

2. Unit: Linked Open Data - LOD

Exercise 2.1 (Bavarian Language tags) Use the wikidata webinterface for the following queries (<https://query.wikidata.org/>). Which language tag does the Bavarian language have? Does Germany, Austria or Switzerland have the highest percentage of cities that have a bavarian description? Keep in mind that WikiData has many subclasses of City and cannot use a reasoner.

Exercise 2.2 (Heads of states, head of government, etc.) This exercise uses only Wikidata (Mondial does not contain information about political leaders). Some countries have a single leader, some differentiate between head of state and head of government. For exploring the data use Barack Obama, Theresa May/Queen Elizabeth II & Dr. Angela Merkel/Frank-Walter Steinmeier as a starting point.

- Which country has the oldest/youngest head of government/state (including all subclasses) of a country, who is still alive?
- Return the country name (in English or German), the full name of the person and the birth date.

Exercise 2.3 (Fantasy countries) In addition to actual countries and historical countries, Wikidata also contains information about countries that are depicted in fiction (e.g. Mordor, Lumberland). Develop a SPARQL query that extracts all information that fit the Mondial data model for countries for all different kinds of countries.

In the exercise, only the country data, not the information about provinces and cities should be extracted. Where would be a problem, if also provinces or cities are dealt with?

Exercise 2.4 (LOD connections Mondial ↔ Wikidata) Examine the data structure in Wikidata and compare it to Mondial to solve the following exercises:

- Compare countries and try to find as many matches as possible between Wikidata and Mondial through queries. Construct for each matching pair a **sameAs** triple.
- For each city in Mondial without **elevation** try to find a match in Wikidata that has this information.
- Compare how the **Membership** information between Organizations and Countries is stored in Mondial and Wikidata. Which memberships are present only in Mondial or Wikidata and which are present in both.

Exercise 2.5 (Language Tags for Mondial's Local Names)

- Search in the Wikidata labels for the same values as in the local names or the other names of Mondial.
- Then match the Mondial local names respectively the other names with the corresponding language tags from Wikidata Labels

Exercise 2.6 (YAGO vs DBpedia) Compare which information is available about countries.

Exercise 2.7 ("Funny" DBpedia Queries) These exercises should highlight the data quality in DBpedia.

- Which champion of the Formula One is also a car? / Who won the Formula One without being a Formula One Racer?
- Which mountains have played in "Trinity Is Still My Name"?
- Which monarchs are also states?

Exercise 2.8 (Blank Nodes in LOD Sources) This exercise deals with blank nodes in LOD. Recall that the predicate `isBlank(?X)` checks whether a node is a blank node.

- Check which of the DBpedia, Yago, Insee.fr, GeoSparql, and Wikidata sources contain blank nodes. Explore them: find out which (application) “classes” are modeled by blank nodes, what they are modeling, and how they can be explored by the HTML interfaces and via RDF access (rapper) and via SPARQL. Are there any restrictions?
- Do the same for the Mondial LOD service.