# Web Semántica y Linked Data

- Marta Álvarez Almazán
- Jorge Amorós
- Jesús Antonio Bella Martí
- Ismael Ayatz Ortiz
- Pablo Sayans Cobos

- Búsqueda de datasets.
- Comprobación de licencias.
- Filtrado de los CSV y realización del Analysis.
- Realización de la ontología y RNS.
- Generación de los RDF basándonos en la ontología.
- Linking de los datos.
- Realización de la app con Jena y Swing.

Objetivo : Realización de app para obtener datos sobre lugares de necesidad.

## Elección de dataset

### Estaciones de Metro

https://www.doogal.co.uk/london\_stations.php

## Paradas de Autobús

- <a href="https://data.london.gov.uk/dataset/tfl-bus-stop-locations-and-routes/resource/673033eb-59a6-4">https://data.london.gov.uk/dataset/tfl-bus-stop-locations-and-routes/resource/673033eb-59a6-4</a>
903-84bc-d24495661707

## Líneas de metro

https://www.doogal.co.uk/london\_stations.php

## Baños públicos

- https://data.gov.uk/dataset/public-toilets-2014-15/resource/3e9934ac-492a-4042-971c-fe49bd9c a7e7

## Restaurantes

http://tour-pedia.org/about/datasets.html

## Comprobamos las licencias de cada DataSet.





Back to The National Archives

You are encouraged to use and re-use the Information that is available under this licence freely and flexibly, with only a few conditions.

#### Using Information under this licence

Use of copyright and database right material expressly made available under this licence (the "Information") indicates your acceptance of the terms and conditions below.

The Licensor grants you a worldwide, royalty-free, perpetual, non-exclusive licence to use the Information subject to the conditions below.

This licence does not affect your freedom under fair dealing or fair use or any other copyright or database right exceptions and limitations.

#### You are free to:

- copy, publish, distribute and transmit the Information;
- adapt the Information;
- exploit the Information commercially and non-commercially for example, by combining it with other Information, or by including it in your own product or application.

#### You must (where you do any of the above):

acknowledge the source of the Information in your product or application by including or linking to any attribution statement specified by the Information Provider(s) and, where possible, provide a link to this licence;

## Creative Commons CC Zero License (cc-zero)

Domain of Application: Content, Data

#### Overview

https://creativecommons.org/publicdomain/zero/1.0/

#### Full text

https://creativecommons.org/publicdomain/zero/1.0/legalcode

#### Comments

Intended to be a 'public domain dedication', i.e. a waiver of all rights including those of attribution.

#### How to apply

You can use the CC license chooser.

Alternatively, include with your material:

EITHER: a link to the license/waiver plus text similar to the following:

This work is licensed under a Creative Commons CCZero [version number] License/Waiver.

OR (recommended): a full copy of the license/waiver.

THIN E. SIL Cr

## Licencia para nuestra APP:

Se ha propuesto:

Reconocimiento-NoComercial-Compartirlgual CC BY-NC-SA

De Creative Commons

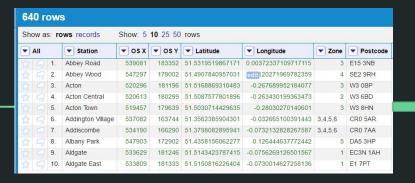
Es la más restrictiva de las presentes.

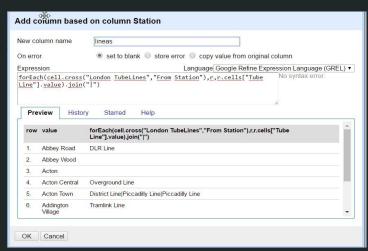
# Crear proyectos en LODRefine. Analizar y filtrar cada CSV.

26	26 rows												
Show as: rows records		ws records	Show: 5 10 25 50 rows										
▼ All			ExtractDate	▼ OrganisationURI	▼ OrganisationLat	▼ ServiceTypeURI	▼ ServiceTypeLab	LocationText	▼ CoordinateRefer	<b>▼</b> GeoX	▼ GeoY	▼ GeoPointLicensingURL	Category
☆	E)	1.	01/10/2014	http://opendatacommunities.org/id/lond@ditborough-council/barnet	Barnet	http://id.esd.org.uk/service/579	Public toilets	Ballards Lane, Finchley Central, London	OSGB36	525239	190735	http://www.ordnancesurvey.co.uk/business- and-government/help-and-support/public- sector/guidance/derived-data- exemptions.html	unisex
		2.	01/10/2014	http://opendatacommunities.org/id/london- borough-council/barnet	Barnet	http://id.esd.org.uk/service/579	Public toilets	Bell Lane, Hendon, London	OSGB36	523426	189016	http://www.ordnancesurvey.co.uk/business- and-government/help-and-support/public- sector/guidance/derived-data- exemptions.html	unisex
		3.	01/10/2014	http://opendatacommunities.org/id/london- borough-council/barnet	Barnet	http://id.esd.org.uk/service/579	Public toilets	Burnt Oak Library	OSGB36	520357	190939	http://www.ordnancesurvey.co.uk/business- and-government/help-and-support/public- sector/guidance/derived-data- exemptions.html	female and male
		4.	01/10/2014	http://opendatacommunities.org/id/london- borough-council/barnet	Barnet	http://id.esd.org.uk/service/579	Public toilets	Cat Hill, East Barnet, Hertfordshire	OSGB36	527200	195407	http://www.ordnancesurvey.co.uk/business- and-government/help-and-support/public- sector/guidance/derived-data- exemptions.html	unisex
		5.	01/10/2014	http://opendatacommunities.org/id/london- borough-council/barnet	Barnet	http://id.esd.org.uk/service/579	Public toilets	Chipping Barnet Library	OSGB36	524331	196747	http://www.ordnancesurvey.co.uk/business- and-government/help-and-support/public- sector/guidance/derived-data- exemptions.html	female and male



## Caso especial paradas Metro





New Co	olumn name	paradas adyancetes	
On erro	or	<ul> <li>set to blank</li> <li>store error</li> <li>copy value from original</li> </ul>	column
xpres	ssion	Language Google Refine Exp	ression Language (GREL)
Stati f	on"].value).	s("London TubeLines","From Station"),r,r.cells["To join("   ") + "   " + cross("London TubeLines","To Station"),r,r.cells["From join("   ")	No syntax error.
Pre	eview His	tory Starred Help	
,	1113	ory Starred Help	
row	value	forEach(cell.cross("London TubeLines","From Station"),r.r.cells["T6"  ") + "   " + forEach(cell.cross("London TubeLines", "T6 Station"),r.r Station"],value),join["  "  " West Ham   Statford High Street	
	value	forEach(cell.cross("London TubeLines","From Station"),r,r.cells["To  ") + "   " + forEach(cell.cross("London TubeLines","To Station"),r,r Station"],value).join("   ")	
1.	Abbey Road	forEach(cell.cross("London TubeLines","From Station"),r.r.cells["Tc"   ") + "   " + forEach(cell.cross("London TubeLines", "To Station"),r.r Station", value),join("   ") West Ham   Stratford High Street	
1.	Abbey Road Abbey Wood	forEach(cell.cross("London TubeLines","From Station"),r.r.cells["Tc"   ") + "   " + forEach(cell.cross("London TubeLines", "To Station"),r.r Station", value),join("   ") West Ham   Stratford High Street	

## Caso especial paradas Metro

640 rows										Extensio	ns: DBpedia
Sho	Show as: rows records Show: 5 10 25 50 rows									Viii	
▼ All ▼ Station		Station	▼ paradas adyacentes	Lineas	▼ os x	▼ os y	<b>▼</b> Latitude	▼ Longitude	Zone	Postcode	
\$	G	1.	Abbey Road	Mestinani, orangi oraci	DETERMO	539081	183352	51.5319519867171	0.00372337109717115	3	E15 3NB
		2.	Abbey Wood	I		547297	179002	51.4907840957031	0.120271969782359	4	SE2 9RH
		3.	Acton	I		520296	181196	51.5168869310483	-0.267689952184077	3	W3 0BP
		4.	Acton Central	Willesden Junction   South Acton	Overground Line	520613	180299	51.5087577801896	-0.263430199363473	2	W3 6BD
		5.	Acton Town	Ealing Common   South Ealing   Ealing Common   Chiswick Park   Turnham Green	District Line Piccadilly Line Piccadilly Line	519457	179639	51.5030714429635	-0.28030270140601	3	W3 8HN
		6.	Addington Village	Fieldway   Gravel Hill	Tramlink Line	537082	163744	51.3562385904301	-0.032665100391443	3,4,5,6	CR0 5AR
		7.	Addiscombe	Blackhorse Lane   Sandilands	Tramlink Line	534190	166290	51.3798082895941	-0.0732132828267587	3,4,5,6	CR0 7AA
		8.	Albany Park	T		547903	172902	51.4358156062277	0.126444637772442	. 5	DA5 3HP
		9.	Aldgate	Tower Hill   Liverpool Street   Liverpool Street	Circle Line Metropolitan Line	533629	181246	51.5143423787415	-0.0756269126501567	4	EC3N 1AH
		10.	Aldgate East	Tower Hill   Whitechapel   Whitechapel   Liverpool Street	District Line Hammersmith and City Line	533809	181333	51.5150816226404	-0.0730014627258136	1	E1 7PT

## Ejemplo resultados Analysis

#### Baños públicos

- · Nombre del fichero:public-toilets.csv
- · Descripción:Baños públicos en la ciudad de Londres
- · Origen de los datos :Click aqui
- Licencia

Columna	Tipo
Servicio	String
Dirección	String
Coordenada X	double
Coordenada Y	double
Catagoría accesible	String
Cambiador de bebe	Boolean
Baños familiares	Boolean
Boolean	String
Horario de apertura	String
Administrado por	String
Email de contacto	String
Teléfono de contacto	int
Notas	String
Código Postal	String

#### Paradas de autobuses en Londres

- · Nombre del fichero:London-bus-stops.csv
- · Descripción:Paradas de bus en la ciudad de Londres
- · Origen de los datos : Click aqui
- Licencia

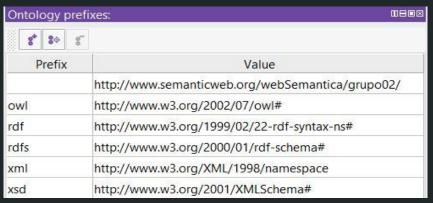
Columna	Tipo
Nombre	String
Código de parada	int
Coordenada-X	int
Coordenada-Y	int
Sentido	int
Area de parada	String

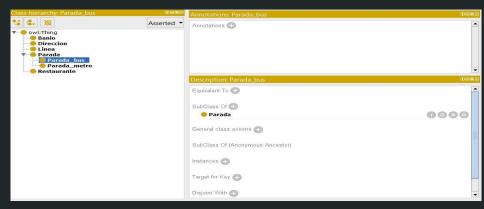
#### Restaurantes

- Nombre del fichero:london-restaurant.csv
- · Descripción: Restaurantes en la ciudad de Londres
- Ofrigen de los datos :Click aqui
- Licence

id	Tipo
Nombre	String
Dirección	String
Categoría	String
Localización	String
Latitud	double
Longitud	double
detalles	String
Critica	String

## Resource Naming Strategy y Ontología.





Resource Naming Strategy.

Functional

Equivalent To

Banio

Parada\_metro

xsd:string

Disjoint With

owl:topDataProperty

- administradoPor

■ tioneAreaParada

= tieneCoordenada-

tieneLocalizacion

tieneLongitud

= tieneNombre

= tieneServicio

= tioneZona

= tieneNotas

= tioneEmailDeContacto

tieneHoraDeApertura
tieneLatitud

tieneParadasAdyacentes
tieneSentido

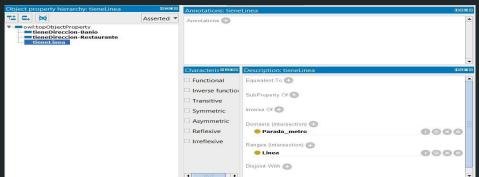
tieneTelefonoDeContacto

tieneCritica

tieneBaniosFamiliares
tieneCambiador
tieneCambiadorDeBebe
tieneCategoria
tieneCategoriaAccesible
tieneCodigoDeParada
tieneCodigoPostal
tieneCodreada-X



Clases



**Object Property** 

## Generación de los RDF y linkeado de datos con DBpedia

```
4694 lines (4312 sloc) 275 KB
                                                                                                                                      Raw Blame History 

     1 @prefix : <> .
     2 @prefix ont: <http://www.semanticweb.org/webSemantica/grupo02/vocabulary#> .
     3 @prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
     4 @prefix owl: <http://www.w3.org/2002/07/owl#> .
     5 @prefix rdfs: <a href="http://www.w3.org/2000/01/rdf-schema">http://www.w3.org/2000/01/rdf-schema#>.
     6 @prefix foaf: <a href="http://xmlns.com/foaf/0.1/">http://xmlns.com/foaf/0.1/> .
         <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Abbev+Road">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Abbev+Road</a> a ont:Parada metro;
                   ont:tieneNombre "Abbey Road";
                   ont:tieneParadasAdyacentes "West Ham";
                   ont:tieneLinea "DLR Line" ;
                   ont:tieneCoordenada-Y "183352"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneLatitud "51.5319519867171"^^<a href="http://www.w3.org/2001/XMLSchema#double">http://www.w3.org/2001/XMLSchema#double</a>;
                   ont:tieneLongitud "0.00372337109717115"^^<a href="http://www.w3.org/2001/XMLSchema#double">http://www.w3.org/2001/XMLSchema#double</a>;
                   ont:tieneZona "3"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneCodigoPostal "E15 3NB"^^<http://www.w3.org/2001/XMLSchema#int> ;
                   ont:tieneParadasAdyacentes "Stratford High Street" .
   20 <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Acton+Central">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Acton+Central</a> a ont:Parada metro;
                   ont:tieneNombre "Acton Central" :
                   ont:tieneParadasAdvacentes "Willesden Junction" ;
                   ont:tieneLinea "Overground Line";
                   ont:tieneCoordenada-Y "180299"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneLatitud "51.5087577801896"^^<http://www.w3.org/2001/XMLSchema#double>;
                   ont:tieneZona "2"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneCodigoPostal "W3 6BD"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneParadasAdvacentes "South Acton" .
   31 <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada_metro#Acton+Town">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada_metro#Acton+Town</a> a ont:Parada_metro;
                    ont:tieneNombre "Acton Town" ;
                   ont:tieneParadasAdyacentes "Ealing Common";
                   ont:tieneLinea "District Line";
                   owl:sameAs <a href="http://dbpedia.org/resource/District line">http://dbpedia.org/resource/District line</a>;
                   ont:tieneCoordenada-Y "179639"^^<a href="http://www.w3.org/2001/XMLSchema#int">http://www.w3.org/2001/XMLSchema#int</a>;
                   ont:tieneLatitud "51.5030714429635"^^<a href="http://www.w3.org/2001/XMLSchema#double">http://www.w3.org/2001/XMLSchema#double</a>;
                   ont:tieneLongitud "-0.28030270140601"^^<a href="http://www.w3.org/2001/XMLSchema#double">http://www.w3.org/2001/XMLSchema#double</a>;
                   ont:tieneZona "3"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneCodigoPostal "W3 8HN"^^<http://www.w3.org/2001/XMLSchema#int>;
                   ont:tieneParadasAdyacentes "South Ealing";
                   ont:tieneLinea "Piccadilly Line";
                   owl:sameAs <a href="http://dbpedia.org/resource/Piccadilly line">http://dbpedia.org/resource/Piccadilly line</a>;
                   ont:tieneParadasAdvacentes "Chiswick Park" , "Turnham Green" ,
```

## Generación de los RDF y linkeado de datos con DBpedia

10	1057 rows Extensions:												
Show as: rows records Show: 5 10 25 50 rows													
▼ AII		Nombre		Paradas Adyace	Linea	schema:linea	▼ Coordenada-X	▼ Coordenada-Y	Latitud	Longitud	Zona	Codigo Postal	
忿	S	1.	Abbey Road	West Ham	DLR Line new Choose new match	edit	539081	183352	51.5319519867171	0.00372337109717115	3	E15 3NB	
公	EJ.	2.	Abbey Road	Stratford High Street		W							
盘		3.	Acton Central	Willesden Junction	Overground Line new Choose new match		520613	180299	51.5087577801896	-0.263430199363473	2	W3 6BD	
₩	E)	4.	Acton Central	South Acton									
益		5.	Acton Town	Ealing Common	District Line Choose new match	http://dbpedia.org/resource/District_line	519457	179639	51.5030714429635	-0.28030270140601	3	W3 8HN	
垃	57	6.	Acton Town	South Ealing	Piccadilly Line Choose new match	http://dbpedia.org/resource/Piccadilly_line							
źż		7.	Acton Town	Ealing Common	Piccadilly Line Choose new match	http://dbpedia.org/resource/Piccadilly_line							
级	Q	8.	Acton Town	Chiswick Park									
23		9.	Acton Town	Turnham Green									
ঠ	9	10.	Addington Village	Fieldway	Tramlink Line new		537082	163744	51.3562385904301	-0.032665100391443	3,4,5,6	CR0 5AR	

## Generación de los RDF y linkeado de datos con DBpedia

```
4694 lines (4312 sloc) 275 KB
   1 @prefix : <> .
   @prefix ont: <http://www.semanticweb.org/webSemantica/grupo02/vocabulary#> .
   3 @prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
   4 @prefix owl: <http://www.w3.org/2002/07/owl#> .
       @prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
        @prefix foaf: <http://xmlns.com/foaf/0.1/> .
   9 <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada_metro#Abbey+Road">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada_metro#Abbey+Road</a> a ont:Parada_metro ;
                 ont:tieneNombre "Abbey Road" ;
                 ont:tieneParadasAdyacentes "West Ham";
                 ont:tieneLinea "DLR Line" ;
                 ont:tieneCoordenada-Y "183352"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneLatitud "51.5319519867171"^^<http://www.w3.org/2001/XMLSchema#double>;
                 ont:tieneLongitud "0.00372337109717115"^^<http://www.w3.org/2001/XMLSchema#double>;
                 ont:tieneZona "3"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneCodigoPostal "E15 3NB"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneParadasAdyacentes "Stratford High Street" .
  20 <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Acton+Central">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Acton+Central</a> a ont:Parada metro
                 ont:tieneNombre "Acton Central";
                 ont:tieneParadasAdyacentes "Willesden Junction" ;
                 ont:tieneLinea "Overground Line" ;
                 ont:tieneCoordenada-Y "180299"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneLatitud "51.5087577801896"^^<http://www.w3.org/2001/XMLSchema#double>;
                 ont:tieneLongitud "-0.263430199363473"^^<a href="http://www.w3.org/2001/XMLSchema#double">http://www.w3.org/2001/XMLSchema#double</a>
                 ont:tieneZona "2"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneCodigoPostal "W3 6BD"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneParadasAdyacentes "South Acton" .
  31 <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Acton+Town">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada metro#Acton+Town</a> a ont:Parada metro;
                 ont:tieneNombre "Acton Town";
                  ont:tieneParadasAdvacentes "Ealing Common" :
                 ont:tieneLinea "District Line" ;
                 owl:sameAs <a href="http://dbpedia.org/resource/District line">http://dbpedia.org/resource/District line</a>;
                 ont:tieneLatitud "51.5030714429635"^^<http://www.w3.org/2001/XMLSchema#double> :
                 ont:tieneLongitud "-0.28030270140601"^^<http://www.w3.org/2001/XMLSchema#double> ;
                 ont:tieneZona "3"^^<http://www.w3.org/2001/XMLSchema#int> :
                 ont:tieneCodigoPostal "W3 8HN"^^<http://www.w3.org/2001/XMLSchema#int>;
                 ont:tieneParadasAdyacentes "South Ealing";
                 ont:tieneLinea "Piccadilly Line";
                 owl:sameAs <a href="http://dbpedia.org/resource/Piccadilly line">http://dbpedia.org/resource/Piccadilly line</a>
                  ont:tieneParadasAdyacentes "Chiswick Park" , "Turnham Green"
  46 <a href="http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada_metro#Addington+Village">http://www.semanticweb.org/webSemantica/grupo02/resource/Parada/Parada_metro#Addington+Village</a> a ont:Parada_metro;
                 ont:tieneNombre "Addington Village" ;
                 ont:tieneParadasAdyacentes "Fieldway" ;
```

## APP

