

Spatial Databases (2/3)



INFO-H-415

Université Libre de Bruxelles

December 10, 2018

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
 - ▶ computationally 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

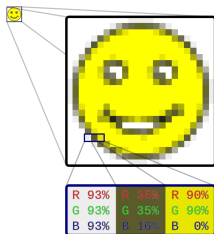
References systems

- ▶ 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 → Rasters



- ▶ Examples:
 - ▶ hight
 - ▶ temperature
 - ▶ population density
 - ▶ ...