Spatial Databases (2/3)
INFO-H-415

Université Libre de Bruxelles

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Recap PostGIS

- ▶ Extension of PostgreSQL for spatial relations
- ▶ Example :

Country ⚓
name
population
capital •
rivers (1,n) ⋈

  - ▶ Create the database (easy)
  - ▶ Create table with name and population (easy)
  - ▶ Add the spatial columns
    - ▶ different possibilities !

What are the possibilities? (in PostGIS)

- Line, points, polygons . . .

    1. geography columns → spherical representation
        - fewer native functions
        - easier
        - computationnaly expensive

    2. geometry columns → planar representation
        - need an appropriate reference system (define our plane)
          → WGS 84, EPSG 3812 (Belgian Lambert 2018), . . .
        - distortion !
        - larger number of native functions

- Generally: small scale → geometry
             large scale → geography

References systems

- Some functions need particular reference systems
  - ST_Distance returns a result in same units as the reference system
  - ST_Length2DSpheroid(geometry, spheroid): needs a spheroid reference

- At the examination it will be simplified:
  - everything in the same reference system
  - simplified functions: ST_Length(geometry)

What is new for today ?

▶ Fields with location dependant attributes $\rightarrow$ Rasters
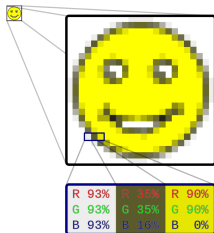
▶ Examples:
  ▶ hight
  ▶ temperature
  ▶ population density
  ▶ ...