Querying data on the Semantic Web

This session will be about querying data in RDF, using the SPARQL query language. It starts with observing existing queries to understand the constructs of SPARQL queries, then follows with questions to be answered by writing a SPARQL query to a deployed endpoint.

Create a text file named `<yourfirstname-yourlastname.txt>` where you will copy your answers to the questions and the queries you write and send it to `lsferreira@fe.up.pt` at the end of your exercise.

Observing example queries

In this part, you simply observe the existing examples from Wikidata Query Service.

- Use the button labelled "Examples".

- Start looking at the first example, listing notable cats. Note that the `SERVICE` clause here uses special features of Wikidata that are not available in standard SPARQL endpoints. To execute the query, click on the blue button with a white triangle on the left side.

- Put your mouse on top of `wdt:P31`. What do you read? Do the same for `wd:Q146`. Write your answers in the file.

- Delete `Q146` and place your cursor after `wd:`. Type Ctrl+Space. Then you should have a little popup that says "Type to search for an entity". Type "cow" and select the entity that corresponds to a kind of cattle and press enter. What is the Q number of this entity? Write your answer in the file.

- Execute the query. How many results there are? Write your answer in the file.

- Select the example query for horses (with some info about them). This query shows multiple SPARQL constructs. Try to understand them.

- The example query named "Cats, with pictures" uses a special feature of Wikidata that is not part of the language SPARQL. At the beginning of the query, there is comment saying `#defaultView:ImageGrid`. This turns any URL of pictures in the result of a query into a displayed image.

- The example query "Map of hospitals" uses another feature of Wikidata. At the beginning of the query, there is comment saying `#defaultView:Map`. Execute the

query and see what happens. Then delete the comment and execute again. What allows Wikidata to determine the location of a result? Write your answer in the file.

- Take a close look at the query "Items about authors with a Wikispecies page". What SPARQL constructs are used here that are also SQL constructs? Write your answer in the file.

- The query "Recent events" shows other features, like `FILTER`, `BOUND`, comparators, operators, `DATATYPE`, `BIND ... AS`, `LANG`.

- You can play a bit more with the example queries.

Challenge yourself

You may try to find who are the Physics Nobel prize laureates from Europe.

You may also try to find who are the widow of assassinated USA presidents. Then of all presidents, regardless of the country.

Some useful references

- [RDF Playground](#) from University of Chile, with RDF syntax checker and visualiser, SPARQL editor and engine, and more things.
- [SPARQL Playground](#) from the Swiss institute of bioinformatics, with more and more complicated examples