

CHARGEUP

Your Key to Charging Freedom

OPEN DATA & KNOWLEDGE GRAPHS PROJECT

GROUP 07

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A.Y. 2023-2024

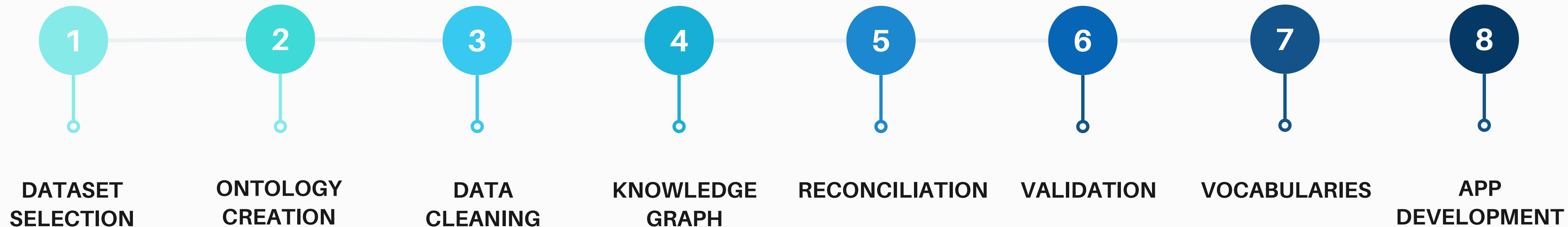


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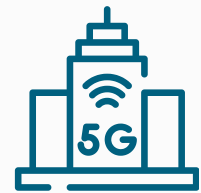
PROJECT GOAL & TIMELINE

We are building a knowledge graph to visualize the charging stations in Connecticut, using open data and linked data generation processes in order to help people in finding the nearest compatible EV charging station.



DATASET SELECTION & ANALYSIS

EV CHARGING STATIONS IN CONNECTICUT



Smart Cities Domain



CSV Format



Open License



Location Linkage



385 Stations



116 Cities

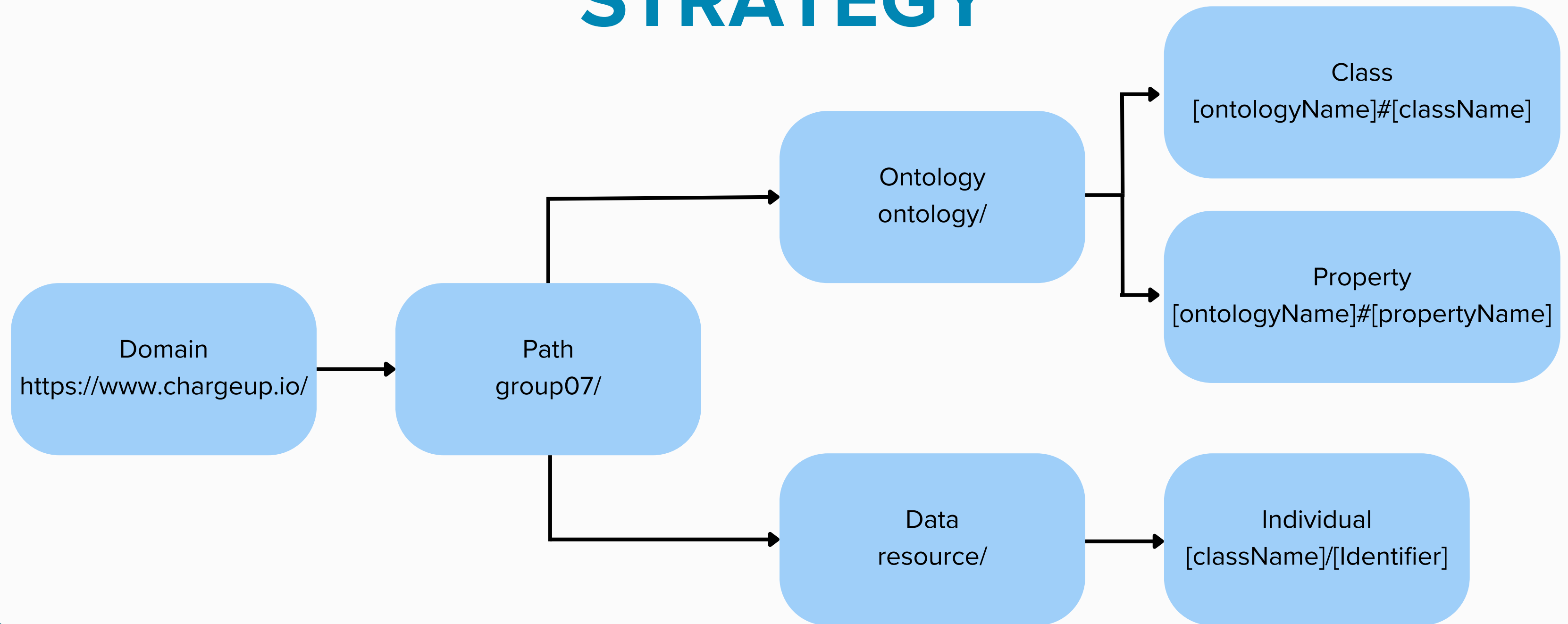


3 Charger Types



Different Accessibilities

RESOURCE NAMING STRATEGY



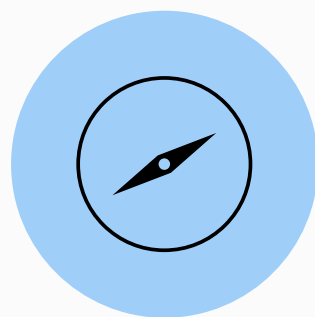
ONTOLOGY

Our approach

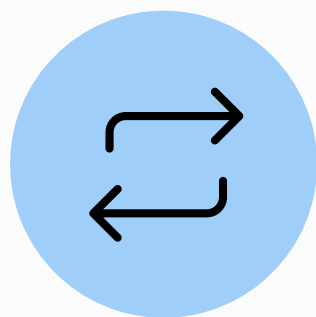


DATA CLEANING

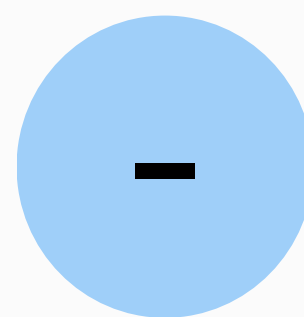
Using OpenRefine



Splitted latitude
& longitude



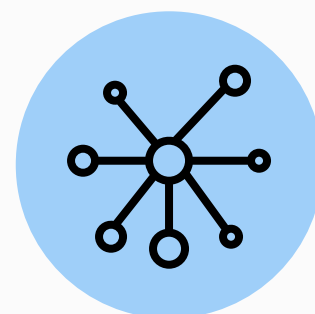
Datatype
Transformation



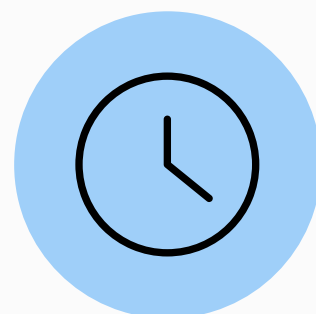
Replaced
spaces with “-”



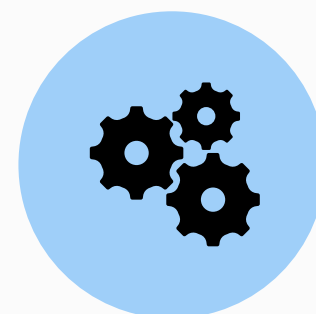
Missing values
in EV counters
turned to 0



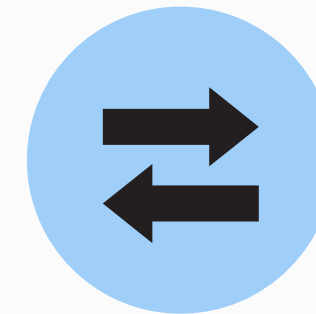
Clustering to fix
typos in name
and opening
hours



Splitted
opening hours
with additional
info

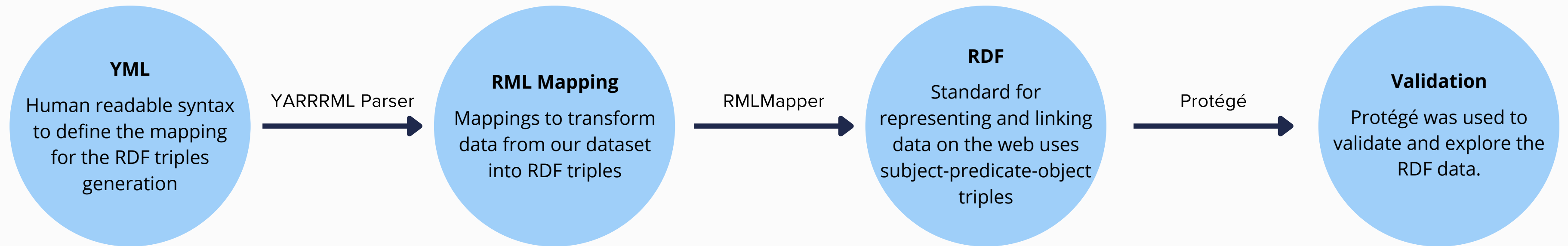


Minor fixes
manually

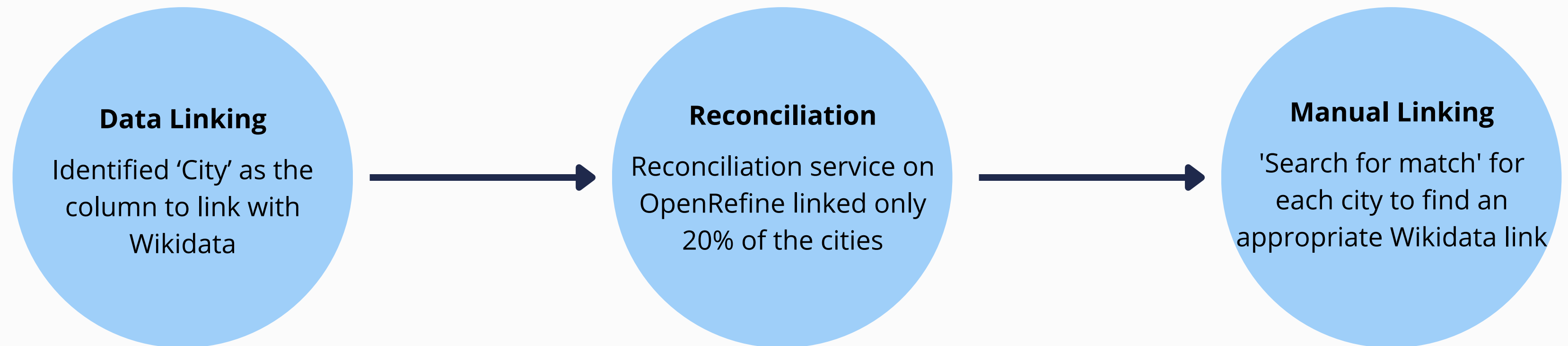


Counties from
numbers to
name

KNOWLEDGE GRAPH GENERATION



RECONCILIATION



VALIDATION PROCESS

VALIDATION WITH SHACL

SHACL shapes define the rules for what our data should look like, including the properties of charging stations, addresses, and cities, and the relationships between them

REPORT GENERATION

We used a SHACL shape validator to generate the report to provide a clear overview of data validation.

We obtained some warning in our report, so our data meets all the defined constraints, such as correct data types, formats, and value ranges, ensuring high data quality.

VOCABULARIES

UIOTE - CHARGING STATIONS

Ontology suite for the Urban IoT Devices, such as Electric Mobility

<http://www.w3id.org/urban-iot/electric#>

DBO - CITY AND ZIPCODE

Ontology provides the classes and properties used in the DBpedia data set

<http://dbpedia.org/ontology/>

LOCN - ADDRESS

Vocabulary provides classes and properties for describing any places with name, address or geometry.

<http://www.w3.org/ns/locn#>

GEO - COORDINATES

Vocabulary that provides the Semantic Web community with a namespace for representing latitude, longitude

http://www.w3.org/2003/01/geo/wgs84_pos#

THANK YOU!
ANY QUESTIONS?

