CARTO

Spatial Data Science Conference

Integrating CARTOframes into Spatial Data Science workflows

Introductions

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Data Science Workflows using CARTOframes

HOW IT WORKS

CARTO turns your Location Data Into Business Outcomes

Whether it's more efficient delivery routes, strategic store placements or targeted geomarketing campaigns - CARTO makes it simple in 5 key steps:

Data Ingestion

Data Enrichment

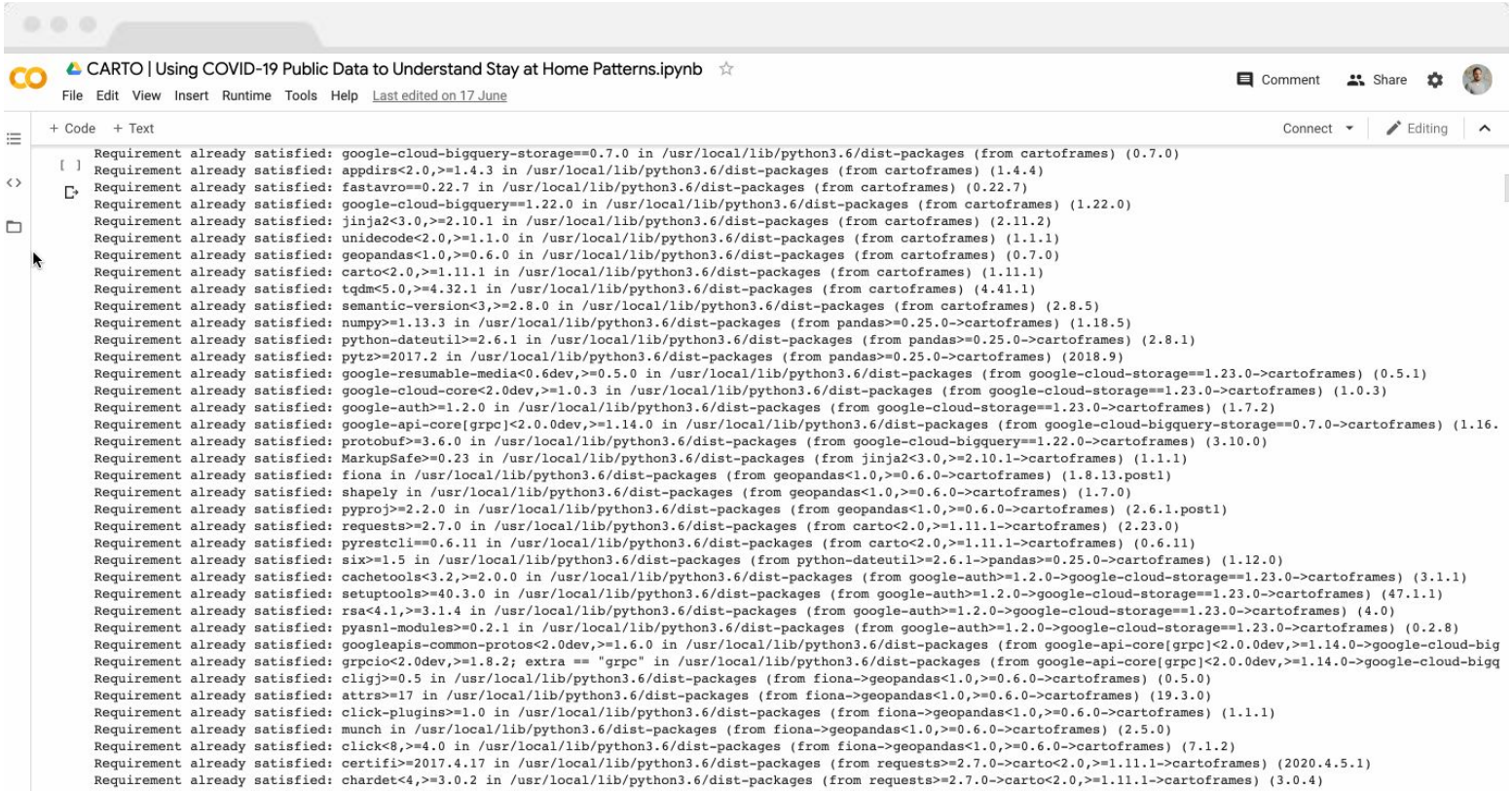
Analysis

Solutions & Visualization

Integrations

CARTOframes

A Python Library to Facilitate your Spatial Data Analysis Workflow



Why CARTOframes?

Powering end-to-end data science workflows

Explore

Clean, geocode, and visualize your data straight out of Jupyter notebooks.

Enrich

Access a wide range of datasets - all on standardized spatial aggregations to reduce your time to insight.

Analyze

Get insights from your data using our API and your own libraries, functions, and workflows.

Share

Once your analysis is done, add widgets and share your results.

1. Explore

➔ Manage your data

Load a CSV file
Load data from a CSV file

Load a JSON file
Load data from a JSON file

Load a GeoJSON file
Load data from a GeoJSON file

Load a shapefile
Load data from a shapefile

Load a CARTO table
Load data from a CARTO table

Load a CARTO SQL query
Load data from a CARTO table using a SQL Query

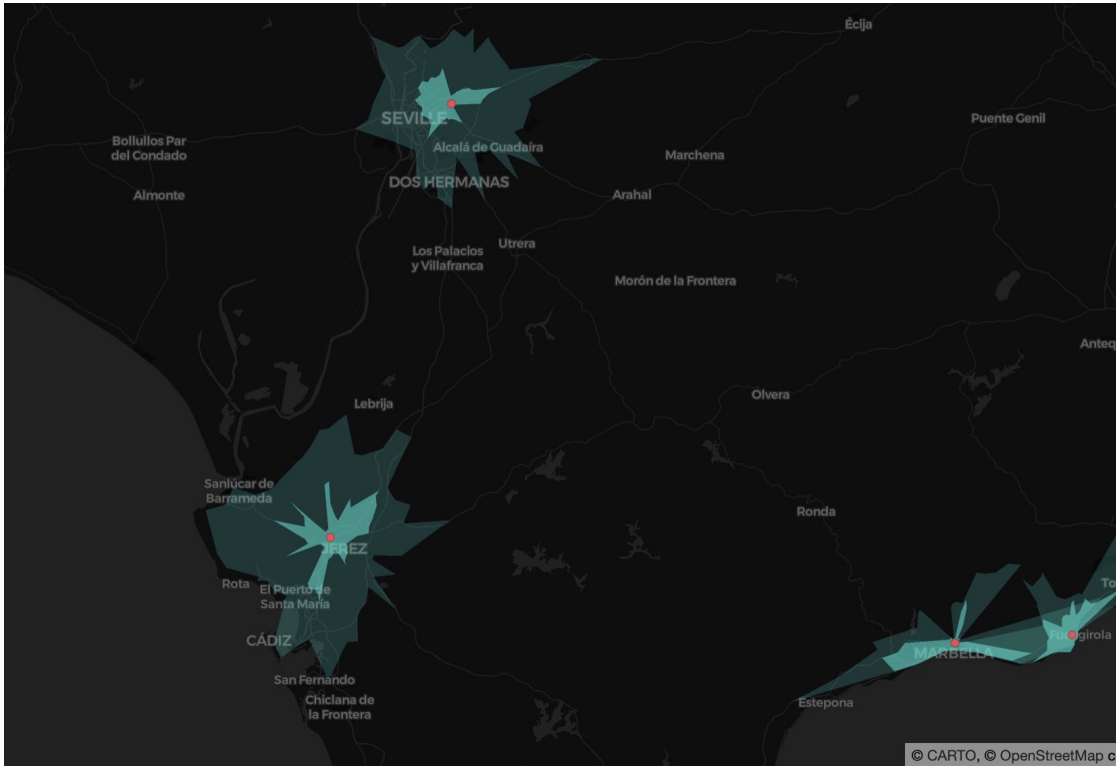
Upload to CARTO
Upload data to CARTO

Change CARTO table privacy
Change the privacy of a CARTO table

1. Explore

➔ Get your data ready

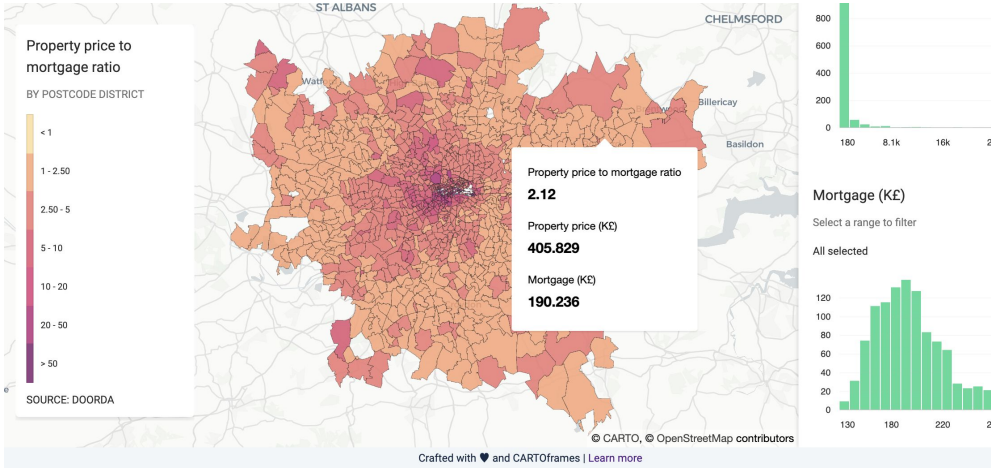
- Geocode large datasets in just one request
- Create isochrones for your points



1. Explore

➔ Visualize

- Local data and hosted datasets
- Maps with multiple layers
- Styling for numerical and categorical variables
- Custom basemaps
- Legends, pop-ups, and widgets
- Layouts



2. Enrich

➔ CARTO Data Observatory

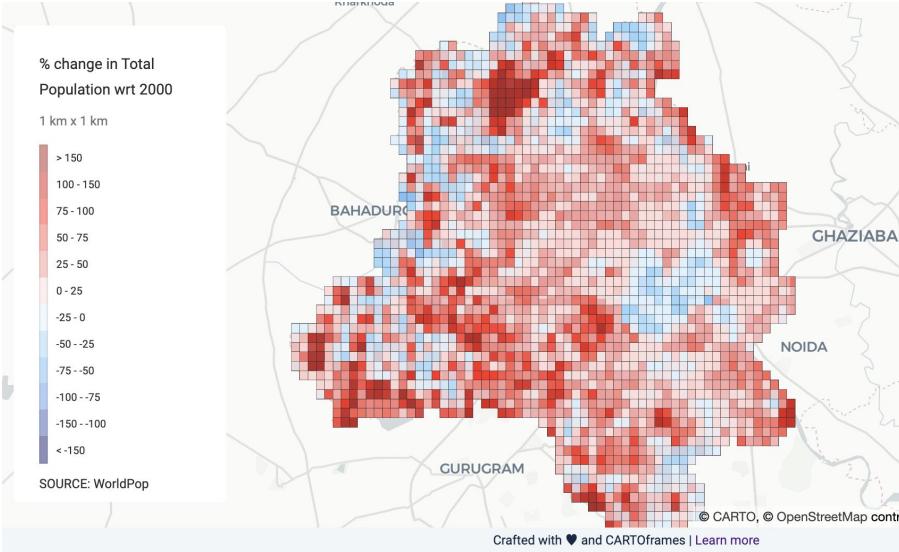
- Access to different location data streams on common geometries. Working with market-leaders, we bring together high-quality curated datasets to reduce the time to insight. https://carto.com/platform/spatial-data-catalog/

Financial	Housing
Human Mobility	POI's
Road Traffic	Environmental
Demographics	Global Boundaries
GeoSocial	COVID-19

2. Enrich

➔ Discover and enrich your data

- Direct access to our Data Observatory
- Open and premium datasets
- Discover the data you need
  - By category
  - By country
  - By geography
  - By provider
- Check stats about available datasets
- Request a dataset
- Enrich your dataframe (points or polygons)

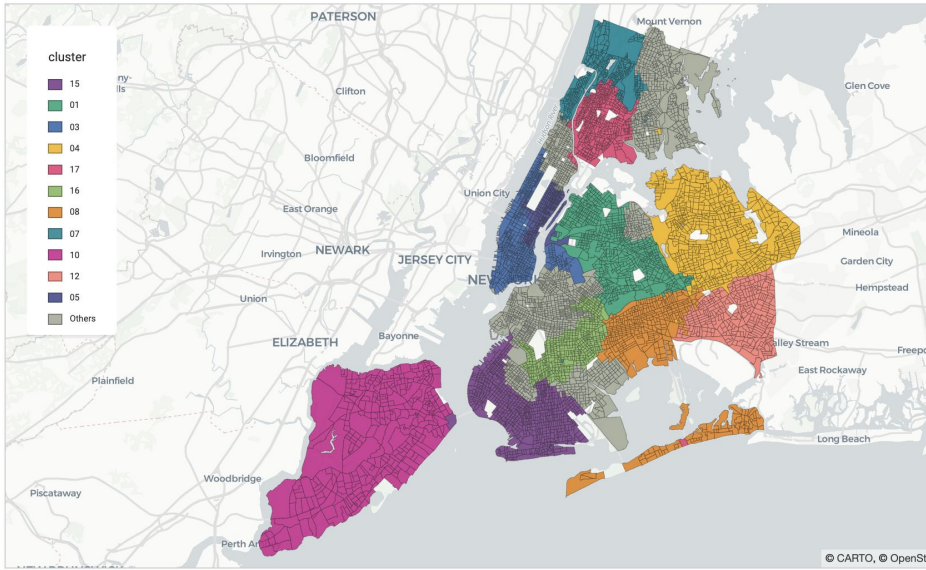


3. Analyze

We are working on extending the analytical capabilities of CARTOFrames to reduce your data preparation time and make complex spatial analysis easily accessible leveraging cloud capabilities.

- ➔ **Feature engineering**
- ➔ **Spatial Clustering**
- ➔ **Data partitioning for spatial data**
- ➔ **Spatial projection**

```
[390]: Map(Layer(nyc_geoms_enriched.reset_index(),
                 style=color_category_style('cluster'),
                 popup_hover=[popup_element('geoid'),
                              popup_element('index'),
                              popup_element('cluster')]))
```



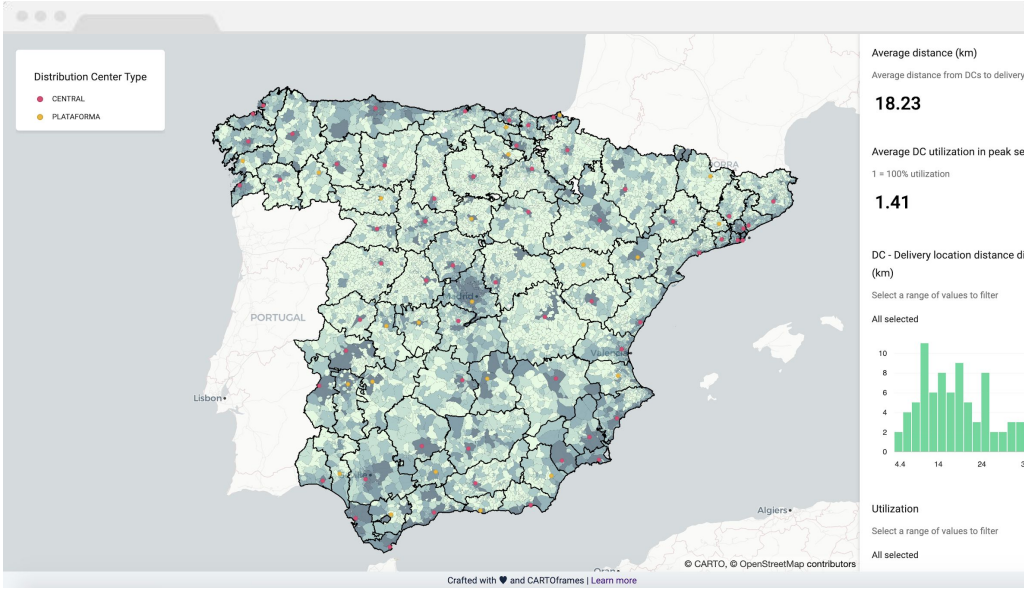
4. Share

➔ Prepare your analysis output

- Make your analysis easy to consume by others in your organization by adding widgets: histogram, category, animation control, time series.

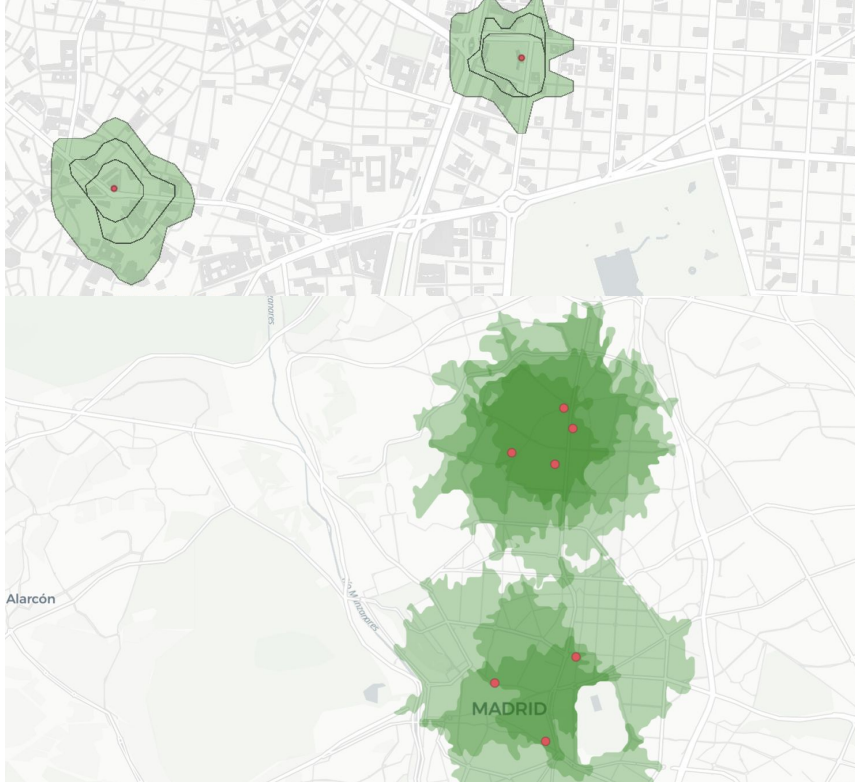
➔ Publish

- Publish your map to CARTO and get the shareable link as response.



Hands-on with CARTO

Practical Spatial Data Science in Python



	the_geom	address
0	POINT (-3.70588 40.42049)	Gran Vía 46
1	POINT (-5.98312 37.35547)	Ebro 1

Hands-on with CARTO
Practical Spatial Data Science in Python

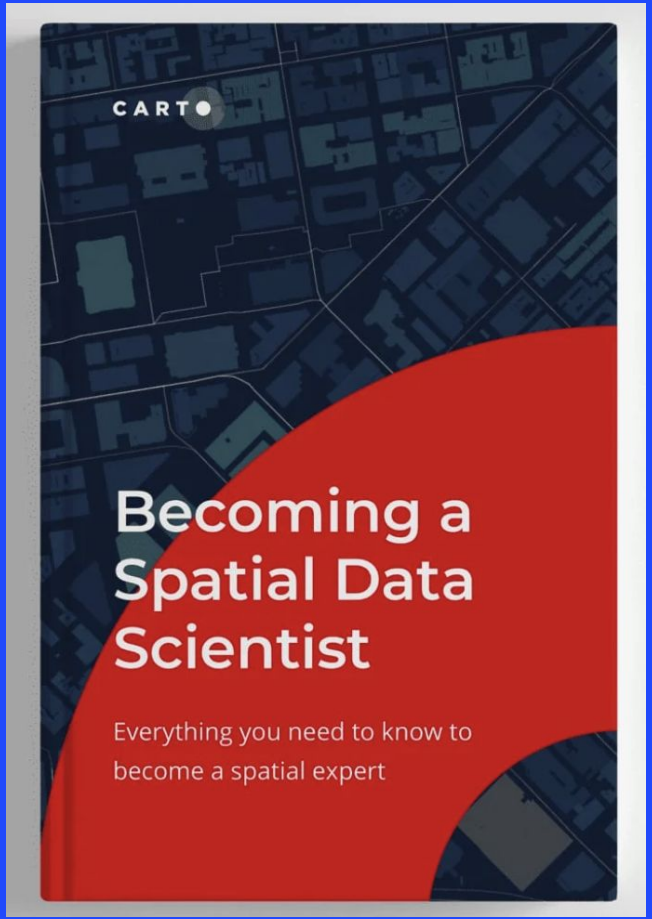
Using CARTO tech stack, in this session we will go through a step by step demo using Jupyter notebooks, from data exploration, to external data discovery and augmentation, to model formulation and results.

- ***Site selection***: where should Starbucks open new coffee shops in Long Island, NY? In this demo we will go through a typical site selection use case, from modelling the revenues of the existing stores as a function of socioeconomic covariates, to predicting the potential revenues in new locations.

- ***Logistic spatial optimization***: where should a parcel delivery company locate their distribution and fulfilment centers? What areas should they service? In this demo we will go through a supply chain network optimization use case, from analysing past data to identify spatio-temporal patterns to building an optimization model to analyze and quantify the impact of changes in the current network.

Ready to become a spatial expert?

https://go.carto.com/ebooks/spatial-data-science



Thank you for listening!

Request a demo at CARTO.com

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CARTO