



Web Semántica & Linked Data

New York City – Points of Interest

GRUPO 13:

Bernard Casado Fernández

Alejandro de Bona Moliz

Marta Sastre García

Marta Villar Martín



Índice

- Introducción
- Búsqueda y análisis de datasets
- Licencia
- Requisitos de la aplicación
- Estrategia de nombrado y desarrollo de la ontología
- Análisis y transformación de datos mediante LODRefine
- *Lincado* de datos mediante LODRefine

Introducción

- Dos puntos de vista, ambos orientados a POIs
 - Aplicación que sugiere el mejor barrio de NYC para vivir
 - Aplicación turística que provee información

Objetivo final → Explotación de datos mediante su enlace con DBpedia o YAGO



Búsqueda y análisis de datasets

- Origen de los datos → **NYC OpenData**
- Criterios de búsqueda
 - Licencia abierta de uso
 - Formato CSV
 - Enlazables con entidades externas
 - Calle
 - Municipio
 - Teléfono
- Análisis previo → Decisión

Licencia

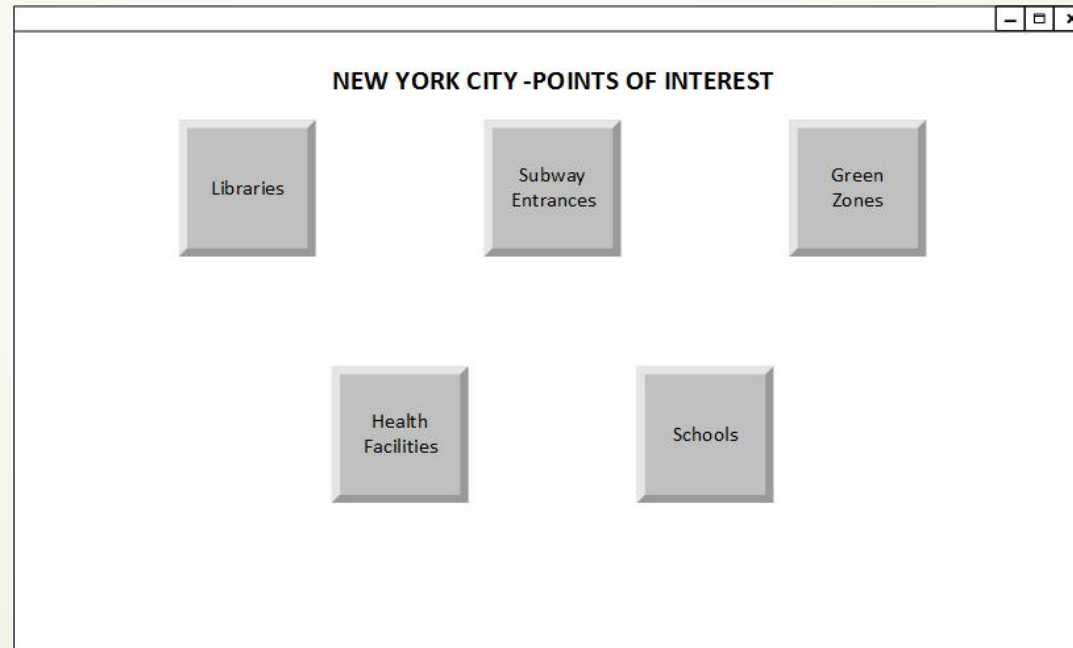
- No hay una licencia específica para todos los datasets del portal
 - Licencia Abierta (predeterminado)
 - Copyright ©
 - Copyleft ℡
 - Creative Commons Ⓒ
- Para todos los productos de nuestro proyecto



Requisitos de la aplicación

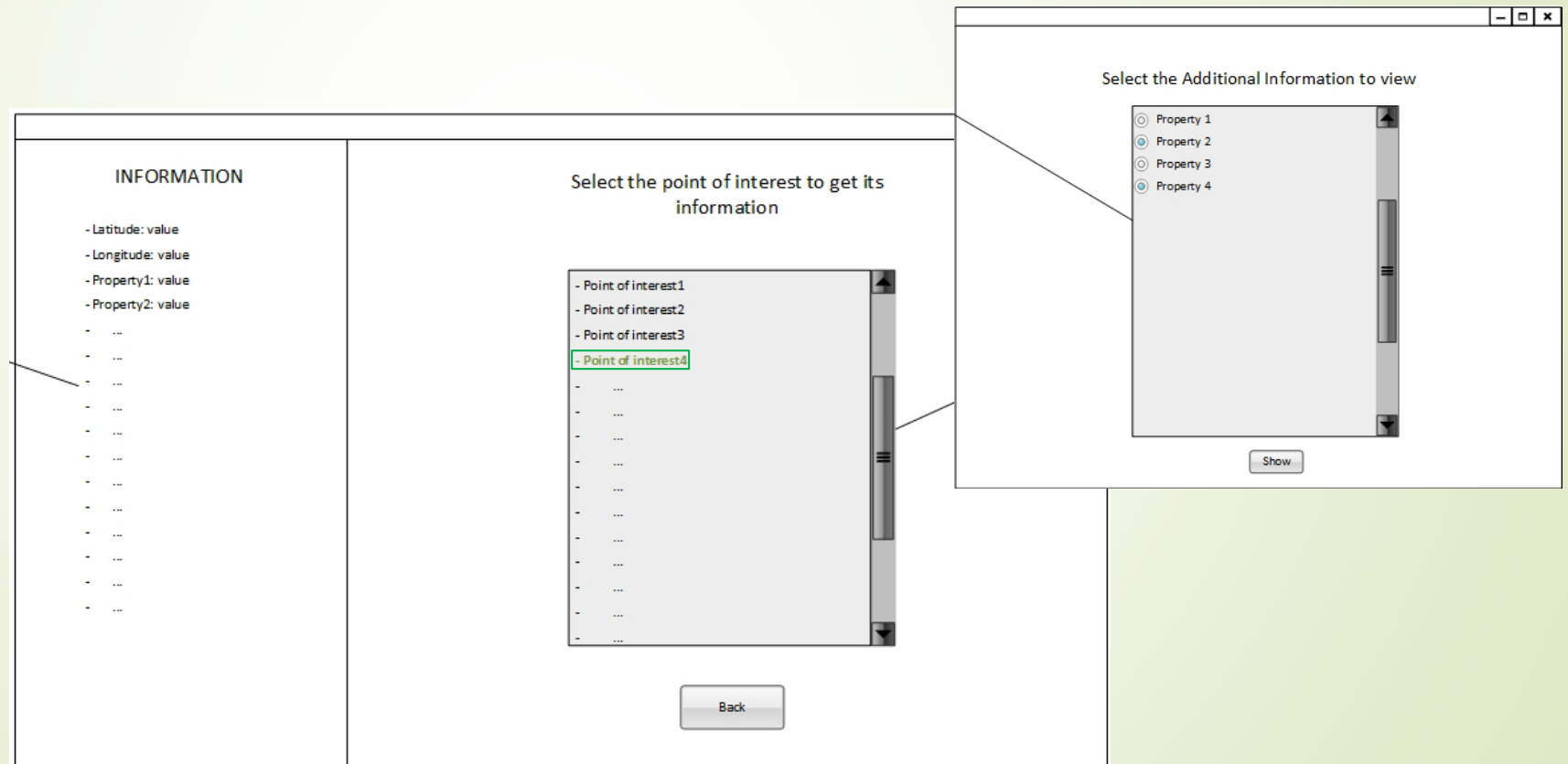
- ➡ Debe permitir:

- La elección de los puntos de interés a mostrar



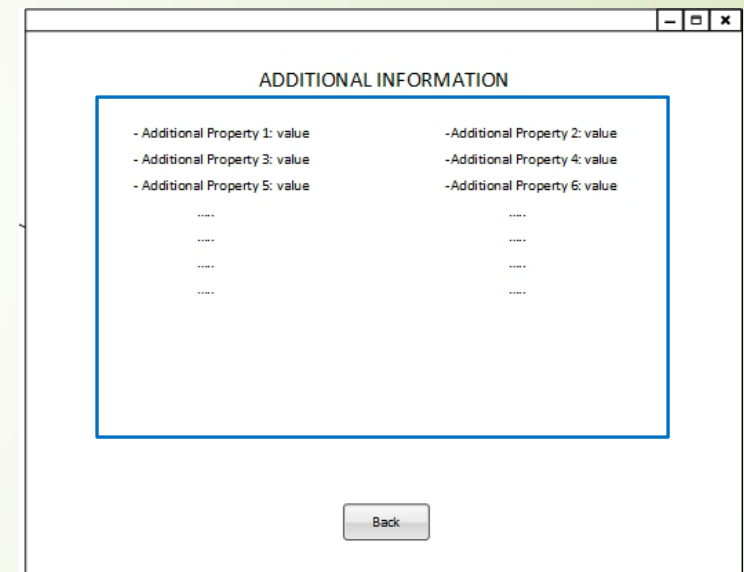
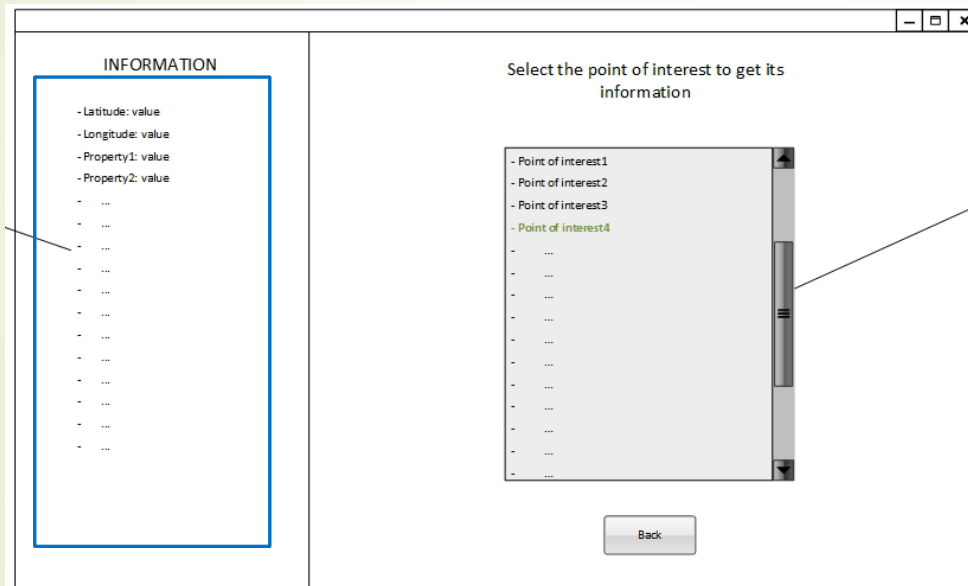
Requisitos de la aplicación


- Resaltará en color verde los POIs con información adicional



Requisitos de la aplicación

- Mostrar la distinta información de los puntos de interés seleccionados





Estrategia de nombrado y desarrollo de la ontología

- Estrategia de nombrado de recursos e instancias:

- **Dominio:** http://www.linkedData_Group13.com/

- **Ontology terms:**

- http://www.linkedData_Group13.com/ontology/livingPlaces#<termName>

- **Individuals:**

- http://www.linkedData_Group13.com/resource/<resource_type>/<resource_name>

Estrategia de nombrado y desarrollo de la ontología

Desarrollo de la ontología

The screenshot displays the Protégé ontology editor interface. The top navigation bar shows the active ontology as `(http://www.linkedData_Group13.com/)`. The main workspace is divided into several panes:

- Class hierarchy:** A tree view on the left showing the hierarchy of classes. The `DiagnosticTreatmentCenter` class is highlighted, and its subclasses are listed: `Borough`, `HealthFacility`, `AcuteCareHospital`, `ChildHealthCenter`, `DiagnosticTreatmentCenter`, `NursingHome`, `schema:Library`, `schema:School`, `CharterSchool`, `CTTechnicalHighSchool`, `EndowedSchool`, `PublicSchool`, `RegionalEducationServiceCenter`, `RegionalSchool`, `SchoolDistrict`, `StateFacility`, `StateNaturalPreserve`, `StatePark`, `SubwayEntrance`, and `SubwayLine`.
- Annotations:** A pane on the right showing the annotations for the selected class. It includes a comment in Spanish: "Entidad que hace referencia a los centros y hospitales de tratamiento y diagnostico de enfermedades (independientemente de la disciplina en la que se englobe la enfermedad, es decir hospitales generales)." and a list of annotations: `rdfs:comment` [language: es], `schema:streetAddress` exactly 1 schema:Text, `geo:long` exactly 1 xsd:float, `rdfs:label` exactly 1 rdfs:Literal, `geo:lat` exactly 1 xsd:float, `vcard:tel` some vcard:text, and `dbo:borough` exactly 1 Borough.
- Object property hierarchy:** A pane at the bottom showing the hierarchy of object properties. The `dbo:borough` property is highlighted, and its subclasses are listed: `pertainToSchoolDistrict` and `pertainToSubwayLine`.

The bottom status bar indicates "To use the reasoner click Reasoner > Start reasoner" and "Show Inferences".



Análisis y transformación de datos mediante LODRefine

■ Análisis

- Detección de datos (columnas) irrelevantes
- Detección de errores (Ej. Unas comillas de más; Tuplas repetidas)
- Planificación de acciones para acoplar los datos al modelo. Ej.:
 - Separación de una columna en dos o más
 - Creación de una columna X a raíz de otra Y, determinando su valor en función de una columna Z

Análisis y transformación de datos mediante LODRefine

► Ejemplo de transformación

Show as: **rows** records Show: 5 10 25 50 rows « first ‹ previous 1 - 10 next › last »

▼ All	▼ Facility Type	▼ Borough	▼ Facility Name	▼ Cross Streets	▼ Phone	▼ Location 1
★	1.	Child Health Center	Queens	Elmhurst Hospital Center	718-334-4000	79 01 Elmhurst, NY 11373 (40.73871040256307, -73.87835115518163)
★	2.	Nursing Home	Manhattan	Gouverneur Healthcare Services	212-238-7000	227 Madison Street New York, NY 10002 (40.712841397447676, -73.98759853472393)
★	3.	Nursing Home	Manhattan	Coler-Goldwater Specialty Hospital and Nursing Facility/Goldwater Campus	212-318-8000	1 Main St Roosevelt Island New York, NY 10044 (40.76197648622593, -73.94999967494499)
★	4.	Nursing Home	Manhattan	Coler-Goldwater Specialty Hospital and Nursing Facility/Coler Campus	212-848-6000	900 Main Street Roosevelt Island New York, NY 10044 (40.76197648622593, -73.94999967494499)
★	5.	Diagnostic & Treatment Center	Manhattan	Gouverneur Healthcare Services	212-238-7000	227 Madison Street New York, NY 10002 (40.712841397447676, -73.98759853472393)
★	6.	Acute Care Hospital	Manhattan	Bellevue Hospital Center	212-562-4141	462 First Avenue New York, NY 10016 (40.73962320748018, -73.97657284664467)
★	7.	Acute Care Hospital	Manhattan	Harlem Hospital Center	212-939-1000	506 Lenox Avenue New York, NY 10037 (40.814275217501645, -73.9406028312914)
★	8.	Child Health Center	Brooklyn	Woodhull Medical and Mental Health Center	718-963-8000	760 Broadway Brooklyn, NY 11206 (40.70052661478004, -73.94164385876527)
★	9.	Child Health Center	Manhattan	Drew Hamilton Houses Health Center	between W. 143rd St. & W. 144th St. 212-939-8950	2698 Eighth Avenue New York, NY 10030 (40.82213997942128, -73.94238974885882)
★	10.	Child Health Center	Queens	Parsons Communicare Clinic	between Jamaica Ave. & 90th Ave. 718-334-6401	90 37 Parsons Boulevard Jamaica, NY 11432 (40.71311535449007, -73.79282099978928)

All	Facility Type	Borough	ycapsBorough	Facility Name	Nursing Homes	Diagnostic & Treatment	Child Health Centers	Acute Care Hospital	docHospital	Phone	Address	Latitude
1	Child Health Center	Queens County	http://idpedia.org/resource/Queens	Elmhurst Hospital Center Create new topic Back to main			Elmhurst Hospital Center			718-334-4000	79 01 Elmhurst, NY 11373	40.7387104253307
2	Nursing Home	Manhattan		Gouverneur Healthcare Services Create new topic Back to main	Gouverneur Healthcare Services					212-238-7000	227 Madison Street New York, NY 10002	40.712841367447678
3	Nursing Home	Manhattan		Cole-Goldensker Specialty Hospital and Nursing Facility/Goldensker Campus Create new topic Back to main	Cole-Goldensker Specialty Hospital and Nursing Facility/Goldensker Campus					212-318-8000	1 Main St Roosevelt Island New York, NY 10044	40.7619764862293
4	Nursing Home	Manhattan		Cole-Goldensker Specialty Hospital and Nursing Facility/Cole Campus Create new topic Back to main	Cole-Goldensker Specialty Hospital and Nursing Facility/Cole Campus					212-848-8000	900 Main Street Roosevelt Island New York, NY 10044	40.7619764862293
5	Diagnostic & Treatment Center	Manhattan		Gouverneur Healthcare Services Create new topic Back to main		Gouverneur Healthcare Services				212-238-7000	227 Madison Street New York, NY 10002	40.712841367447678
6	Acute Care Hospital	Manhattan		Bellevue Hospital Center Create new topic Back to main				Bellevue Hospital Center		212-962-4141	462 First Avenue New York, NY 10016	40.73862320748018
7	Acute Care Hospital	Manhattan		Harlem Hospital Center Create new topic Back to main				Harlem Hospital Center	http://idpedia.org/resource/Harlem_Hospital_Center	212-839-1000	508 Lenox Avenue New York, NY 10037	40.814275217301648
8	Child Health Center	Brooklyn		Woodhull Medical and Mental Health Center Create new topic Back to main			Woodhull Medical and Mental Health Center			718-963-8000	780 Broadway Brooklyn, NY 11206	40.70252881478004
9	Child Health Center	Manhattan		Drue Hamilton Houses Health Center Create new topic Back to main			Drue Hamilton Houses Health Center			212-829-8920	2028 Eighth Avenue New York, NY 10003	40.82213987942128
10	Child Health Center	Queens County	http://idpedia.org/resource/Queens	Parsons Communicare Clinic Create new topic Back to main			Parsons Communicare Clinic			718-334-6401	90 37 Parsons Boulevard Jamaica, NY 11432	40.71311538498007

RDF Schema alignment

The RDF schema alignment skeleton below specifies how the RDF data that will get generated from your grid-shaped data. The cells in each record of your data will get placed into nodes within the skeleton. Configure the skeleton by specifying which column to substitute into which node.

Base URI: http://www.linkedData_Group13.com/resource/ [Edit](#)

RDF skeleton

[RDF Preview](#)

Available prefixes: [geo](#) [dbo](#) [schema](#) [livingPlaces](#) [rdf](#) [owl](#) [osadm](#) [xsd](#) [rdfs](#) [vcard](#) [foaf](#) [+ Add](#) [⚙ Manage](#)

Acute Care Hospitals URI

[X](#) [livingPlaces:AcuteCareHospital](#)

[Add type](#)



[X](#) [->](#) [dbo:borough->](#)



Borough URI



...

[Add type](#)

[X](#) [->](#) [vcard:tel->](#)



Phone Cell

[X](#) [->](#) [schema:streetAddress->](#)



Address Cell

[X](#) [->](#) [geo:lat->](#)



Latitude Cell

[X](#) [->](#) [geo:long->](#)



Longitude Cell

[X](#) [->](#) [rdfs:label->](#)



Acute Care Hospitals Cell

[X](#) [->](#) [owl:sameAs->](#)



dbo:Hospital URI



...

....

[Add another root node](#)

[Save](#)

[OK](#)

[Cancel](#)

Lincado de datos mediante LODRefine

- Gracias a los métodos de reconciliación de instancias, mediante SPARQL points en LODRefine

Base URI: http://www.linkedData_Group13.com/resource/ [Edit](#)

[RDF skeleton](#)

RDF Preview

This is a sample **Turtle** representation of (up-to) the first 10 rows

```
@prefix livingPlaces: <http://www.linkedData_Group13.com/ontology/livingPlaces#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix osadm: <http://data.ordnancesurvey.co.uk/ontology/admingeo/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix vcard: <http://www.w3.org/2006/vcard/ns#> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
```

```
<http://www.linkedData_Group13.com/resource/Queens> a osadm:Borough ;
  rdfs:label "Queens"^^rdfs:Literal ;
  owl:sameAs <http://dbpedia.org/resource/Queens> .
```

```
<http://www.linkedData_Group13.com/resource/Elmhurst+Hospital+Center> a livingPlaces:ChildHealthCenter ;
  dbo:borough <http://www.linkedData_Group13.com/resource/Queens> ;
```




Gracias por vuestra atención.