

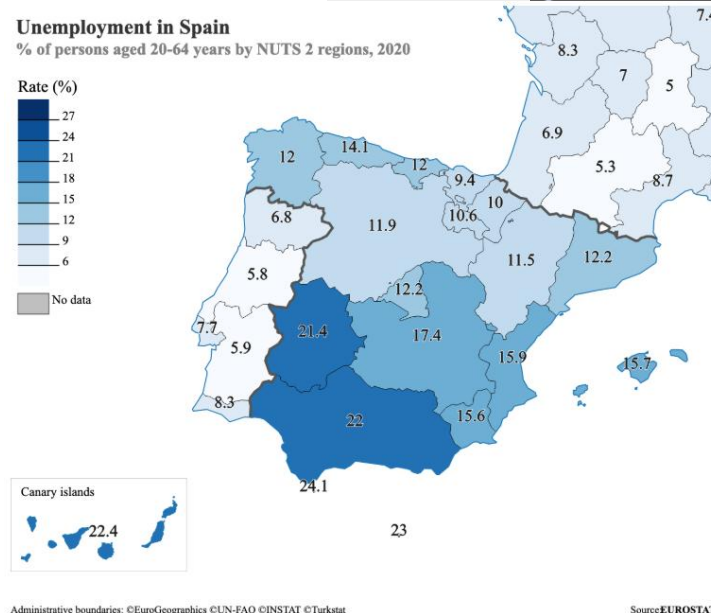


# Getting to know QGIS

## Lab\_02: Working with OSM data

Layer Properties - City\_Blocks — Symbology

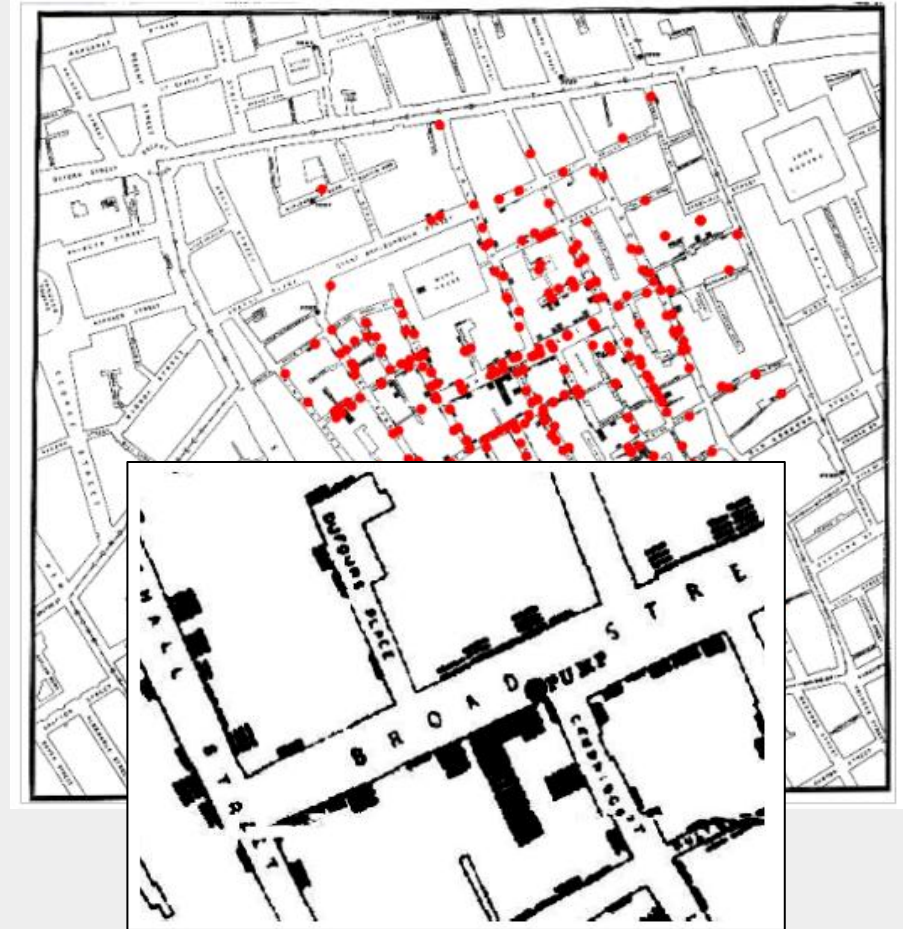
- 
- seven common methods
- Mode: Equal Interval
- Legend format: %1 - %2
- Color ramp: Yellow to Red
- Classes: Histogram
- | Symbol   | Values          | Legend     |
|--|-----------------|------------|
| <input checked="" type="checkbox"/> [Yellow]       | 0.000 - 1.000   | 0 - 1      |
| <input checked="" type="checkbox"/> [Light Orange] | 1.000 - 3.000   | 1 - 3      |
| <input checked="" type="checkbox"/> [Orange]       | 3.000 - 8.400   | 3 - 8.4    |
| <input checked="" type="checkbox"/> [Dark Orange]  | 8.400 - 20.800  | 8.4 - 20.8 |
| <input checked="" type="checkbox"/> [Red]          | 20.800 - 66.000 | 20.8 - 66  |
- Blending mode: Normal
- Style: Style



<https://data.europa.eu/apps/data-visualisation-guide/choropleth-maps>

# Geocoding

- Geocoding is the process of converting a location description, such as an address into geographic coordinates (latitude & longitude)
- John Snow recorded the number of cholera cases at each address
- Geocoding opens the door to many analysis processes in GIS



# GIS, a layer cake of info

A GIS can be considered a ***layer cake*** of info as it organizes different types of geographic data that are stacked on top of each other to create a complete picture

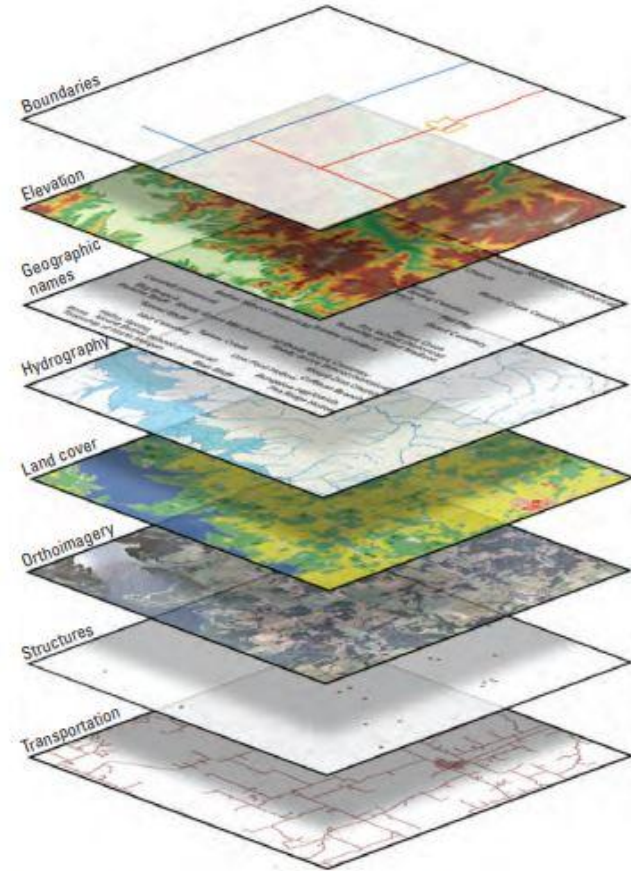
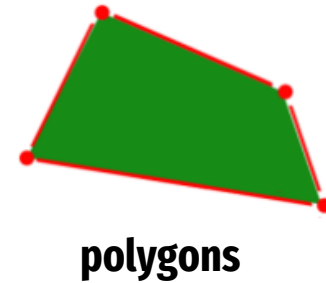
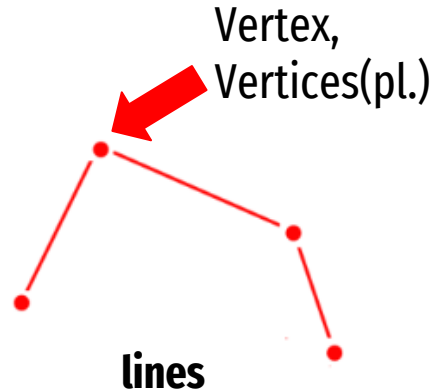
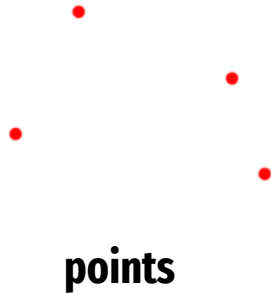


Figure 1. Eight base layers of The National Map.

# Layer cake's components

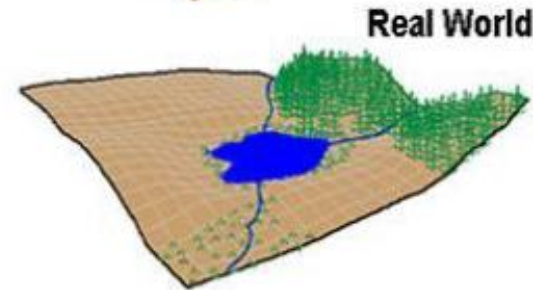
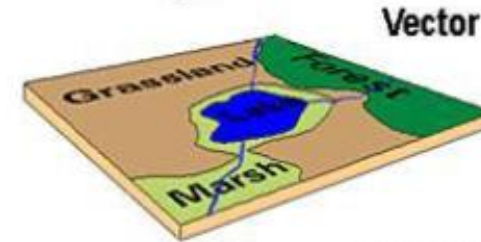
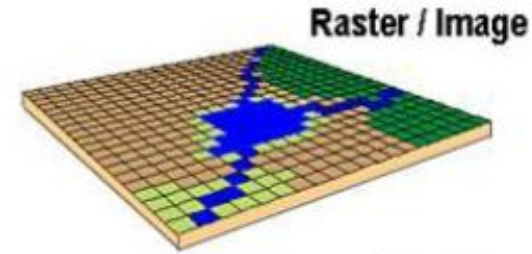
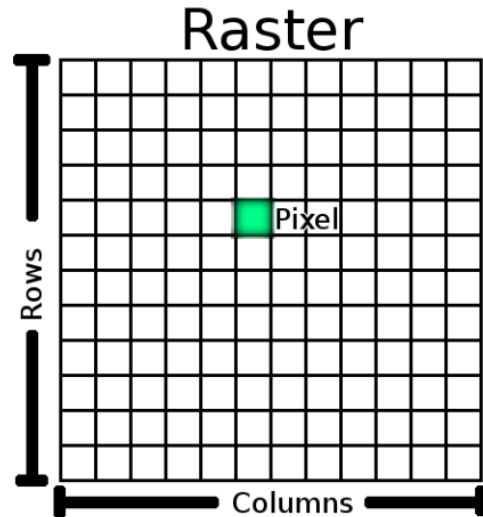
## Vector data



<https://gisgeography.com/spatial-data-types-vector-raster/>

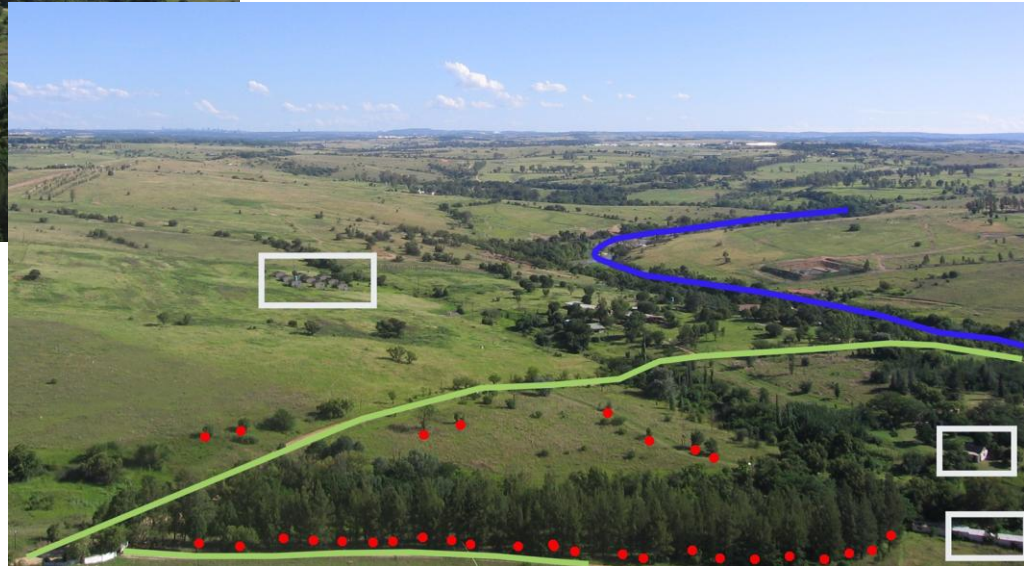
# Layer cake's components (continuation)

## Raster data



Pedrinis, Frédéric. (2017). Représentations et dynamique de la ville virtuelle





[https://docs.qgis.org/3.40/en/docs/gentle\\_gis\\_introduction/vector\\_data.html](https://docs.qgis.org/3.40/en/docs/gentle_gis_introduction/vector_data.html)

# Comparison table

*Raster is vaster, vector  
is corrector*

## Vector data

- Use points, lines and polygons to represent features
- Resolution is determined by precision of vertices coordinates
- Efficiently represents discrete data
- Spatial relationships exist

## Raster data

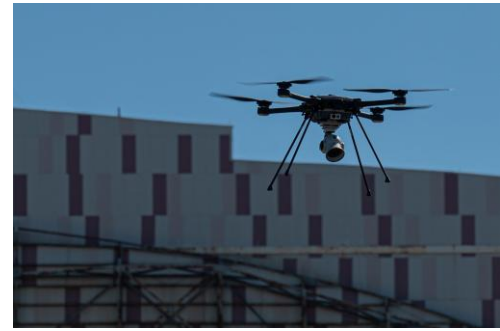
- Represented as 2D array of brightness values for pixels
- Resolution is determined by pixel size
- Efficiently represents continuous data
- Spatial relationships do not exist

Abubahia, Ahmed & Haig, Ella. (2017). Advancements in GIS map copyright protection schemes - a critical review. Multimedia Tools and Applications. 76. 10.1007/s11042-016-3441-z.

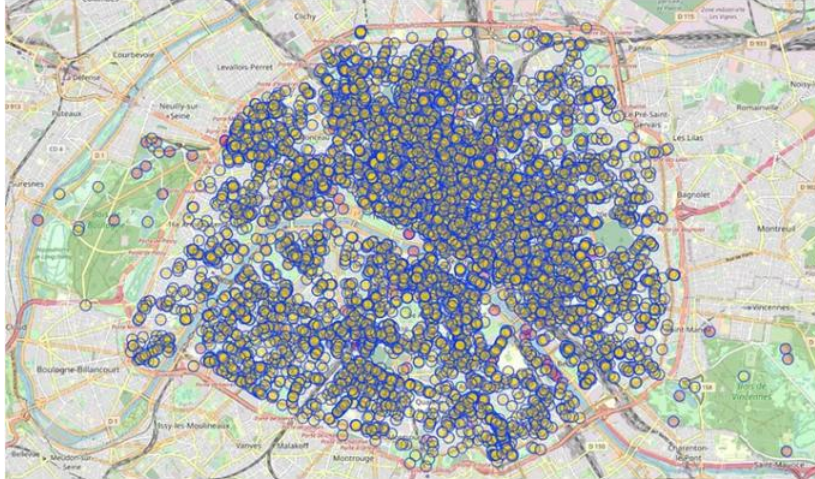


# Data Sources

- Data acquisition can take up to 70% of the time & cost
- Where does your **spatial data** come from?
- Examples of spatial data
- Post a data source you have worked with in the past, or are familiar with, in our Discussions field



# OSM data



Results of the query on Overpass turbo  
(Paris restaurants 2023)

<https://tinyurl.com/2s36h3y8>

- Is a collaborative online mapping platform (VGI)
- Launched in 2004
- It is free & open source mapping service like Google maps
- Offers detailed geographic data such as buildings, parks, public transport etc
- Overpass API



# QGIS Plugins



## Most downloaded Plugins

**QGIS** About Resources Community Download Donate

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**Most Downloaded Plugins**

List of approved plugins sorted by the number of downloads.  
2608 records found

Grid View Table View Sort by: - -

**QuickMapServices**  
by NextGIS

Easy to add basemaps and geoservices

Oct 5, 2025 ★★★★★ (3105)

Download 9,405,942

**QuickOSM**  
by Etienne Trimaille

Download OSM data thanks to the Overpass API. You can also open local OSM or PBF files. A special parser, ...

Apr 3, 2025 ★★★★★ (892)

Download 2,419,102

**Semi-Automatic Classification Plugin**  
by Luca Congedo

The Semi-Automatic Classification Plugin (SCP) allows for the supervised classification of remote sensing images, providing tools for the download, the ...

Nov 16, 2024 ★★★★★ (1080)

Download 2,370,512

**HCMGIS**  
by Thang Quach

HCMGIS - Basemaps, Download OpenData, Batch Converter, VN-2000 Projections, and Field

**mmgis**  
by Michael Minn

A collection of QGIS vector layer operation plugins

**Lat Lon Tools**  
by Calvin Hamilton

Tools to capture and zoom to coordinates using decimal, DMS, WKT, GeoJSON, MGRS, UTM, UPS.

## QGIS Plugins dashboard

### Overview

Total Plugins Available

2,829  
2025  
↑ 18.27% vs. previous year: 2,392

32,553,110  
Total Downloads ⓘ

<https://plugins.qgis.org/metabase/public/dashboard/7ecd345f-7321-423d-9844-71e526a454a9>

402.467 / Applied GIS  
Fundamentals

# Q&A & wrap-up

- ❑ Can anyone think of a scenario where you might use choropleth maps or geocoding in a project?
- ❑ Why do you think working with plugins is so important in GIS? How do you see them helping you with your assignments or future work?