         | 5        | 1         | 2611012100... | 69.76000000   | 418.660000...  | 0.00000000    |
| 16  | 0000202185... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 17  | 0000202176... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 18  | 1995202127... |        |         | 2        | 0         | 261101200...  | 60.46000000   | 98.08000000    | 98.20000000   |
| 19  | 1995202042... |        |         | 4        | 0         | 261101200...  | 113.700000... | 358.160000...  | 118.700000... |
| 20  | 0000202094... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 21  | 0000202074... |        |         | 0        | 0         | 261101200...  | 0.00000000    | 0.00000000     | 0.00000000    |
| 22  | 1995202077... |        |         | 4        | 0         | 261101200...  | 62.07000000   | 247.670000...  | 73.00000000   |
| 23  | 1995202167... |        |         | 4        | 0         | 261101200...  | 69.79000000   | 157.820000...  | 60.05000000   |
| 24  | 1995202176... |        |         | 4        | 1         | 261101200...  | 119.620000... | 488.180000...  | 0.00000000    |
| ... | 1995202175... |        |         | 4        | 0         | 261101200...  | 78.47000000   | 318.970000...  | 106.220000... |

각 건물에 대한 속성값이 담긴 dbf는 테이블 형식(tidy data)으로 생겼음

# SHP, SHX, DBF, KML

용어정의와 활용

**shp, shx = data (공간 데이터)**

**dbf = information (속성 정보)**

# 그럼 geojson과 topojson은 뭐지?

# SHP, SHX, DBF, KML

용어정의와 활용

QGIS에서는 shapefile을  
분석 혹은 특정 위치(공간)편집으로 활용

그럼 웹과 모바일에 데이터시각화를 하려면?  
Shp 파일포맷은 웹에서 인식하지 못함!!

웹의 형식에 맞는 파일포맷이 필요 = json or xml  
javaScript는 json이 적절

# SHP, SHX, DBF, KML

## 용어정의와 활용



ogr2ogr web client



### Convert to GeoJSON

File\*:   
Must be a supported format. See below.

JSONP Callback:

Source SRS:

Target SRS:

Skip failures  
 Force download

Note: GeoJSON can only support one layer

### Convert From GeoJSON

GeoJSON:

GeoJSON URL:

Output Name:

Skip failures

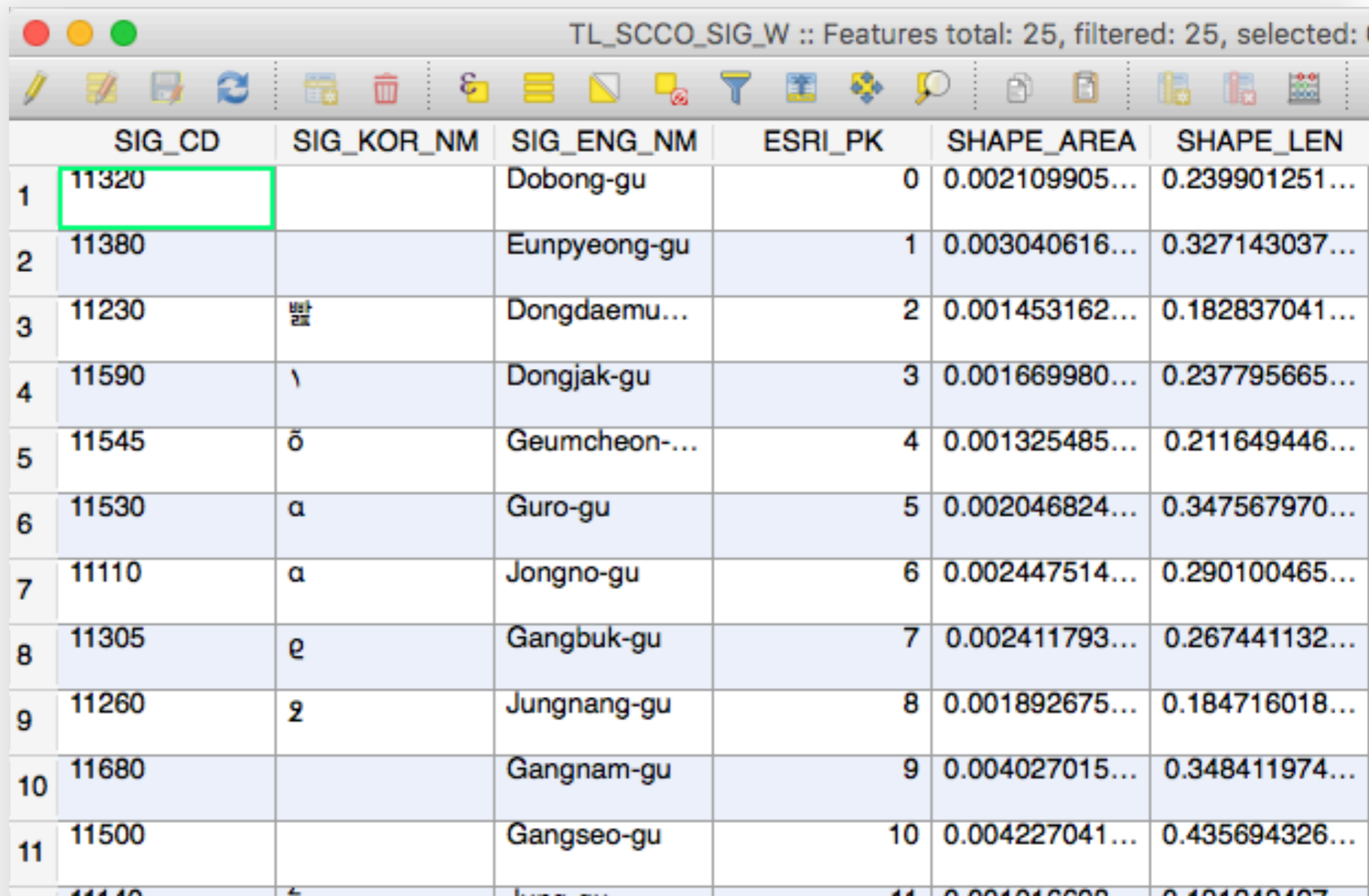
Note: Shapefiles can only support one geometry type

많은 free-converter가 있으므로 활용하면 된다  
<https://ogre.adc4gis.com/>

# SHP, SHX, DBF, KML

## 용어정의와 활용

SIG\_CD / SIG\_KOR\_NM / SIG\_ENG\_NM / ESRI\_PK / SHAPE\_AREA / SHAPE\_LEN  
총 6개의 변수



TL\_SCCO\_SIG\_W :: Features total: 25, filtered: 25, selected: 0

|    | SIG_CD | SIG_KOR_NM | SIG_ENG_NM    | ESRI_PK | SHAPE_AREA     | SHAPE_LEN      |
|----|--------|------------|---------------|---------|----------------|----------------|
| 1  | 11320  |            | Dobong-gu     | 0       | 0.002109905... | 0.239901251... |
| 2  | 11380  |            | Eunpyeong-gu  | 1       | 0.003040616... | 0.327143037... |
| 3  | 11230  | 뚝섬         | Dongdaemu...  | 2       | 0.001453162... | 0.182837041... |
| 4  | 11590  | \          | Dongjak-gu    | 3       | 0.001669980... | 0.237795665... |
| 5  | 11545  | 오          | Geumcheon-... | 4       | 0.001325485... | 0.211649446... |
| 6  | 11530  | α          | Guro-gu       | 5       | 0.002046824... | 0.347567970... |
| 7  | 11110  | α          | Jongno-gu     | 6       | 0.002447514... | 0.290100465... |
| 8  | 11305  | e          | Gangbuk-gu    | 7       | 0.002411793... | 0.267441132... |
| 9  | 11260  | 2          | Jungnang-gu   | 8       | 0.001892675... | 0.184716018... |
| 10 | 11680  |            | Gangnam-gu    | 9       | 0.004027015... | 0.348411974... |
| 11 | 11500  |            | Gangseo-gu    | 10      | 0.004227041... | 0.435694326... |
|    | 11110  | α          | Jongno-gu     | 6       | 0.002447514... | 0.290100465... |

# SHP, SHX, DBF, KML

## 용어정의와 활용

SIG\_CD / SIG\_KOR\_NM / SIG\_ENG\_NM / ESRI\_PK / SHAPE\_AREA / SHAPE\_LEN  
총 6개의 변수

```
{ "type": "FeatureCollection", "features":  
  [ { "type": "Feature", "properties":  
    { "SIG_CD": "11320", "SIG_KOR_NM": "도봉구", "SIG_ENG_NM": "Dobong  
gu", "ESRI_PK": 0, "SHAPE_AREA": 0.00211, "SHAPE_LEN": 0.239901 }  
    , "geometry": null } , { "type": "Feature", "properties":
```



# SHP, SHX, DBF, KML

## 용어정의와 활용

### shp to geojson

```
F_FAC_BUILDING_26_201610.json x Package Control Messages x
1 {"type": "GeometryCollection", "geometries": [
2 {"type": "Polygon", "coordinates": [[[384406.6663542697, 180560.75602503493], [384411.5945480354, 180554.47103276476], [38
3 {"type": "Polygon", "coordinates": [[[384365.06381845474, 180665.3279296495], [384358.3674320448, 180661.95143942535], [38
4 {"type": "Polygon", "coordinates": [[[384497.7088764552, 180530.06115197577], [384490.2623988148, 180528.16052611545], [38
5 {"type": "Polygon", "coordinates": [[[384499.8552755248, 180513.8141439706], [384498.89258510526, 180507.4408674352], [38
6 {"type": "Polygon", "coordinates": [[[384420.97627923544, 180568.17782269046], [384418.8900755951, 180572.40857812017], [38
7 {"type": "Polygon", "coordinates": [[[384493.42833982036, 180483.51635422558], [384486.82305231504, 180479.09104496986],
8 {"type": "Polygon", "coordinates": [[[384462.0921207899, 180499.79856622592], [384460.27924180496, 180495.8997637406], [38
9 {"type": "Polygon", "coordinates": [[[384420.0782152703, 180566.5587945506], [384424.47270313, 180567.46755372547], [3844
0 {"type": "Polygon", "coordinates": [[[384427.5247472897, 180548.47602450475], [384420.3765215948, 180551.65453526936], [38
1 {"type": "Polygon", "coordinates": [[[384397.6045370698, 180566.04744076543], [384393.24176929984, 180573.52451963536], [38
2 {"type": "Polygon", "coordinates": [[[384436.5737880552, 180545.31567311473], [384446.4288320597, 180539.38978151418], [38
3 {"type": "Polygon", "coordinates": [[[384422.9367378354, 180514.30274521932], [384431.6575139202, 180511.0457445141], [38
4 {"type": "Polygon", "coordinates": [[[384419.63383479975, 180469.9489428699], [384413.0465857554, 180465.12374939583], [38
5 {"type": "Polygon", "coordinates": [[[384434.0183913801, 180533.54708613083], [384450.26886588987, 180525.0569552444], [38
6 {"type": "Polygon", "coordinates": [[[384292.65613291506, 180470.84416685998], [384292.6472166348, 180469.79333662428], [38
7 {"type": "Polygon", "coordinates": [[[384499.7490925547, 180547.55295543], [384498.5544514349, 180549.74033738486], [3844
8 {"type": "Polygon", "coordinates": [[[384510.08695001993, 180555.00505666435], [384513.7559005646, 180555.66910286061], [38
9 {"type": "Polygon", "coordinates": [[[384458.65993856546, 180541.75572094508], [384464.15594977513, 180544.11748841032],
0 {"type": "Polygon", "coordinates": [[[384377.9534966601, 180659.76317425072], [384382.4142028149, 180650.89720174484], [38
1 {"type": "Polygon", "coordinates": [[[384419.0020060310, 180573.25725602025], [384415.52022666017, 180577.0241700042], [38
```



# SHP, SHX, DBF, KML

## 용어정의와 활용

### shp to Topojson

```
< > SeoulTopoM.json x
1 {"type":"Topology","objects":{"seoul":{"type":"GeometryCollection","bbox":[126.76426640600005,37.4284
2 "gu":{"type":"GeometryCollection","bbox":[126.76426640600005,37.428455876000044,127.18353760800007,37
3 {"type":"Polygon","properties":{"SGG_CD":11010,"SIGUNGU_NM":"종로구"},"arcs":[[18,19,20,21,22,23,24,2
4 {"type":"Polygon","properties":{"SGG_CD":11020,"SIGUNGU_NM":"중구"},"arcs":[[27,28,29,-24,30,-22,31]]
5 {"type":"Polygon","properties":{"SGG_CD":11030,"SIGUNGU_NM":"용산구"},"arcs":[[32,33,34,35,36,37,38,3
6 {"type":"Polygon","properties":{"SGG_CD":11040,"SIGUNGU_NM":"성동구"},"arcs":[[40,41,-33,-32,42]]},
7 {"type":"Polygon","properties":{"SGG_CD":11050,"SIGUNGU_NM":"광진구"},"arcs":[[43,44,45,-41,46,47,2]]
8 {"type":"Polygon","properties":{"SGG_CD":11060,"SIGUNGU_NM":"동대문구"},"arcs":[[47,-43,-21,48,-19,4
9 {"type":"Polygon","properties":{"SGG_CD":11070,"SIGUNGU_NM":"종랑구"},"arcs":[[48,-51,51,52,1]]},
10 {"type":"Polygon","properties":{"SGG_CD":11080,"SIGUNGU_NM":"성북구"},"arcs":[[53,54,-52,-50,-27,15]]
11 {"type":"Polygon","properties":{"SGG_CD":11090,"SIGUNGU_NM":"강북구"},"arcs":[[55,56,-54,16]]},
12 {"type":"Polygon","properties":{"SGG_CD":11100,"SIGUNGU_NM":"도봉구"},"arcs":[[57,-56,17]]},
13 {"type":"Polygon","properties":{"SGG_CD":11110,"SIGUNGU_NM":"노원구"},"arcs":[[53,-55,-57,-58,0]]},
14 {"type":"Polygon","properties":{"SGG_CD":11120,"SIGUNGU_NM":"은평구"},"arcs":[[26,58,59,13]]},
15 {"type":"Polygon","properties":{"SGG_CD":11130,"SIGUNGU_NM":"서대문구"},"arcs":[[30,60,-59,-25]]},
16 {"type":"Polygon","properties":{"SGG_CD":11140,"SIGUNGU_NM":"마포구"},"arcs":[[61,-29,-40,61,-38,62],
17 {"type":"Polygon","properties":{"SGG_CD":11150,"SIGUNGU_NM":"양천구"},"arcs":[[64,65,10,66]]},
18 {"type":"Polygon","properties":{"SGG_CD":11160,"SIGUNGU_NM":"강서구"},"arcs":[[64,67,-67,11]]},
19 {"type":"Polygon","properties":{"SGG_CD":11170,"SIGUNGU_NM":"구로구"},"arcs":[[68,69,9,-66,70]]},
20 {"type":"Polygon","properties":{"SGG_CD":11180,"SIGUNGU_NM":"금천구"},"arcs":[[71,8,-70]]},
```

# R을 활용한 DBF 편집

# R을 테스트한 이유

용어정의와 활용

```
#install.packages("foreign")
```

```
#library(foreign)
```

```
#import dbf to R
```

```
mydata <- read.dbf("seoul.dbf", as.is = TRUE)
```

```
class(mydata$SIG_KOR_NM
```

```
View(mydata)
```

# R을 테스트한 이유

## 용어정의와 활용

Showing 1 to 14 of 25 entries

|    | SIG_CD | SIG_KOR_NM               | SIG_ENG_NM    | ESRI_PK | SHAPE_AREA  | SHAPE_LEN |
|----|--------|--------------------------|---------------|---------|-------------|-----------|
| 1  | 11320  | <b5><b5><ba><c0><b1><b8> | Dobong-gu     | 0       | 0.002109905 | 0.2399013 |
| 2  | 11380  | <c0><ba><c6><f2><b1><b8> | Eunpyeong-gu  | 1       | 0.003040617 | 0.3271430 |
| 3  | 11230  | <b5><bf><b4>뽕<b1><b8>    | Dongdaemun-gu | 2       | 0.001453163 | 0.1828370 |
| 4  | 11590  | <b5><bf><c0>ㅣ<b8>        | Dongjak-gu    | 3       | 0.001669980 | 0.2377957 |
| 5  | 11545  | <b1><dd>δ<b1><b8>        | Geumcheon-gu  | 4       | 0.001325486 | 0.2116494 |
| 6  | 11530  | <b1><b8><b7>α<b8>        | Guro-gu       | 5       | 0.002046825 | 0.3475680 |
| 7  | 11110  | <c1><be><b7>α<b8>        | Jongno-gu     | 6       | 0.002447515 | 0.2901005 |
| 8  | 11305  | <b0><ad><ba>g<b8>        | Gangbuk-gu    | 7       | 0.002411793 | 0.2674411 |
| 9  | 11260  | <c1>2<fb><b1><b8>        | Jungnang-gu   | 8       | 0.001892675 | 0.1847160 |
| 10 | 11680  | <b0><ad><b3><b2><b1><b8> | Gangnam-gu    | 9       | 0.004027015 | 0.3484120 |
| 11 | 11500  | <b0><ad><bc><ad><b1><b8> | Gangseo-gu    | 10      | 0.004227042 | 0.4356943 |
| 12 | 11140  | <c1>ξ<b8>                | Jung-gu       | 11      | 0.001016698 | 0.1912424 |
| 13 | 11740  | <b0><ad><b5><bf><b1><b8> | Gangdong-gu   | 12      | 0.002504421 | 0.2425955 |
| 14 | 11215  | <b1><a4><c1><f8><b1><b8> | Gwangjin-gu   | 13      | 0.001736505 | 0.1867324 |

# | 감사합니다

배여운

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