

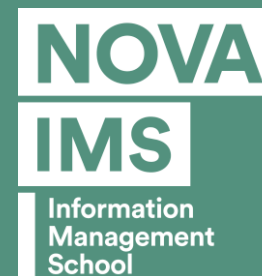
Urban places and regions in GIScience

Concepts, methods and challenges

Exercise

CityMe

cityme.novaims.unl.pt



FCT
Fundação
para a Ciência
e a Tecnologia



Context



Exercise

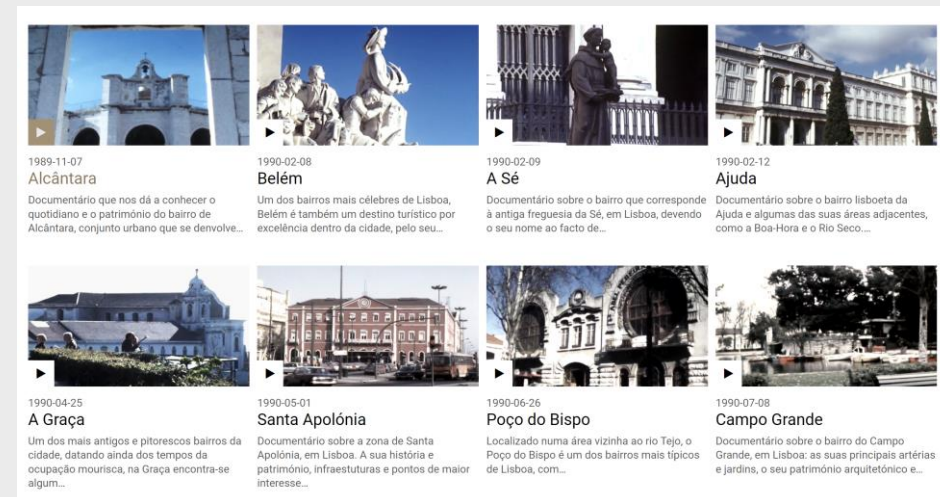
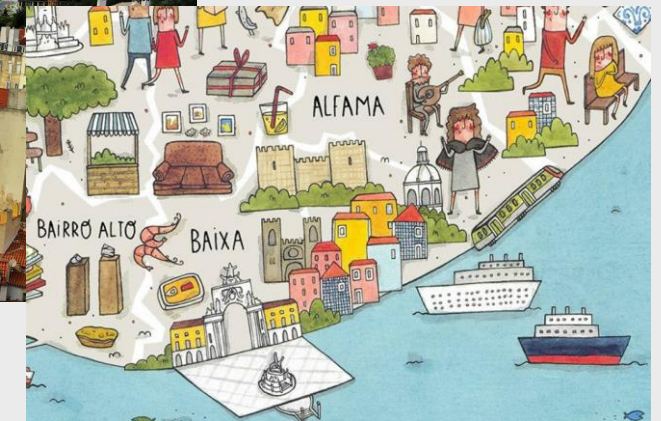
Mapping historic neighborhoods in Lisbon

- Context
- **Lisbon** – a southern European city with a complex urbanistic history and home to hundreds of traditional and historic “neighborhoods”
- **Neighborhoods (“Bairros”)** – local communities, specific identities, historic particularities, important regions that tells us the different stories of the city and its people

lisbosecreta.co



Jornal Público



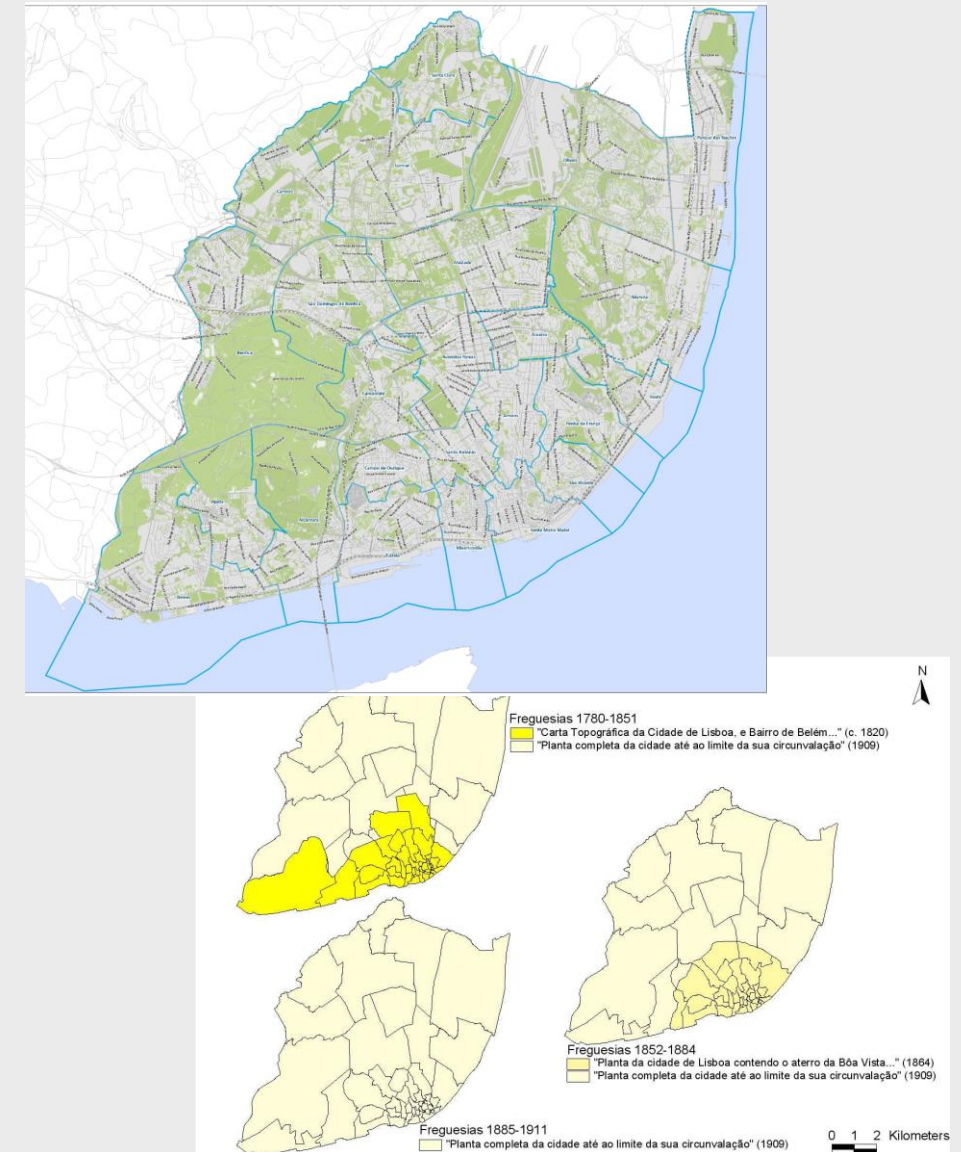
RTP Archive

Exercise

Mapping historic neighborhoods in Lisbon

- Context
- **Vernacular and historic** – strong cultural identities, intense tourist activity and problems with gentrification, touristification, overtourism and Airbnb
- **Civil parishes** – are the smallest administrative units in Portugal, in cities, they act as the official sub-urban jurisdictions
- **Bairros** – different levels of spatial formalization (planning, heritage, etc) but not necessarily attached to official parishes, their core can lie within and across administrative zones

Lisboa Aberta, City Council



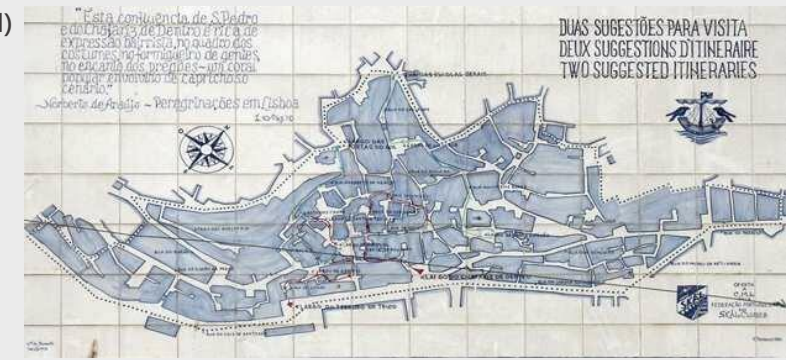
Alves (2004)

Exercise

Mapping historic neighborhoods in Lisbon

- Context
- **Alfama** – Lisbon's oldest neighborhood, dates back to the Middle Ages, home to Fado, a traditional Portuguese folk music
- Old **narrow streets** and **alleyways** with Moorish influenced urban fabric and architecture
- Extends from a **hill** to the Tagus river, traditionally a lower-income neighborhood (fisherman), have been facing problems of gentrification and overtourism

Benis (2011)



Data



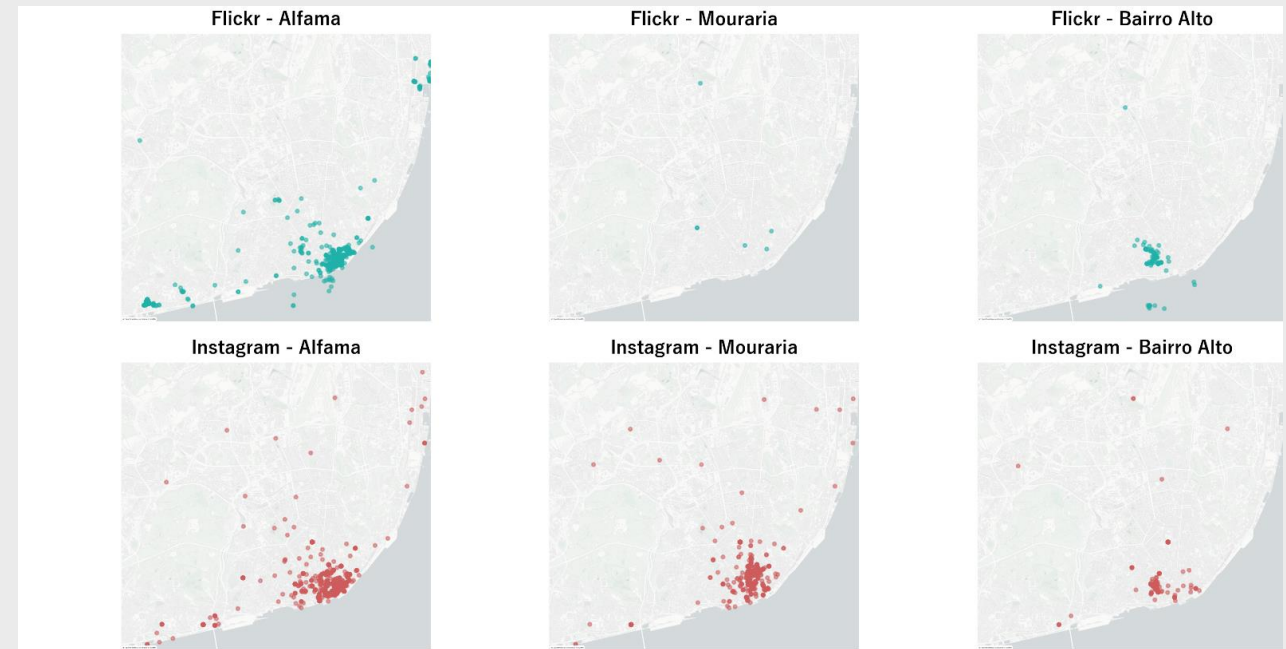
Exercise

Mapping historic neighborhoods in Lisbon

- Data – CityMe project

Geo-tagged online activity from:

- Twitter (**twitter.csv**)
- Flickr (**flickr.csv**)
- Instagram (**instagram.csv**)
- AirBnb (**airbnb.csv**)



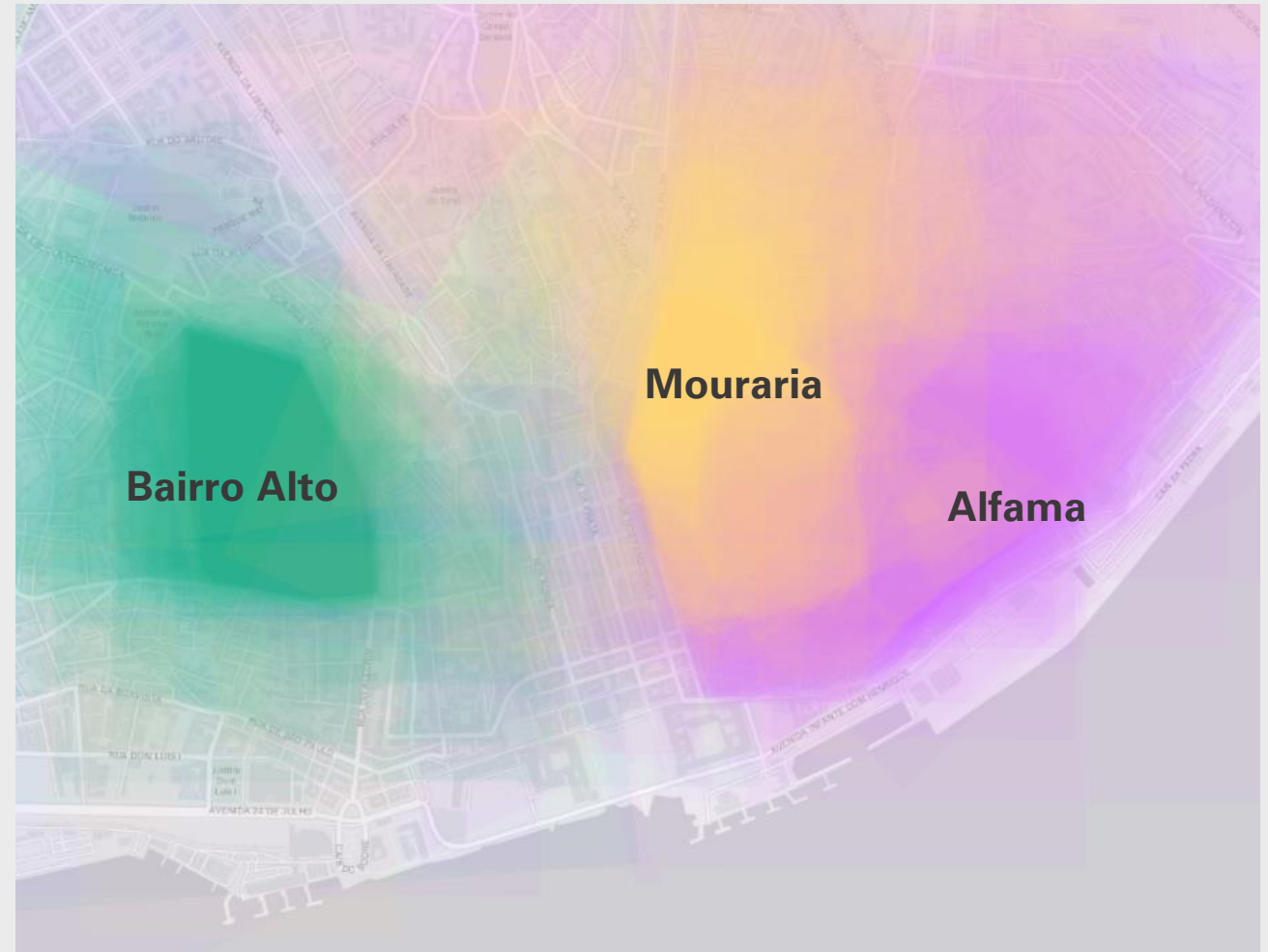
Exercise

Mapping historic neighborhoods in Lisbon

- Data – CityMe project

Sketched polygons from the survey:

- Alfama (alfama_survey.shp)
- Mouraria (mouraria_survey.shp)
- Bairro Alto (bairro_survey.shp)



Objectives and steps



Exercise

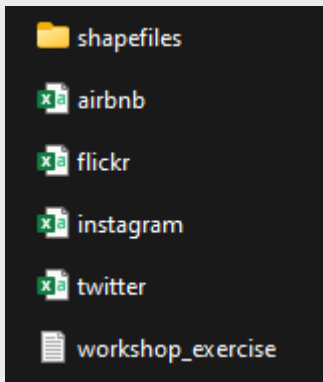
Mapping historic neighborhoods in Lisbon

- Objectives
 - Visualizing geo-tagged online data
 - Extracting neighborhood names
 - Generating clusters and shapes of each neighborhood
 - Checking their spatial overlap
- Visualizing survey sketches
- Checking their spatial overlap
- Comparing outputs

Exercise

Mapping historic neighborhoods in Lisbon

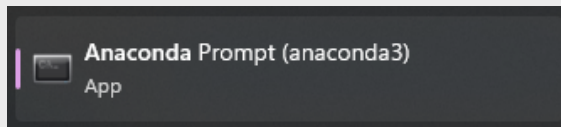
- Steps
 1. Go to the project's GitHub and download data and jupyter notebook
https://github.com/CityMe-project/workshop_exercise
 2. Unzip shapefiles
 3. Add to a folder named "shapefiles"
 4. Organize files within the same folder:



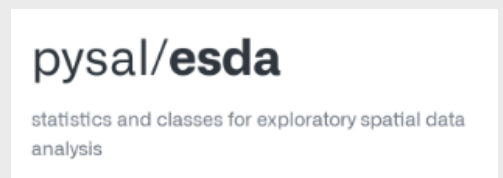
Exercise

Mapping historic neighborhoods in Lisbon

- Steps
5. If not downloaded, download Anaconda <https://www.anaconda.com/>
 6. Open the Anaconda Prompt



7. **Create environment:** `conda create --name exercise`
8. **Install packages we will need in the environment**
 - `conda install --channel conda-forge geopandas`
 - `///` or `conda for:`
 - `pip install contextily`
 - `pip install matplotlib-scalebar`
 - `pip install libpysal`
 - `pip install esda`
 - `pip install numba`



Exercise

Mapping historic neighborhoods in Lisbon

- Steps

9. In the Anaconda prompt, make sure you are inside the environment (conda activate exercise) and open your Jupyter Notebook or Lab

pip install notebook

run "jupyter notebook"

or

pip install jupyterlab

run "jupyter-lab"

or

run Jupyter notebook or Jupyter lab through Anaconda (make sure you set the exercise environment)

10. Open notebook in your local files and start following the exercise!

Exercise

- If you want to modify any steps of the analysis and visualization, feel free!
- Send us your unique outputs to vtang@novaims.unl.pt

Wrap-up



Wrap-up

Why mapping regions?

- Lisbon's historic neighborhoods, known as "Bairros," have significant cultural identities and **play a crucial role in telling the stories of the city and its people**
- **Partitioning a city** can be done through various approaches, including administrative divisions, thematic regions, functional regions, and cognitive regions
- Describing and mapping these neighborhoods is important to understand people's perspectives, conceptualizations, and **mental maps of the urban structure and space.**
- **Proper spatial unit analysis** helps address societal concerns such as poverty, social inequity, racial segregation, child development, public health, lifestyle choices, political behavior, public services, real estate, and crime.

Wrap-up

How?

- **Mapping techniques** can involve participant-based methods, user-generated content analysis, and the combination of surveys and online data.
- **Considerations** in mapping include time, cost, representativeness of the sample, bias, data enrichment, visualization, and dealing with vagueness and qualitative information.
- **User-generated content** provides an extra dimension to mapping, capturing human-environment interactions, activities, functions, places, flows, sentiment, and perception.
- **Challenges with user-generated content** include biases, ground-truth validation, precision, scale, granularity, reduction to points, and the need for combining multiple data sources to extract comprehensive information.

Wrap-up

What is missing?

- **Loss of detail and context:** regions and places contain intricate details, nuances, and contextual information that cannot be adequately captured by a single point or region
- **Oversimplification and generalization:** points and regions provide a simplified and generalized view of reality. They tend to homogenize diverse characteristics and overlook spatial variations within a given area.
- **Vagueness and boundaries:** neighborhoods or cognitive regions are inherently vague and lack precisely defined boundaries
- **Dynamic and time:** places and regions are dynamic and change over time. They may evolve, shift, or adapt based on various socio-cultural, economic, or environmental factors.

What are the possibilities to enrich information and overcome simplifications?

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