



The
University
Of
Sheffield.

Practical Session

Goal of the Session

- Situation awareness on a hot event
 - Suggested topic: Tour the France
 - The archive is already loaded with a number of tweets

Development environment

- Java
- Twitter4J
- Solr
- HighGraphs
- Zemanta
- If you have time you could add more semantic analysers

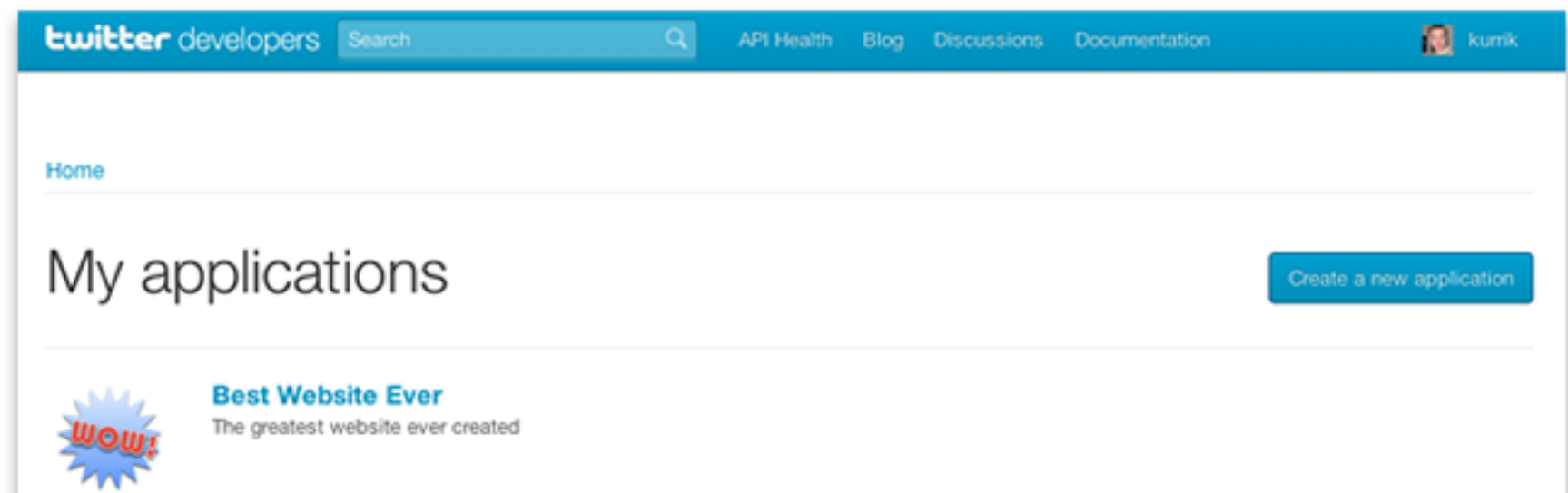
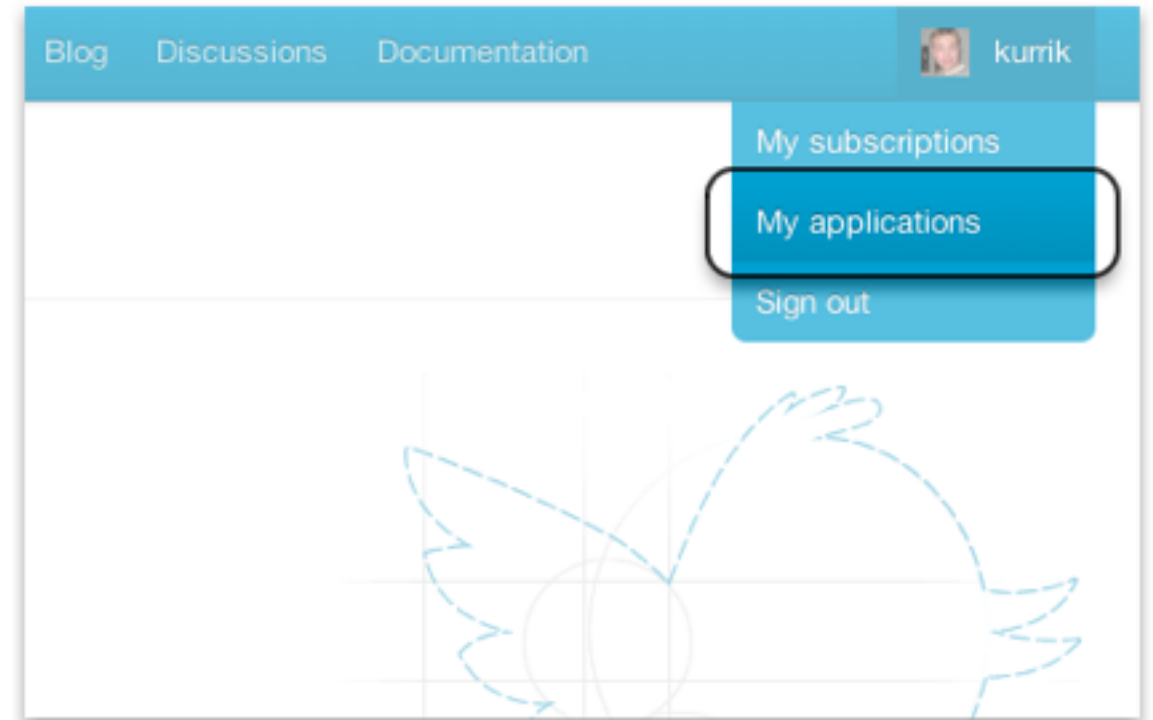
Authentication for Twitter API

<https://dev.twitter.com/docs/auth/obtaining-access-tokens>

- In order to make authorized calls to Twitter's APIs
 - Your application must first obtain an OAuth access token
 - On behalf of a Twitter user
- The dev.twitter.com application control panel offers the ability to generate an OAuth access token for the owner of the application.
 - This is useful if:
 - Your application only needs to make requests on behalf of a single user (for example, establishing a connection to the Streaming API)

Generating a Token

- Visit dev.twitter.com "My applications" page, either by
 - navigating to dev.twitter.com/apps,
 - or hovering over your profile image in the top right hand corner of the site and selecting "My applications"
- Click on my applications
--> Create new applications



Access Token

- At the bottom of the next page, you will see a section labeled "your access token":

Your access token

It looks like you haven't authorized this application for your own Twitter account yet. For your convenience, we give you the opportunity to create your OAuth access token here, so you can start signing your requests right away. The access token generated will reflect your application's current permission level.

Create my access token

- Click on the "Create my access token" button

Your access token

Use the access token string as your "oauth_token" and the access token secret as your "oauth_token_secret" to sign requests with your own Twitter account. Do not share your oauth_token_secret with anyone.

Access token

ddddddd-xxxXXxxxxXXxxXXXXxxxxXxxxXxxxxXX

Access token secret

XXxXxXxXxxxxXxxXxxXxxXxxXxxXxxXxxXxxXxx

Access level

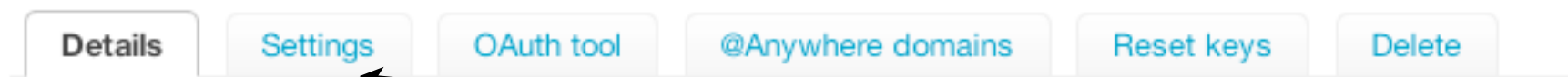
Read-only

Recreate my access token

Changing access level

- For most application the default access level (read-only) is fine
- In some cases you will need writing permissions

trids USFD ← My Application Name



monitoring twetts for emergency response

http://www.dcs.shef.ac.uk/~fabio/Fabio_Ciravegna/Projects.html

Click settings

Application Type

Access:

- ☐ Read only
- ☒ Read and Write
- ☐ Read, Write and Access direct messages

What type of access does your application need? Note: @Anywhere applications require read & write access.
Find out more about our [Application Permission Model](#).

Important!!! Replace Immediately

- Insert yours here

```
public class SolrTweet {  
    Twitter twitter;  
    SolrServer server;  
  
    static String consumerkey="x60RdTkpstRXJ0xvs4rKQ";  
    static String consumersecret="rNGLgBvvgPygBK0rZZGrH4yeAil3NBt5f4Z0lkqnA";  
    static String accesstoken="1135477087-rnZ6R4aI84BEpdzhubLt1DXcTRD2KU5bBwHTbqh";  
    static String accesstokensecret="vgS0HXtERtvq5WjbZRIcKaK3QXB84Shc0jb4hzlM";  
    static String zemantaKey="decmrns0zjmbdonicr8ijfv0";  
  
    static SemanticTagging smt;  
  
    /**  
     * constructor. It inisialises solr and all the twitter API/semantic annotator funct.  
     */
```


The program provided

- -> code
 - -> src
 - it contains the Java code for annotating tweets and storing them into solr
- -> VA_System
 - It contains the visual analytics tool to visualise the tweets in solr

The Java code

▼ src

AlCHEMYAnalysis
SemanticTagging
SolrTweet
Tag
ZemantaAnalysis

ignore

The generic methods for semantic tagging
Modify this to add new taggers

Twitter search and storing into solr.

The data structure used by semantic
taggers to return results into solr

Zemanta as an example of semantic tagger

SemanticTagging class

- Initialisation of semantic taggers
 - Add here your tagger
 - Please note that alchemy does not work in the code!!

```
/**  
 * it initialises the semantic annotation services  
 * @param prop  
 */  
public SemanticTagging(Properties prop) {  
    zma= new ZemantaAnalysis(prop.getProperty("zemanta"));  
    alchemy= new AlchemyAnalysis(prop.getProperty("alchemy"));  
}
```

SemanticTagging class (2)

- Annotating: add here the call to your semantic annotator

```
/**
 * main method to provide semantic tags. feel free to add new semantic methods
 * @param text
 * @return
 */
public List<Tag> annotateSemantically(String text){
    List<Tag> allTags= new ArrayList<Tag>();
    List<Tag> zemantaTags= zma.tagWithZemanta(text);
    allTags.addAll(zemantaTags);

    /// add other ways to annotate here
    List<Tag> alchemyTags= alchemy.analyse(text);
    allTags.addAll(alchemyTags);

    return allTags;
}
```

Tag Class

- Used to return the semantic annotations

```
*/  
public class Tag {  
    String anchor;  
    double confidenceScore;  
    String type;  
    String url;  
}
```

the annotated portion of the text

the name of the semantic type

the URI of the semantic type



localhost:8090/base.html

The Visual Analytics tool

VA tool

- It enables browsing the content of the solr archive
- It is pretty limited at the moment
 - You can enhance it if you like

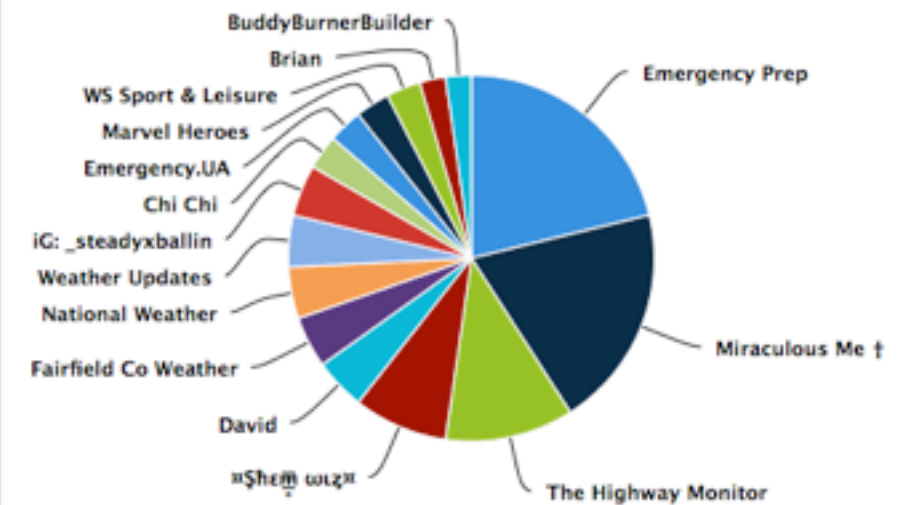
Tweet Visualisation

Reload Everything

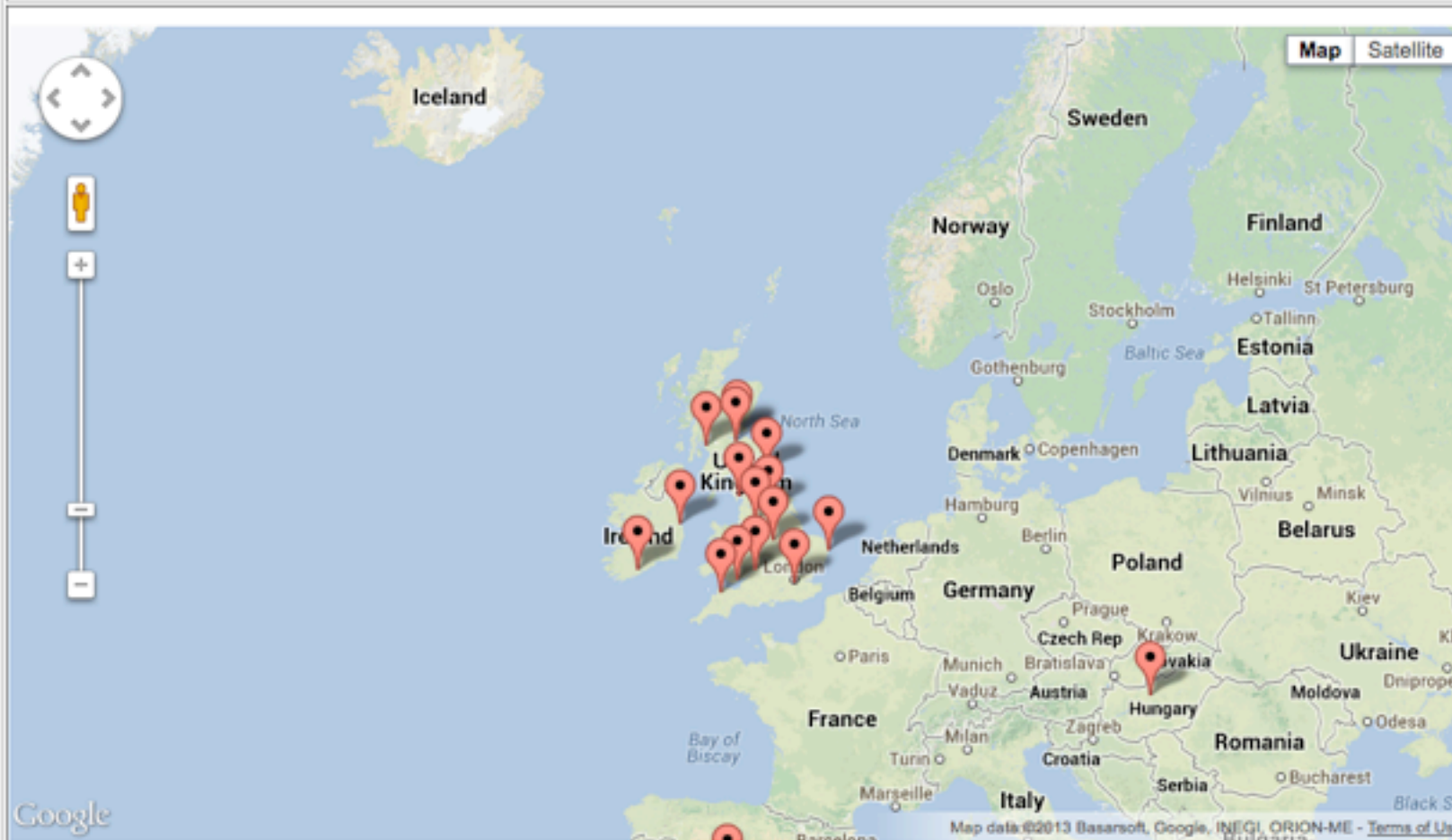
- **Northwest DCScoop**:RT @WNCathedral: The final day of #voting for #WNCathedral preservation! Thank you for your support to restore earthquake damage: <http://t...>
- **Derpily derpily derp**:RT @NewEarthquake: 5.4 earthquake, 198km E of Batagay, Russia. May 10 19:38 at epicenter (55m ago, depth 13km). <http://t.co/Pr32VZgJBh>
- **KPopRulesMyLife**:RT @aylinu: When iphone is vibrating you csnt really hear it but when my s3 is vibrating it's like an earthquake
- **kayla**: "i was an earthquake self-contained and i carried with me the aftershocks of hearing your voice, of seeing you smile."
- **Daniel**:RT @coketweet: First an earthquake, and now an eerie glowing sunset. What are you trying to tell us, Los Angeles?
- **Keir Mason**:Going a run round the ravy tonight so hold onto ur cups of tea folks #earthquake
- **Nichelle Cronon**:Q: Did you hear about the Mexico City earthquake? A: It did \$100 million worth of improvements.
- **ek**:About as subtle as an earthquake I know, my mistakes were made for you.
- **user1**:undefined
- **from_japan**:【#USGS #Breaking】 M 1.2, 5km WNW of Cobb, California <http://t.co/E4tMRABK5l> #PastHour #12 #earthquake #tsunami #prayfromjapan
- **QueenOfTHEunicorns**:RT @earthquakeBot: A 5.4 magnitude earthquake occurred 123.03mi E of Batagay, Russia. Details: <http://t.co/P0gSn0TeLE> Map: <http://t.co/vquL...>
- **annata black**:The Japan earthquake was monumental in my 'huge reality check' 4 the potential use of Twitter & the Heart-Centered Networking process.
- **ᏒᏁᏍᏁᏍᏁ**:RT @EarthImagery: Terrified Panda hugging police officer's leg after an earthquake <http://t.co/pWoo8Z9u07>
- **BITCH I MIGHT BE**:RT if you're a brunette with blue eyes so I can fuck you. I'll fuck you so hard it'll cause an earthquake in China.
- **admirerofshahrukh**:RT @GlobePix: Terrified Panda hugging police officer's leg after an earthquake... <http://t.co/HgK0h5Kcsn>
- **Trapit**:Quake-hit areas to get Leh type relief package: Omar <http://t.co/cfpiULaVIS> #quake #earthquake
- **smiley ortega**: "@thisisnotjoyce: if an earthquake happens in mars, would it be called a marsquake?"
- **Yoga Putra Prathama**:RT @iTwitQuotes_: Love is a temporary madness. It erupts like an earthquake and then subsides. And when

user Reload

plot of user

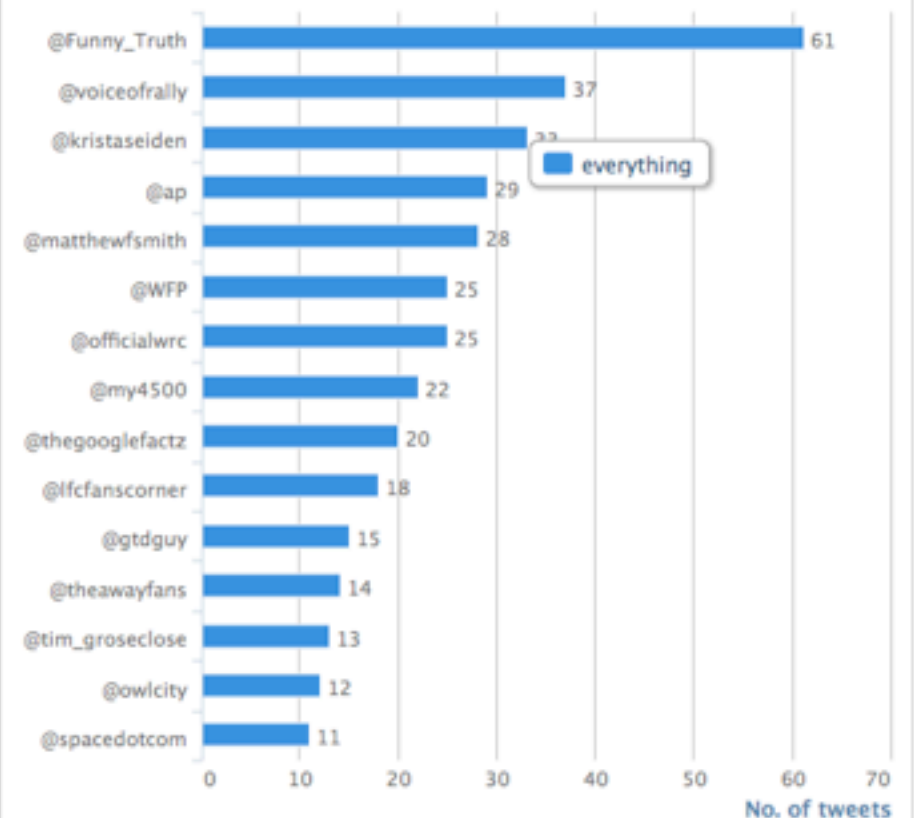


Highcharts.com



hashtag Reload

No. of tweets by everything

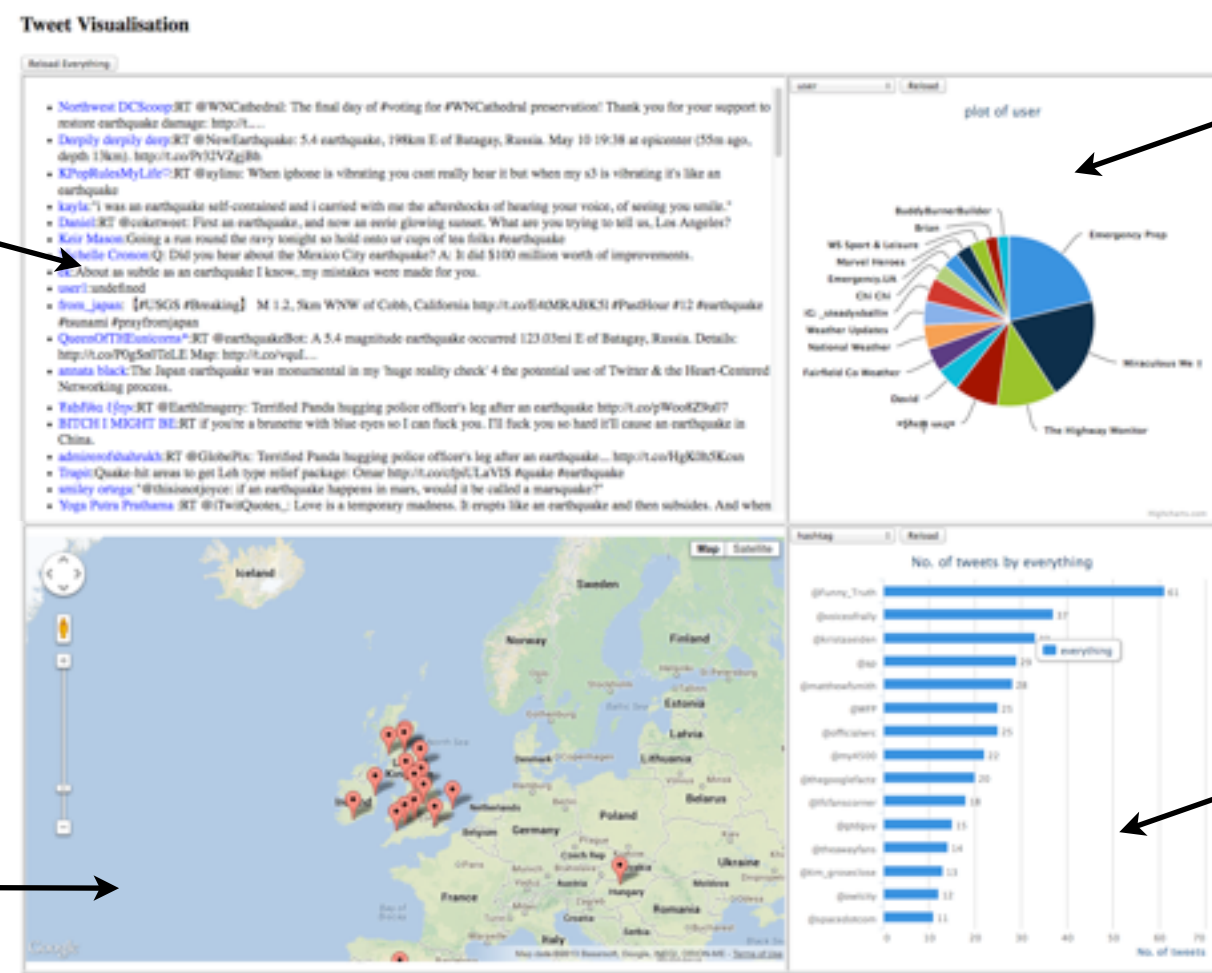


Pie chart:
clicking on one
element

Click here to
reset

Up to 100
tweets

The map show
info related to
the selected
pie chart
element

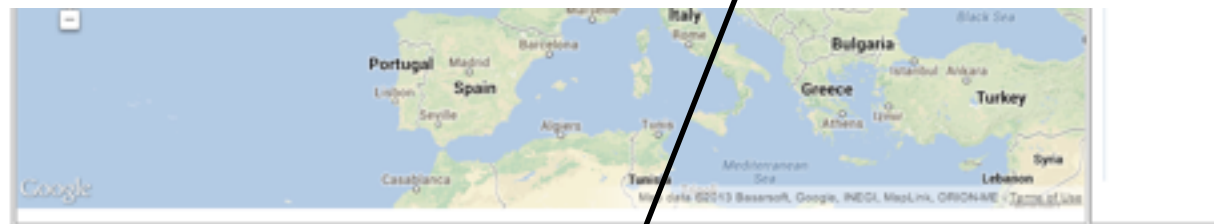


shows only the
tweets and the
bar chart info
related to that
element (and
dbpedia .. See
below)

The bar chart
shows info
related to the
selected pie
chart element

Augmenting Tweets with Semantics

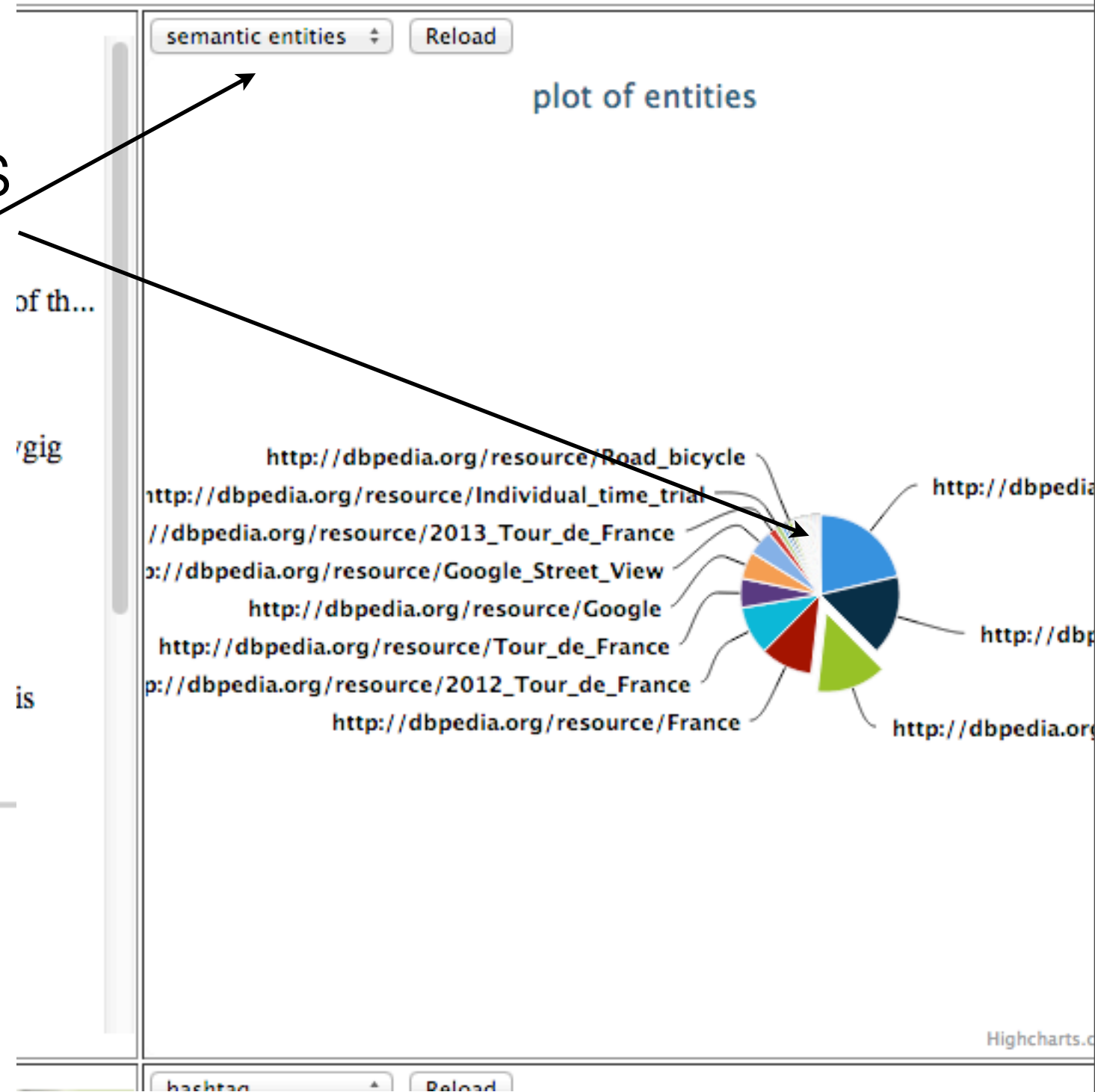
Choose semantic entities
And click on an element.
All the relations will be
displayed here



Create SPARQL Query

relations for element: http://dbpedia.org/resource/Team_Sky

- <http://dbpedia.org/property/name: Ben Swift>
- <http://dbpedia.org/property/name: Juan Antonio Flecha>
- <http://dbpedia.org/property/name: Kanstantsin Sivtsov>
- <http://dbpedia.org/property/name: Danny Pate>
- <http://dbpedia.org/property/name: Luke Rowe>
- <http://dbpedia.org/property/bicycles: Pinarello>
- [http://dbpedia.org/property/name: Christopher Sutton \(cyclist\)](http://dbpedia.org/property/name: Christopher Sutton (cyclist))
- <http://dbpedia.org/property/name: Edvald Boasson Hagen>
- [http://dbpedia.org/property/name: Jeremy Hunt \(cyclist\)](http://dbpedia.org/property/name: Jeremy Hunt (cyclist))
- <http://dbpedia.org/property/name: Mark Cavendish>
- <http://dbpedia.org/property/name: Mathew Hayman>
- <http://dbpedia.org/property/name: Thomas Lövkvist>
- <http://purl.org/dc/terms/subject: Cycling teams based in the United Kingdom>
- <http://dbpedia.org/property/name: Bradley Wiggins>
- <http://dbpedia.org/property/name: Peter Kennaugh>
- <http://dbpedia.org/property/name: Xabier Zandio>
- <http://purl.org/dc/terms/subject: Sports clubs established in 2009>
- <http://purl.org/dc/terms/subject: UCI ProTeams>
- <http://dbpedia.org/property/status: UCI ProTour>
- <http://dbpedia.org/property/discipline: Road bicycle racing>
- <http://dbpedia.org/property/name: Christian Knees>
- <http://dbpedia.org/property/manager: Dave Brailsford>
- [http://dbpedia.org/property/name: Michael Rogers \(cyclist\)](http://dbpedia.org/property/name: Michael Rogers (cyclist))



You can do the same by creating a sprawl query: click here

A form will appear



Create SPARQL Query

relations for element: http://dbpedia.org/resource/Team_Sky

<http://dbpedia.org/property/name: Ben Swift>
<http://dbpedia.org/property/name: Juan Antonio Flecha>
<http://dbpedia.org/property/name: Kanstantsin Sivtsov>
<http://dbpedia.org/property/name: Danny Pate>
<http://dbpedia.org/property/name: Luke Rowe>
<http://dbpedia.org/property/bicycles: Pinarello>

Insert your SPARQL QUERY

PREFIXES:

PREFIX rdfs: <<http://www.w3.org/2000/01/rdf-schema#>> PREFIX res: <<http://dbpedia.org/resource/>>

SELECT DISTINCT ?property ?concept ?conceptname

FROM

<http://dbpedia.org/sparql>

WHERE

{ res:France ?property ?uri . ?uri rdfs:label ?conceptname. FILTER langMatches(lang(?conceptname), "EN") }

Sutton (cyclist)
 ison Hagen
 t (cyclist)
 dish
 yman
 /kvist
 based in the United
 gins
 ugh
 io
 tablished in 2009
 ;
 ir
 cycle racing
 ees
 illsford
 gers (cyclist)
 rán

The application

- The goal is to identify specific events or people in the twitter stream without specific knowledge of the Tour the France and without accessing resources (e.g. Web pages) unless a direct link is provided in a tweet
- Example of queries: who has won the last round?
- Who is wearing the yellow jersey?
- Has anyone fallen off their bike in the last days?
- Etc.

localhost:8090/searchTwitter.html

Querying twitter

Search for more

- The current archive contains some tweets but in your investigation you might find people or events, etc you may want to look for into some additional tweets:
 - `localhost:8090/searchTwitter.html`
 - Gives you the opportunity to retrieve around 400 tweets with a query of your choice. An example query is provided