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

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Recap PostGIS

- Extension of PostgreSQL for spatial relations
- Example:

<table>
<thead>
<tr>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
</tr>
<tr>
<td>population</td>
</tr>
<tr>
<td>capital</td>
</tr>
<tr>
<td>rivers (1,n)</td>
</tr>
</tbody>
</table>

- 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:

- height
- temperature
- population density
- ...