Intro to Mapping

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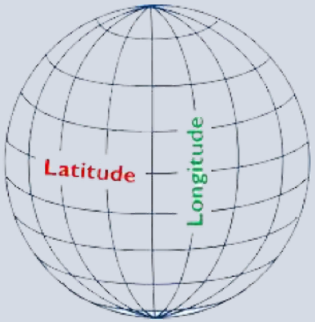
WHAT CAN YOU DO WITH A DIGITAL MAP?

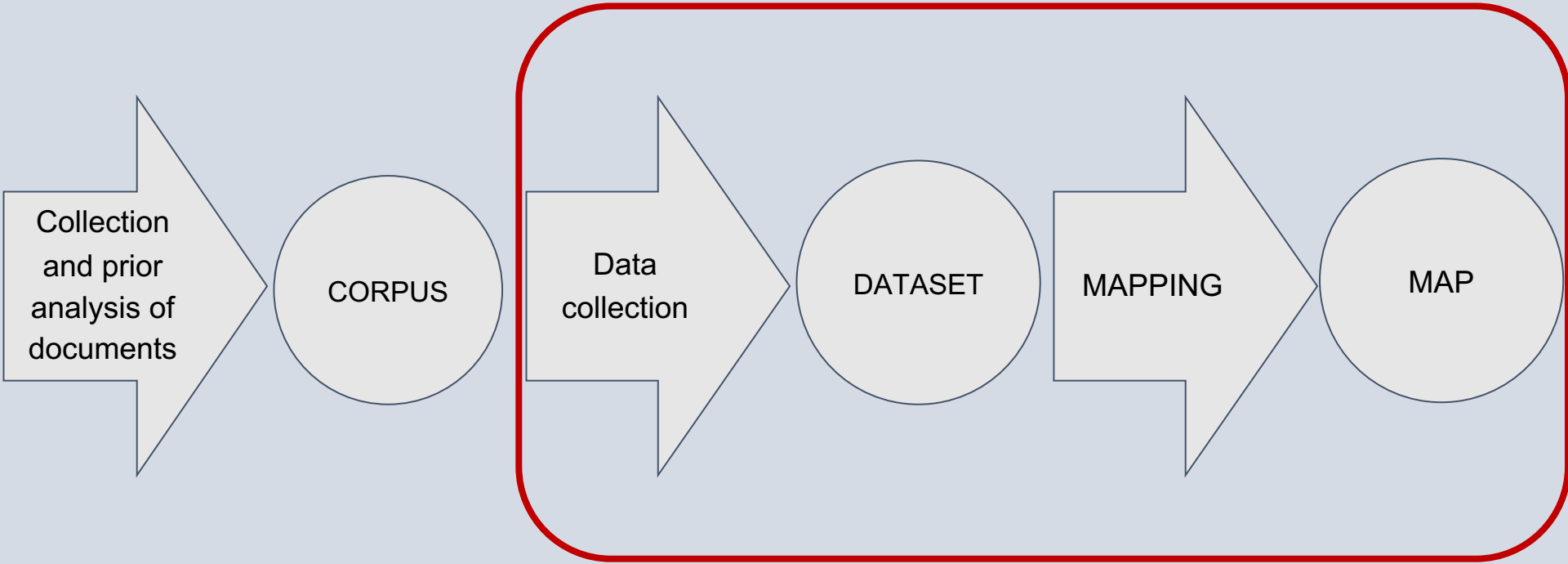


Representing geographical information

Through coordinates

For managing complex contents.

What should a digital cartographer do?



Softwares

- QGIS
- Google Earth
- Excel / OpenOffice
- ArcGIS

Programming languages

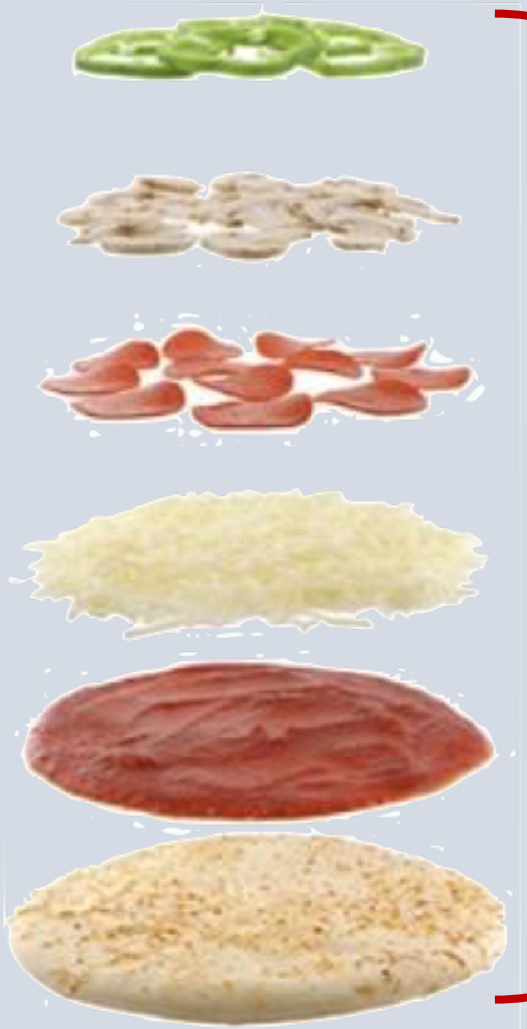
- Java Script
- JSON JavaScript Object Notation
- GEOJSON
- R
- SQL

Applications

- Openrefine
- GeoNames
- Leaflet maps
- Mapbox
- Google Drive
- Khartis

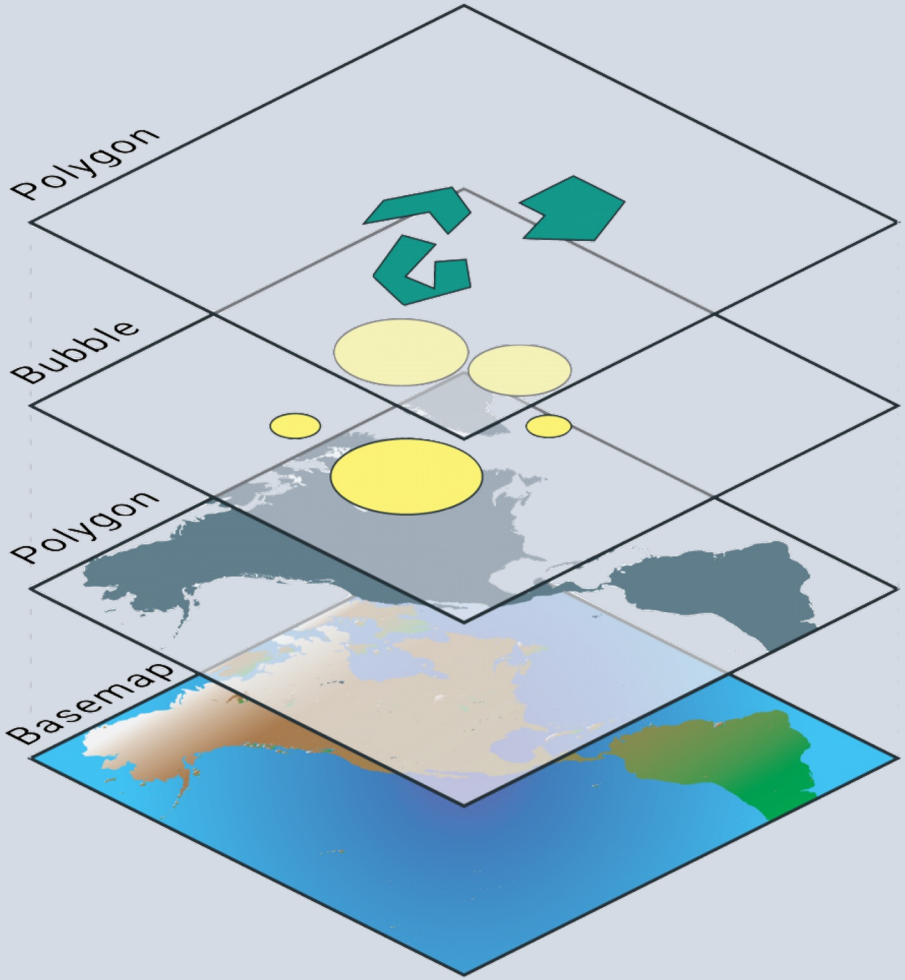
Online Applications

- StoryMapJs
- Map Warper
- Palladio (Standford)
- Recogito
- CartoDB
- ArcGis
- Umap
- GeoJson

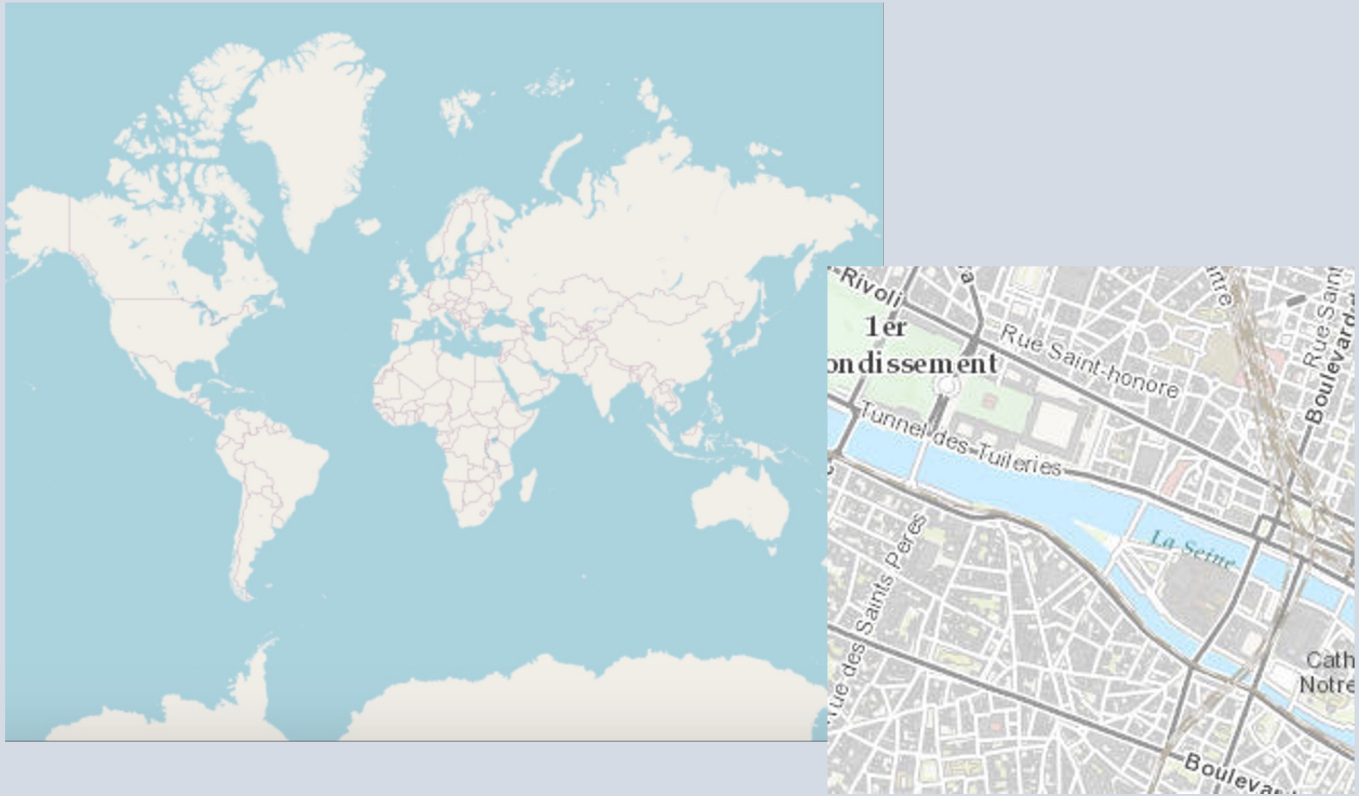


THE LAYER

A key concept in GIS
(Geographic Information System)



Layers



BASEMAP

http://leaflet-extras.github.io/leaflet-providers/preview/index.html

- Points

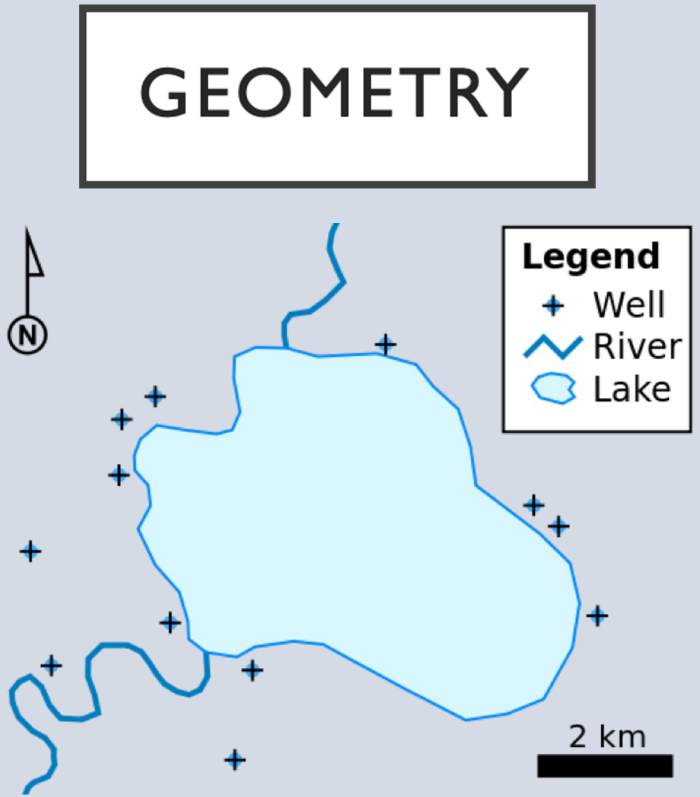
Zero-dimensional points are used for geographical features that can best be expressed by a single point reference.

- Lines or polylines

One-dimensional lines or polylines are used for linear features such as rivers, roads, railroads, trails, and topographic lines.

- Polygons

Two-dimensional polygons are used for geographical features that cover a particular area of the earth's surface.



- **AutoCAD DXF** – contour elevation plots in AutoCAD DXF format (by Autodesk)
- **Cartesian coordinate system** (XYZ) – simple point cloud
- **Digital line graph** (DLG) – a USGS format for vector data
- **Esri TIN** - proprietary binary format for triangulated irregular network data usedby Esri
- **Geography Markup Language** (GML) – XML based open standard (by OpenGIS) for GIS data exchange
- **GeoJSON** – a lightweight format based on JSON, used by many open source GIS packages
- **GeoMedia** – Intergraph's Microsoft Access based format for spatial vector storage
- **ISFC** – Intergraph's MicroStation based CAD solution attaching vector elements to a relational Microsoft Access database
- **Keyhole Markup Language** (KML) – XML based open standard (by OpenGIS) for GIS data exchange
- **MapInfo TAB format** – MapInfo's vector data format using TAB, DAT, ID and MAP files
- **Measure Map Pro format** – XML data format to store GIS data
- **National Transfer Format** (NTF) – National Transfer Format (mostly used by the UK Ordnance Survey)
- **Spatialite** – is a spatial extension to SQLite, providing vector geodatabasefunctionality. It is similar to PostGIS, Oracle Spatial, and SQL Server with spatialextensions
- **Shapefile** – a popular vector data GIS format, developed by Esri
- **Simple Features** – Open Geospatial Consortium specification for vector data
- **SOSI** – a spatial data format used for all public exchange of spatial data in Norway
- **Spatial Data File** – Autodesk's high-performance geodatabase format, native to MapGuide
- **TIGER** – Topologically Integrated Geographic Encoding and Referencing
- **Vector Product Format** (VPF) – National Geospatial-Intelligence Agency (NGA)'sformat of vectored data for large geographic databases

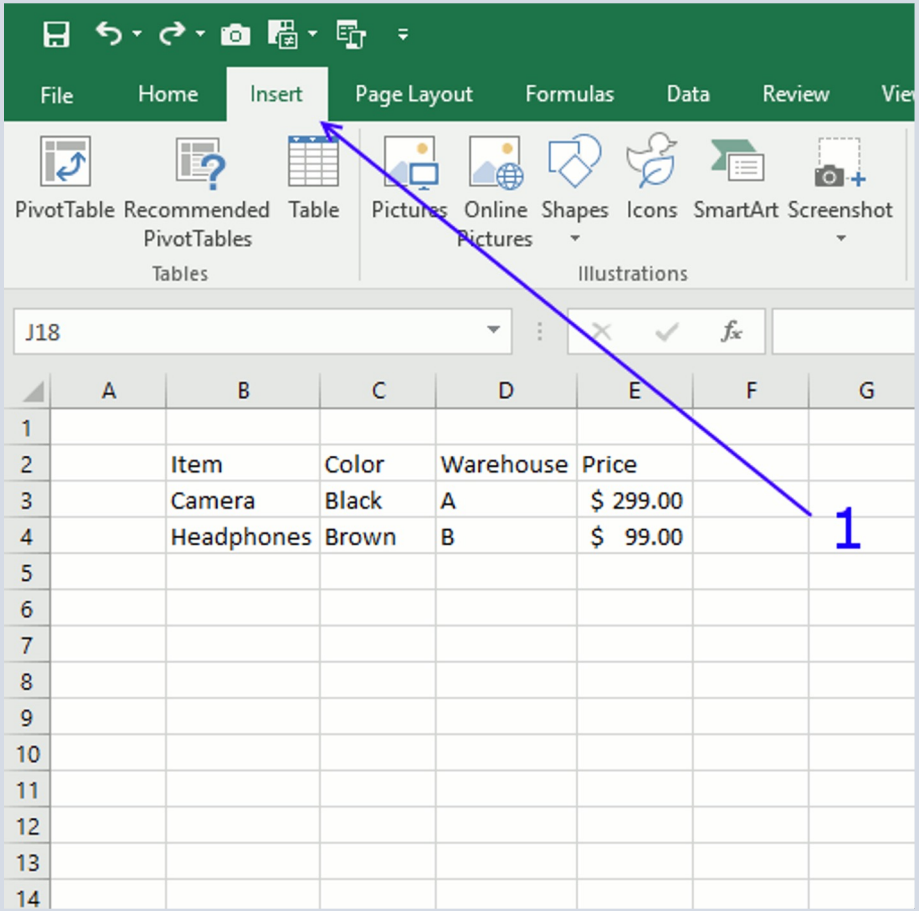
GeoJSON – a lightweight format based on JSON, used by many open source GIS packages

Keyhole Markup Language (KML) – XML based open standard (by OpenGIS) for GIS data exchange

Shapefile – a popular vector data GIS format, developed by Esri

- **Esri grid** – proprietary binary and metadataless ASCII raster formats used by Esri
- **GeoTIFF** – TIFF variant enriched with GIS relevant metadata
- IMG – ERDAS IMAGINE image file format
- **JPEG2000** – Open-source raster format. A compressed format, allows both lossyand lossless compression.
- **MrSID** – Multi-Resolution Seamless Image Database (by Lizardtech). A compressed wavelet format, allows both lossy and lossless compression.
- **GeoTIFF** – TIFF variant enriched with GIS relevant metadata

RASTER



TABLES

- Microsoft Excel
- OpenOffice spreadsheet
- OpenRefine
- Plan texts softwares

DATASET EXAMPLES

	A	B	C	D	E	F	G	H
1	Toponimo	geonames	AdminName	Population	Lat	Long	Il partigianc	Column 13
2	Alba	{"totalResul	Piedmont	24923	44.6999	8.0347	54	405
3	Alessandria	{"totalResul	Piedmont	64178	44.90924	8.61007	2	2
4	Asti	{"totalResul	Piedmont	61254	44.90162	8.20751	15	101
5	Avene	{"totalResultsCount":0,"geonames":[]}					4	6
6	Barbaresco	{"totalResul	Piedmont	677	44.72324	8.08194	2	6

1	Musique	Paroles	Chansonnier	Chason	Lieu	Recourrenc	Extract	Album	Date	Lat	Long
2	Georges Cl	Georges Cl	Georges Charle	Corne d'Au	Allemagne	2	Parce que (	La Mauvais	1954-01-01	52,51487	13,39174
3	Georges Cl	Georges Cl	Georges Charle	L'Ancêtre	Beaujolais	1	Saumur, Er	Misogynie à	1969-01-01	46,11763	4,721087
4	Georges Cl	Georges Cl	Georges Charle	L'Ancêtre	Bercy	1	On avait ap	Misogynie à	1969-01-01	48,83873	2,378491
5	Georges Cl	Georges Cl	Georges Charle	L'Ancêtre	Bicêtre	1	Quand nou	Misogynie à	1969-01-01	48,81058	2,352169
6	Georges Cl	Georges Cl	Georges Charle	De place er	Brantôme	1	On s'appell	Le Pornogr	1958-01-01	45,36684	0,650483
7	Georges Cl	Georges Cl	Georges Charle	Corne d'Au	Corne d'Au	10	Il avait nom	La Mauvais	1954-01-01	45,44037	4,390324
8	Georges Cl	Georges Cl	Georges Charle	Supplique p	Espagne	1	Tantôt vena	Supplique p	1966-01-01	40,41853	-3,700148

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1	Name Place	Lat,lng	Lat	Long	270bis	ADL 122	Alessandro	Amici del V	Banda Bass	Bandabardò	Casa del ver	CCCP	Claudio Lol	CSI	Disciplinath	Fabrizio de	Fascist pop	Fiamma Fun	Folkabbesti	Francesco D	Francesco G	Franco Batt	Gang	Hobbit	Ivan della M	Janus	La compagn	Left-wing p	Legittima of	Massimo Bu	Massimo Ma	Mercanti di	Michele di I
2	Adda	{"totalResu	-12,2925	44,49722																												1	
3	Adige	{"totalResu	46,5	11,33333																												1	
4	Adriatico	{"totalResu	43	16							1																					1	
5	Africa	{"totalResu	7,1881	21,09375	1				2		1								1	18	1	1											
6	Agrigento	{"totalResu	37,31065	13,57661																								1					
7	Alaska	{"totalResu	64,00028	-150,0003								1																					
8	Albania	{"totalResu	41	20															1	1	1	1		1				2					
9	Alessandria	{"totalResu	31,20176	29,91582																		1											
10	Algeria	{"totalResu	28	3																								1					
11	Alpi	{"totalResu	43,70313	7,26608	1																1						2				1		

CSV FORMAT

adjusters.csv

```
1 ID,Firstname,pyLabel,HourlyRate,PhoneNumber
2 1,John,Smith,25.00,678-999-0001
3 2,Ted,Turner,175.25,+1-676-676-6666
4 3,Frederick,Jones,50.00,111 222 3333
5 4,Alice,Miller,75,561-999-8888
```

GOLDEN LISTS

File Edit View Insert Format Data Tools Add-ons Help Last edit was made 2 hours ago by Zach Napolitano

Lato 10

fx First Name

	A	B	C	D	E	F	G
1	First Name	Last Name	Email	Company	Job Title	Lists	Tags
2	Buckaroo	Banzai	buckaroo@oneclipboard.com	Wonka Industries	VP of Misc. Stuff	Table 1, VIP	Tech
3	Snake	Plissken	snake@oneclipboard.com	Wonka Industries	Director of First Impressions	Table 2	Sports
4	Eve	Harrington	eve.harrington@oneclipboard.com	Wonka Industries	Arts and Crafts Designer	Table 3	Finance
5	Sidney	Mussburger	sidney@oneclipboard.com	Stark Industries	Director, Ethical Hacking	table 1	Government, Nuclear
6	Charles	Kane	charles.kane@oneclipboard.com	Stark Industries	Master of Disaster	table 2	Education
7	Donnie	Darko	donnie.darko@oneclipboard.com	Stark Industries	Crayon Evangelist	Table 1	Engineering
8	Santanico	Pandemonium	santanico@oneclipboard.com	Stark Industries	Creator of opportunities	Table 2	Automotive
9	Broomhilda	von Shaft	broomhilda@oneclipboard.com	Stark Industries	Ambassador of buzz	Table 3	AI
10	Barton	Fink	barton.fink@oneclipboard.com	Gekko & Co	Chief Cheerleader	table 1, VIP	Legal
11	CC	Baxter	cc.baxter@oneclipboard.com	Gekko & Co	Chief Amazement Officer	table 2	Healthcare
12	Cosmo	Brown	cosmo.brown@oneclipboard.com	Gekko & Co	Chief robot whisperer	Table 1	Tech
13	Lili	Von Shtupp	vonshtupp@oneclipboard.com	Gekko & Co	Director of bean-counting	Table 2	Sports
14	Vincent	Vega	vince.vega@oneclipboard.com	Gekko & Co	Software ninjaneer	Table 3	Finance
15	Sy	Snootles	sy@oneclipboard.com	Wayne Enterprises	Digital overlord	table 1, VIP	Government
16	Lancaster	Dodd	lancaster@oneclipboard.com	Wayne Enterprises	Wizard of light bulb moments	table 2	Education
17	Verbal	Kint	verbal@oneclipboard.com	Wayne Enterprises	Social Media Trailblazer	Table 1	Engineering
18	Vincent	Majestyk	vince.majestyk@oneclipboard.com	Wayne Enterprises	World Changer	Table 2	Automotive
19	Max	Dembo	max.dembo@oneclipboard.com	Cyberdyne Systems	VP of Misc. Stuff	Table 3	AI
20	Archer	Maggot	archer@oneclipboard.com	Cyberdyne Systems	Director of First Impressions	table 1	Legal
21	Lee	Christmas	lee.xmas@oneclipboard.com	Cyberdyne Systems	Arts and Crafts Designer	table 2	Healthcare
22	Elle	Driver	elle.driver@oneclipboard.com	Cyberdyne Systems	Director, Ethical Hacking	Table 1, VIP	Tech
23	Phillip	Vandamm	phil.vandamm@oneclipboard.com	Duff Beer	Master of Disaster	Table 2	Sports
24	Cole	Trickle	cole.trickle@oneclipboard.com	Sterling Cooper	Crayon Evangelist	Table 3	Finance

Basic List | Copy of Basic List | Standard | Copy of Standard | GOLDEN | Copy of GOLDEN | UMG | VIEWING PARTY | AMEX

CSV – A comma-separated values (CSV) file is a delimited text file that uses a comma to separate values. Each line of the file is a data record. Each record consists of one or more fields, separated by

Sublime Text File Edit Selection Find View Goto Tools Project Window Help

places_qgis.csv

places_qgis.csv

```
id,label,country,role,lat,lng
001c,Rome,Italy,city,41.89414308,12.49307223
002c,Florence,Italy,city,43.77621845,11.25504161
003c,Paris,France,city,48.86358095 ,2.338131193
004c,Edinburgh,Scotland,city,55.95060885,55.95060885
005c,London,England,city,51.51378154,-0.124979086
006c,Prague,Czech Republic,city,50.0935165,14.40107022
007c,Venice,Italy,city,45.44179165,12.33922884
008c,Brisbane,Australia,city,-27.43466517,153.0259711
009c,Kyoto,Japan,city,35.04954543,135.7188243
010c,Rio de Janeiro,Brazil,city,-22.921474274989013,-43.20845057
011c,San Sebastién,Spain,city,43.35648637,-1.982197354
012c,Seville,Spain,city,37.38762646,-5.991109883
013c,Sydney,Australia,city,-33.84108339,151.2175773
014c,Vancouver,Canada,city,49.27765269,-123.1033069
```

GeoJSON – a lightweight format based on JSON, used by many open source GIS packages

Sublime Text File Edit Selection Find View Goto Tools Project Window Help 100% Sun 16

places_qgis.geojson.txt

places_qgis.geojson.txt


```
{"type":"FeatureCollection","features":[{"type":"Feature","properties":{"id":"001c","label":"Rome","country":"Italy","role":"city"},"geometry":{"type":"Po
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eometry":{"type":"Point","coordinates":[2.338131193,48.86358095]}},{"type":"Feature","properties":{"id":"004c","label":"Edinburgh","country":"Scotland","r
ole":"city"},"geometry":{"type":"Point","coordinates":[55.95060885,55.95060885]}},{"type":"Feature","properties":{"id":"005c","label":"London","country":"
England","role":"city"},"geometry":{"type":"Point","coordinates":[-0.124979086,51.51378154]}},{"type":"Feature","properties":{"id":"006c","label":"Prague"
,"country":"Czech Republic","role":"city"},"geometry":{"type":"Point","coordinates":[14.40107022,50.0935165]}},{"type":"Feature","properties":{"id":"007c"
,"label":"Venice","country":"Italy","role":"city"},"geometry":{"type":"Point","coordinates":[12.33922884,45.44179165]}},{"type":"Feature","properties":{"i
d":"008c","label":"Brisbane","country":"Australia","role":"city"},"geometry":{"type":"Point","coordinates":[153.0259711,-27.43466517]}},{"type":"Feature",
"properties":{"id":"009c","label":"Kyoto","country":"Japan","role"
:"city"},"geometry":{"type":"Point","coordinates":[135.7188243,35.04954543]}},{"type":"Feature","properties":{"id":"010c","label":"Rio de Janeiro","countr
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operties":{"id":"013c","label":"Sydney","country":"Australia","role":"city"},"geometry":{"type":"Point","coordinates":[151.2175773,-33.84108339]}},{"type"
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```
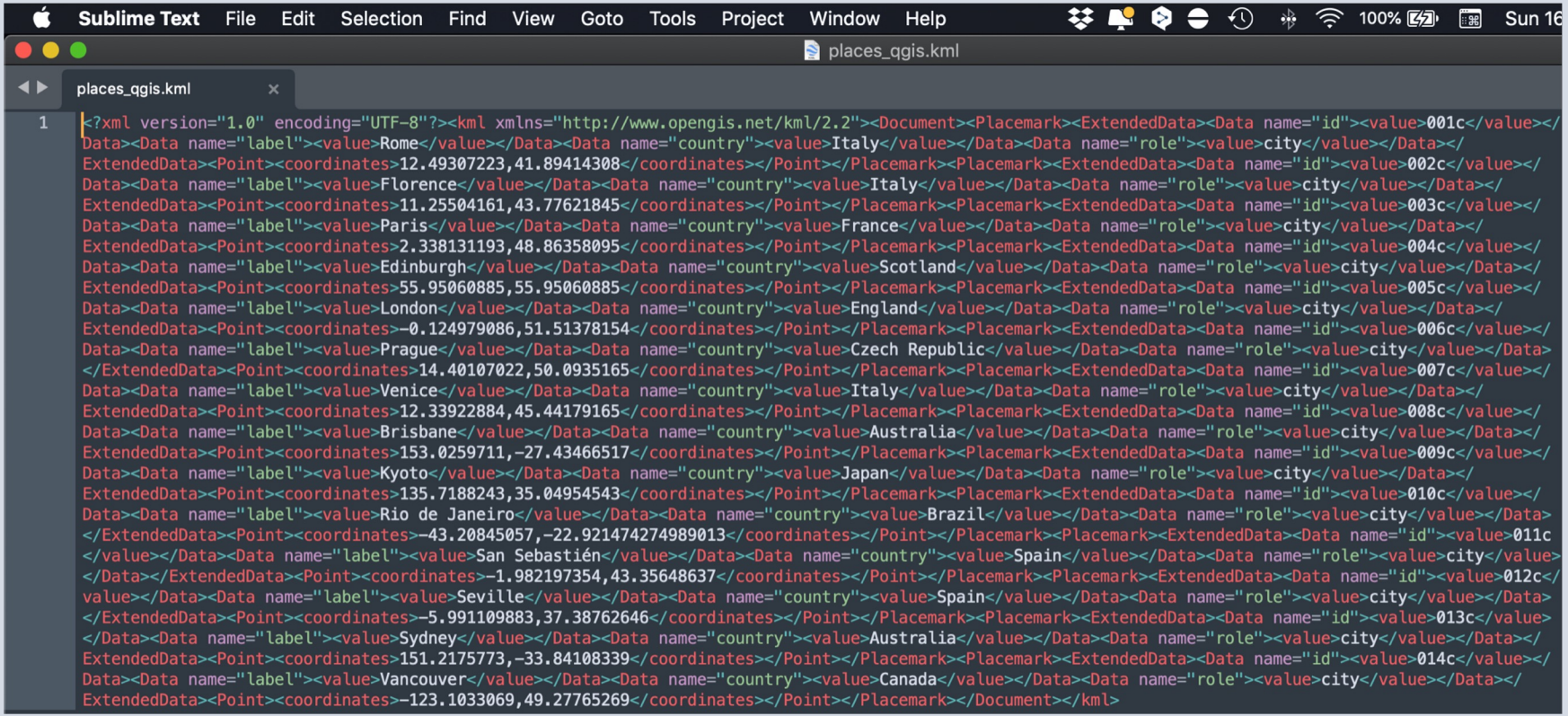

Keyhole Markup Language (KML) – XML based open standard (by OpenGIS) for GIS data exchange



Shapefile – a popular vector data GIS format, developed by Esri

Name	Date Modified	Size	Kind
places_qgis.cpg	Today at 14:36	5 bytes	Document
places_qgis.csv	Today at 14:29	765 bytes	Comm...et (.csv)
places_qgis.dbf	Today at 14:36	15 KB	OpenO...cument
places_qgis.prj	Today at 14:36	145 bytes	Document
places_qgis.shp	Today at 14:36	492 bytes	ESRI S...cument
places_qgis.shx	Today at 14:36	212 bytes	Document

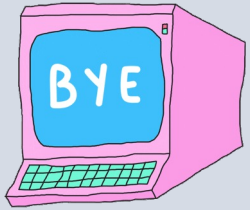
Examples:

- Atlas Nazi-Fascist Repression
  - Github: https://bit.ly/atlas_repression_github
  - Article: https://bit.ly/atlas_article
  - Map: https://bit.ly/atlas_repression

- French Theatre 17th century
  - Github: https://bit.ly/french_theatre_17_github
  - Artile: https://bit.ly/theatre_of_places
  - Map: https://bit.ly/french_theatre_17

Data:

- Pizza Map: https://bit.ly/pizzamap_url
- GADM: https://gadm.org
- GeoFile Data Converter: https://mygeodata.cloud



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