

Introduction to Wikidata Query Service

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<http://tinyurl.com/wikiconfwdqs>



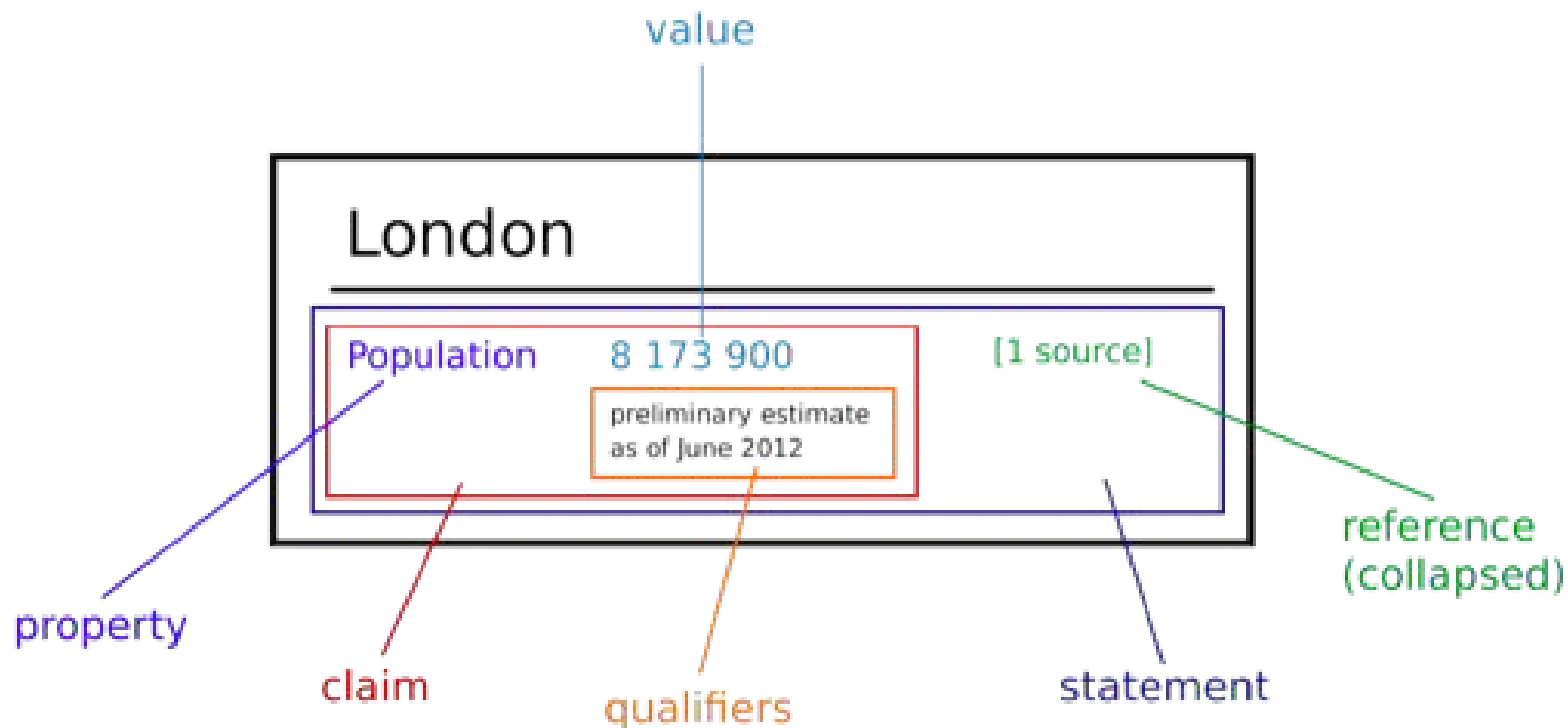
WIKIMEDIA
FOUNDATION



Wikidata: Quick reminder

- Free structured knowledge base
- Multilingual
- Approaching 20M entities
- CC0

Wikidata data structure



Getting from Data to Knowledge

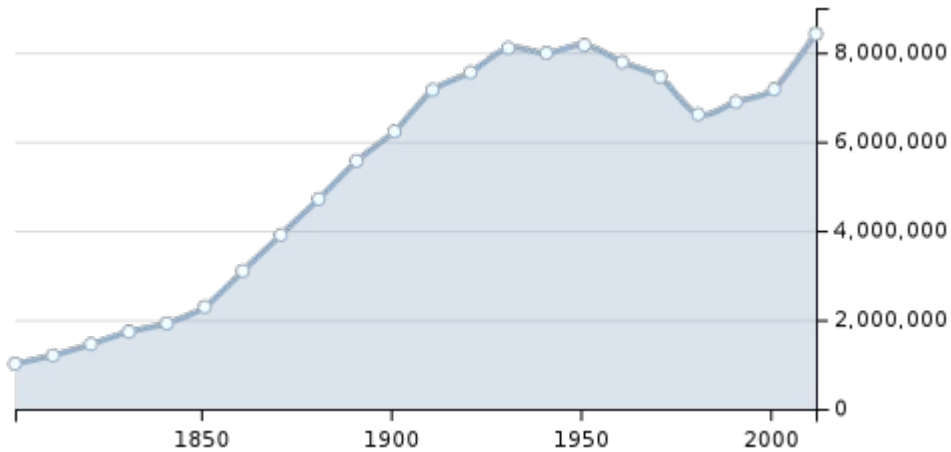
What we can learn from Wikidata?

Answering questions

- [Biggest cities with female mayors?](#)
- [Popular surnames amongst fictional characters?](#)
- [List of countries that existed in 1754](#)
- [Female scientists with most sitelinks, but no English Wikipedia article](#)
- [Who are the descendants of Genghis Khan?](#)

Vizualizing data

https://www.mediawiki.org/wiki/Template:Graph:Population_history



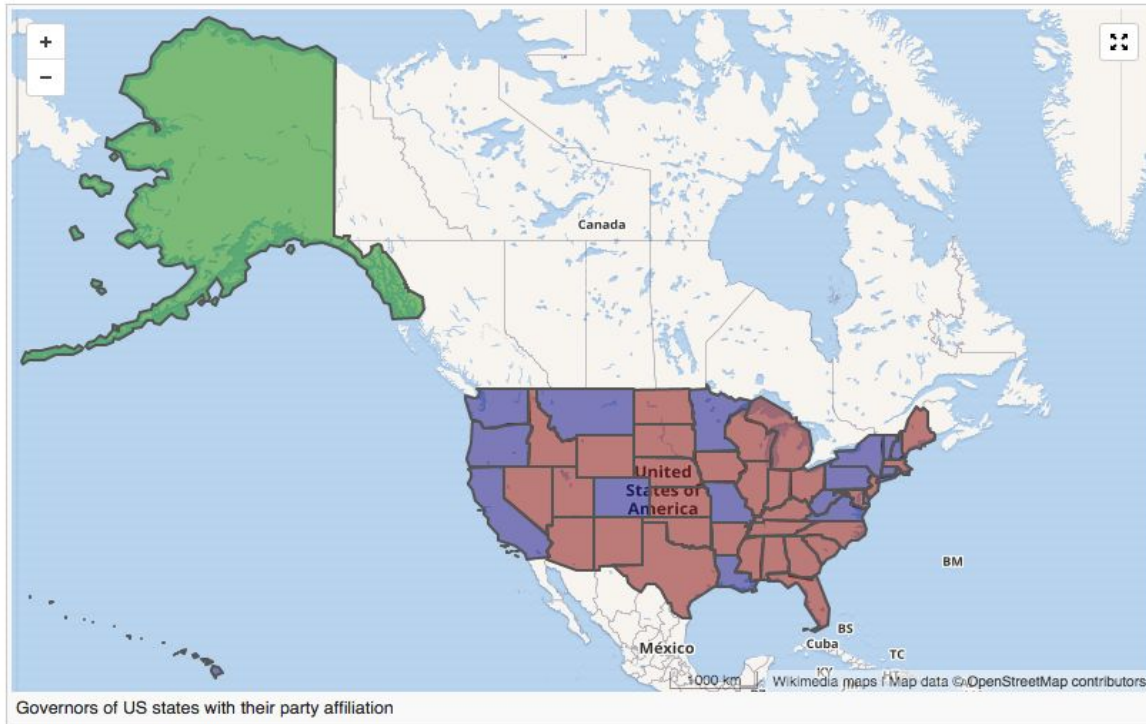
Bringing data to maps

https://www.mediawiki.org/wiki/Template:Graph:Country_with_regions_and_capitals

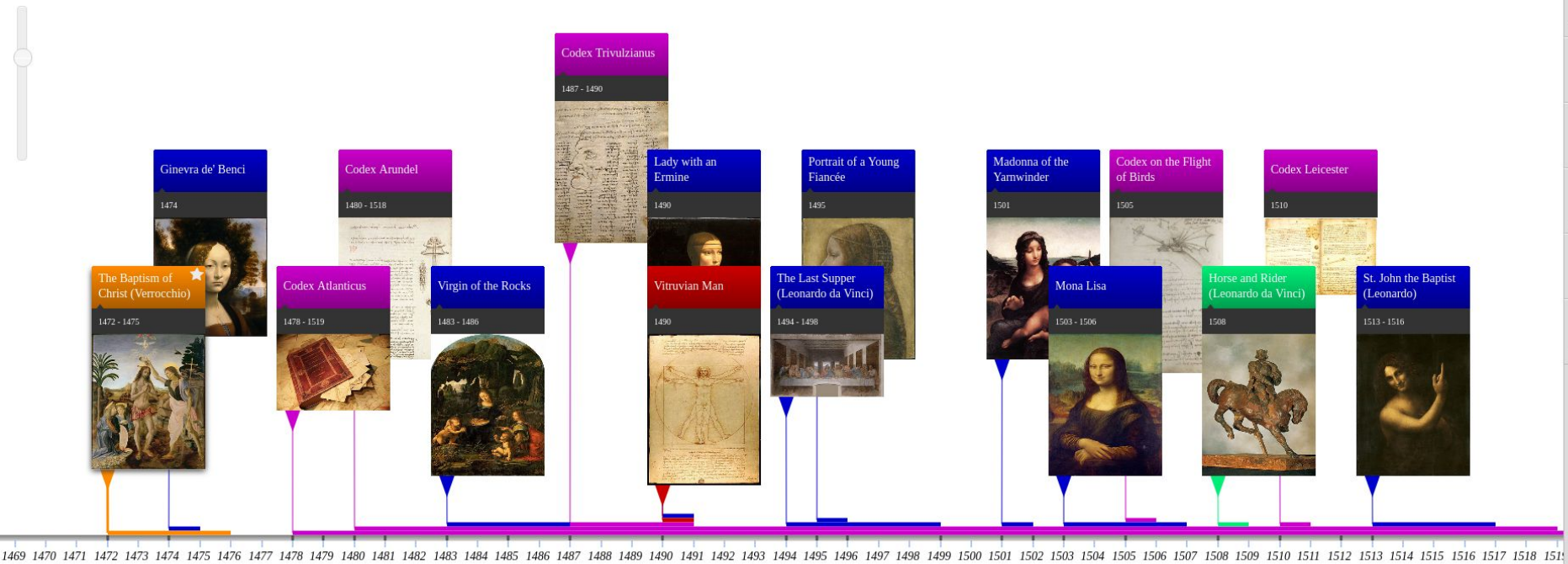


Bringing data to maps

[https://www.mediawiki.org/wiki/User:Smalyshev_\(WMF\)/Govmap](https://www.mediawiki.org/wiki/User:Smalyshev_(WMF)/Govmap)



Sharing the knowledge



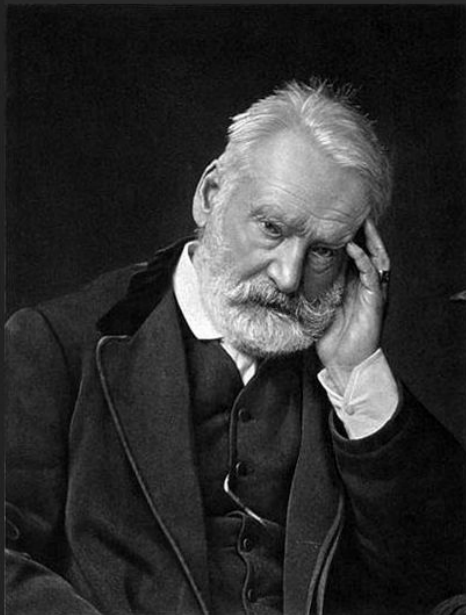
Works by Leonardo da Vinci

Share Timeline

Wikipedia
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 TV & Film
 Music
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add a
bookfriends &
groupsbrowse
books

exchanges



Victor Hugo

French poet, novelist, and dramatist

1802 - 1885

country of citizenship: France

native language: French

educated at: University of Paris, Lycée Louis-le-Grand

occupation: poet, politician, playwright, novelist,

draughtsperson, librettist, essayist, memoirist, writer

position held: member of parliament in France, member of the Senate of France

Les Misérables

Les Misérables (pronounced /leˈmiʒəˈʁɑːb/ or /leˈmiʒəˈʁɑːb/; French pronunciation: [le mizeʁabl(ə)]) is a French historical novel by Victor Hugo, first published in 1862, that is considered one of the greatest novels...

author: [Victor Hugo](#)

1862

[more details](#)

[add to my inventory](#)

[in your network](#)

The Hunchback of Notre Dame



The Hunchback of Notre-Dame (French: Notre-Dame de Paris) is a French Romantic/Gothic novel by Victor Hugo published in 1831. The title refers to the Notre Dame Cathedral in Paris, on which the story is ...

author: [Victor Hugo](#)

1831

[more details](#)

[add to my inventory](#)

[in your network](#)

Ninety-Three



Ninety-Three (Quatrevingt-treize) is the last novel by the French writer Victor Hugo. Published in 1874, shortly after the bloody upheaval of the Paris Commune, the novel concerns the Revolt in the Vendée and ...

author: [Victor Hugo](#)

[more details](#)

[add to my inventory](#)

[in your network](#)

Cromwell

Cromwell is a play by Victor Hugo, written in 1827. It was influenced by Hugo's literary circle, which identified itself as Romanticist and chose as a model dramatist Shakespeare instead of the Classicists Jean Racine and ...

author: [Victor Hugo](#)

1827

[more details](#)

[add to my inventory](#)

[in your network](#)

The Man Who Laughs

The Man Who Laughs (also published under the title By Order of the King) is a novel by Victor Hugo, originally published in April 1869 under the French title L'Homme qui rit. Although among Hugo's most obscure works...

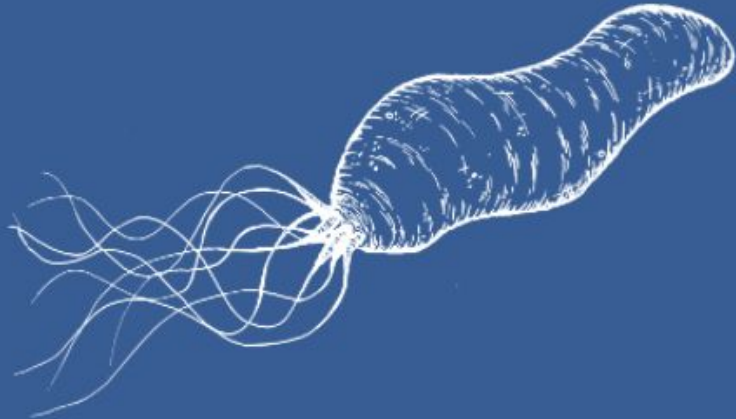
[more details](#)

[add to my inventory](#)

Welcome to The Centralized Model Organism Database

Start typing the name of an organism to continue...

e.g. *Helicobacter pylori* 26695





Ask me anything alpha version



Result

[Show internal results](#)

Spike Jonze 🇺🇸 🌐

Spike Jonze (pronounced "Jones" /dʒoʊnz/; born Adam Spiegel; October 22, 1969) is an American director, producer, screenwriter and actor, whose work includes music videos, commercials, film and television. He started his feature film directing career with Being John Malkovich (1999) and Adaptation (2002), both written by Charlie Kaufman, and then started movies with screenplays of his own with Where the Wild Things Are (2009) and Her (2013). Jonze is well known for his music video collaborations with Fatboy Slim, Weezer, Beastie Boys, Björk and Kanye West. [Wikipedia](#)



This query engine is the result of the Master's degree project of seven students.

If you are interested by some technical aspects, please have a look at the [project website](#).

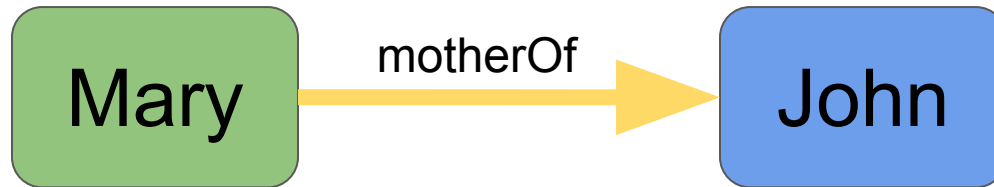
RDF

RDF Basics - Triples

Subject Predicate Object

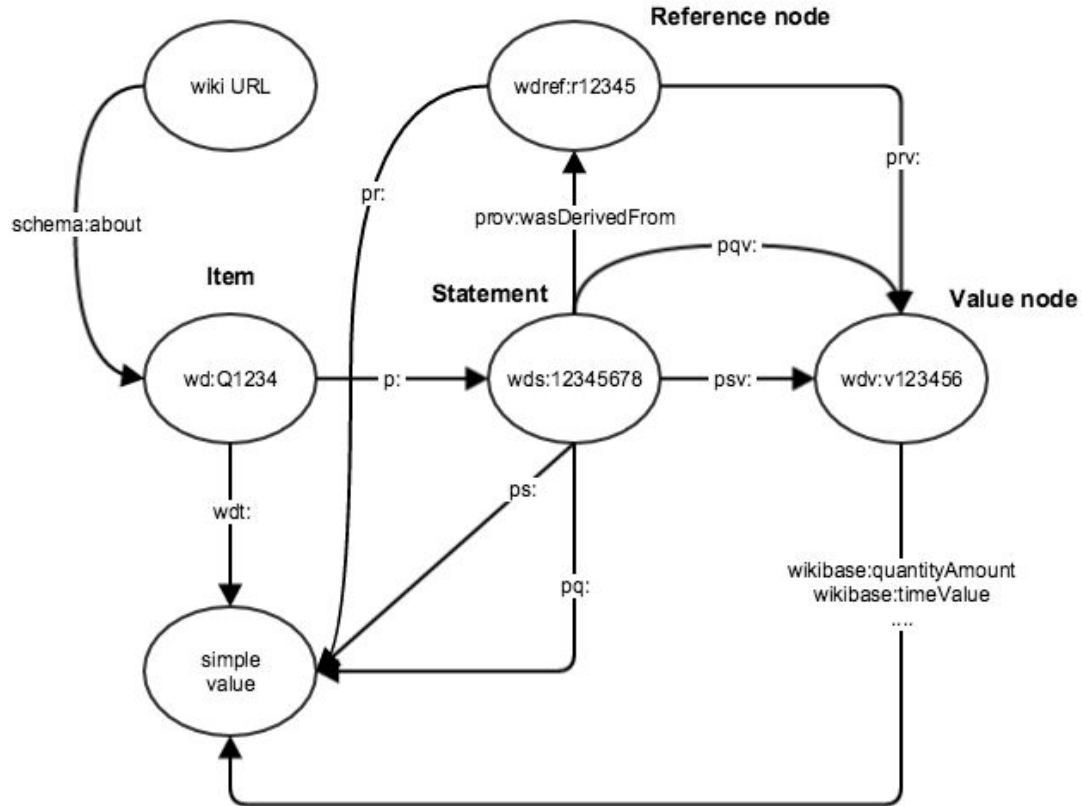
London population 8173900

Mary motherOf John



RDF + Wikidata = <3

RDF data representation



RDF objects

Node (URI), Literal (with language or type), Blank

```
wd:Q3 a wikibase:Item ;  
  rdfs:label "The Universe"@en ;  
  schema:description "The Universe is big"@en ;  
  wdt:P2 wd:Q3 ;  
  wdt:P7 "value1", "value2" ;  
  wdt:P580 "-13798000000-01-01T00:00:00Z"^^xsd:dateTime ;  
  p:P7 wds:Q3-24bf3704-4c5d-083a-9b59-1881f82b6b37,  
    wds:Q3-45abf5ca-4ebf-eb52-ca26-811152eb067c .
```

SPARQL Protocol And RDF Query Language

Querying RDF

SPARQL

Declarative SQL-like

Triple patterns in, values out

Turtle-serialized

Simple Query

#Cats

```
SELECT ?item ?itemLabel WHERE
```

```
{
```

```
  ?item wdt:P31 wd:Q146 .
```

```
  SERVICE wikibase:label {
```

```
    bd:serviceParam wikibase:language "en"
```

```
  }
```

```
}
```

Billionaires

```
SELECT ?item ?itemLabel ?billions WHERE {  
  ?item wdt:P2218 ?worth.  
  FILTER(?worth > 10000000000).  
  BIND(?worth/10000000000 AS ?billions).  
  SERVICE wikibase:label {  
    bd:serviceParam wikibase:language "en".  
  } }  
ORDER BY DESC(?billions)
```

Female mayors

```
SELECT DISTINCT ?city ?cityLabel ?mayor ?mayorLabel WHERE
```

```
{
```

```
  ?city wdt:P31/wdt:P279* wd:Q515 . # find instances of subclasses of city
```

```
  ?city p:P6 ?statement . # with a "head of goverment" statement
```

```
  ?statement ps:P6 ?mayor . # ... that has the value ?mayor
```

```
  ?mayor wdt:P21 wd:Q6581072 . # ... where the ?mayor has gender female
```

```
  FILTER NOT EXISTS { ?statement pq:P582 ?x } # but statement has no end date qualifier
```

```
  # Now select the population value of the ?city
```

```
  # (wdt: properties use only statements of "preferred" rank if any, meaning "current")
```

```
  ?city wdt:P1082 ?population .
```

```
  # Optionally, find English labels for city and mayor:
```

```
  SERVICE wikibase:label { bd:serviceParam wikibase:language "en" . }
```

```
}
```

```
ORDER BY DESC(?population) LIMIT 10
```


Services

- Labels
- Geo-Search in circle
- Geo-Search in the box
- More in the future?

Your friendly neighborhood GUI

GUI

GUI demonstration - <http://query.wikidata.org/>

Completion & explanation

Examples

Visualization modes

Linking & embedding

Data exports

Query Examples

Can I haz cats? <http://tinyurl.com/jmzbws9>

Wikidata Query Service Examples Prefixes Tools Help English

```
1 #Even more cats, with pictures
2 #defaultView:ImageGrid
3 SELECT ?item ?itemLabel ?pic
4 WHERE
5 {
6   ?item ?x1 wd:Q146 .
7   OPTIONAL {
8     ?item wdt:P18 ?pic
9   }
10 }
```

Press [CTRL-SPACE] to activate auto completion. Data updated a few seconds ago

Run Clear 999 Results in 291 ms Display Download Link



[commons:Six weeks old cat \(aka\).jpg](#)
Q wd:Q147



[commons:Feral cat Virginia crop.jpg](#)
Q wd:Q2404562

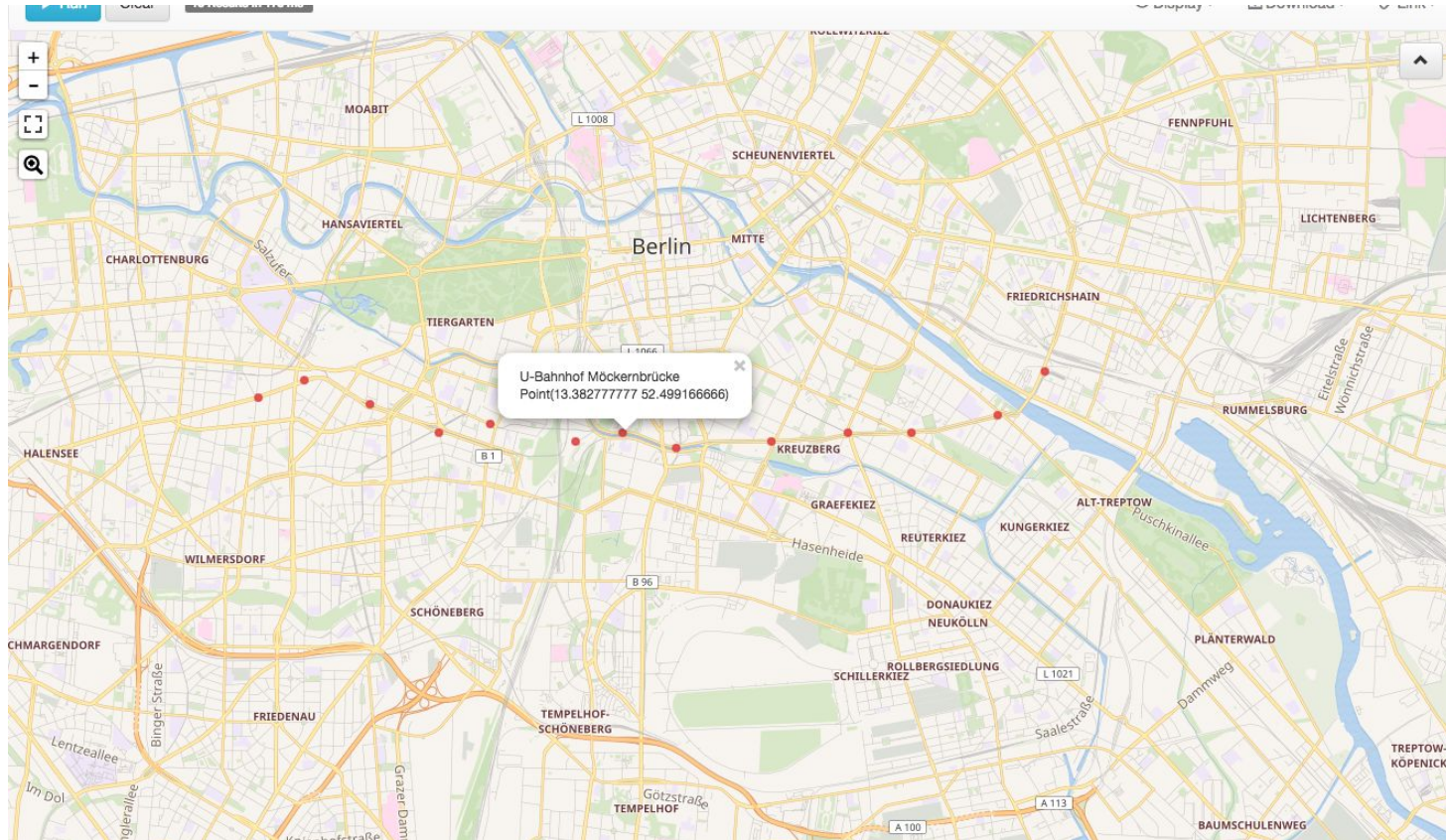


[commons:Jean-Honoré Fragonard 012.jpg](#)
Q wd:Q5967115

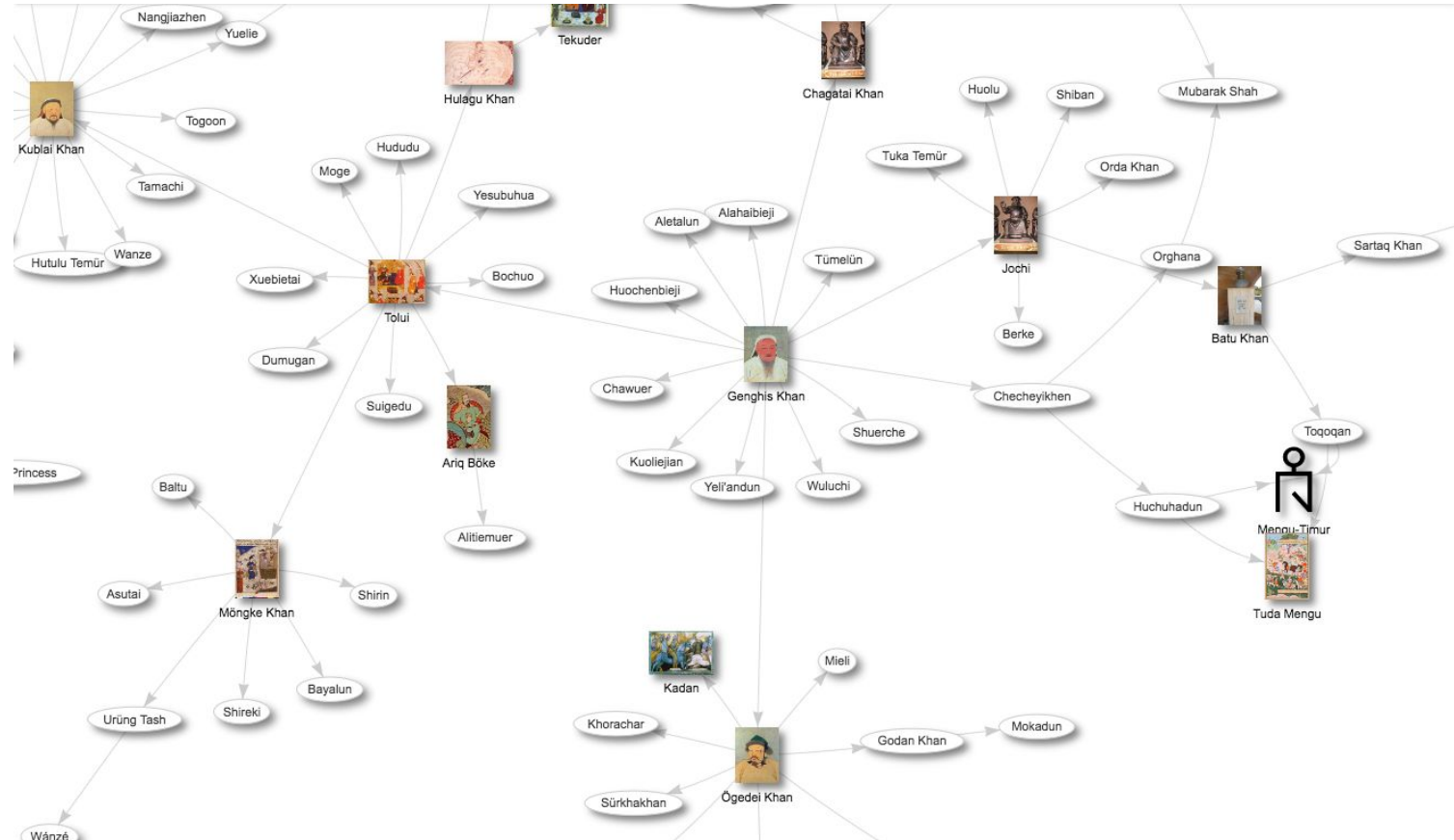


[commons:Jean-Baptiste Perronneau - Mademoiselle Huquier - WGA17215.jpg](#)

U-Bahn Maps: <http://tinyurl.com/gv4v7qa>



Khan Graph: <http://tinyurl.com/h5x5q4q>



DIY graph: <http://tinyurl.com/gvtp6xx>



Vega Specification

[Copy](#) [Export to lyrx](#)

```
{
  "width": 1,
  "height": 1,
  "padding": "auto",
  "data": [
    {
      "name": "source",
      "url": "wikidatasparql:///?"
```

```
query=%23How%20many%20musicians%20dies%20at%20certain%20age%0A%23%20Query%20to%20find%20all%20musicians%20who%20have%20already%20died%20at%20%20%20%20calculate%20their%20age%20%28full%20years%29%20at%20death%0A%20%20%20%23%20count%20how%20many%20of%20them%20died%20at%20each%20age%0A%0A%20%20%20SELECT%20%3Fage%20%20%28COUNT%20%28DISTINCT%20%3Fa%29%20OAS%20%20%3Fcount%29%20WHERE%20%3B%0A%20%20%20%20%20%20%20%20%3Fa%20wdt%3AP31%20wd%3AQ5%20.%20%23instance%20of%20human%0A%20%20%20%20%20%20%20%20%3Fa%20wdt%3AP106%2Fwdt%
```

~~Now you are on your own!~~

RTFM

https://www.mediawiki.org/wiki/Wikidata_query_service/User_Manual

https://www.mediawiki.org/wiki/Wikibase/Indexing/RDF_Dump_Format

<http://www.w3.org/TR/sparql11-query/>

<http://programminghistorian.org/lessons/graph-databases-and-SPARQL>

https://en.wikibooks.org/wiki/XQuery/SPARQL_Tutorial

<https://www.amazon.com/Learning-SPARQL-Bob-DuCharme/dp/1449371434>

Help!

https://www.wikidata.org/wiki/Wikidata:SPARQL_examples

https://commons.wikimedia.org/wiki/File:SPARQL_Workshop.pdf

https://www.wikidata.org/wiki/Wikidata:SPARQL_query_service/queries

https://www.wikidata.org/wiki/Wikidata:Project_chat

https://www.wikidata.org/wiki/Wikidata:Request_a_query

https://www.wikidata.org/wiki/Wikidata:Contact_the_development_team

Tools

<https://tools.wmflabs.org/wdq2sparql/w2s.php>

<https://tools.wmflabs.org/sqid/#/browse?type=properties>

<https://tools.wmflabs.org/hay/propbrowse/>

<https://petscan.wmflabs.org/>

<https://tools.wmflabs.org/listeria/>

Thank you!

<http://query.wikidata.org/>

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Freenode: #wikidata