3. SPARQL 1.0

The purpose of this lab is to

1. deepen the skills to write and read SPARQL 1.0 queries, and
2. practice exploring a live SPARQL endpoint.

DBpedia

DBpedia[1] is a crowd-sourced community effort to extract structured information from Wikipedia and make this information available on the Web. DBpedia allows you to ask sophisticated queries against Wikipedia, and to link the different data sets on the Web to Wikipedia data. This will make it easier for the huge amount of information in Wikipedia to be used in some new interesting ways. Furthermore, it might inspire new mechanisms for navigating, linking, and improving the encyclopedia itself.

Writing SPARQL Queries

Formulate these natural language queries as SPARQL 1.0 queries and execute them against the DBpedia SPARQL endpoint[2].

1. Return all hotels in Italy.
2. Return all hotels in Milan or Venice.
3. Is there a hotel in Venezia?

   Hint: "Venezia" is a plain literal with the language tag "it".
4. Return all hotels in a city where the Rialto Bridge is located.

   Hint: The DBpedia description for the Rialto Bridge might help you formulate the query.
5. Return all hotels in Italy sorted by the number of rooms in a descending order.
6. Return the German or Italian abstracts of Venice.
7. Return hotels whose URIs contain "venice" (case insensitive).

[1] `http://dbpedia.org/About`
[2] `http://dbpedia.org/sparql/`

Reading SPARQL Queries

Consider the following prefix declarations.

```
PREFIX s: <http://schema.org/>
PREFIX dbp: <http://dbpedia.org/property/>
PREFIX dbo: <http://dbpedia.org/ontology/>
PREFIX dbr: <http://dbpedia.org/resource/>
```

Interpret these SPARQL queries in natural language.

1. ```
   SELECT * WHERE {
     ?h a s:Hotel .
     ?h dbp:owner [ dbo:location dbr:Florence ] .
   }
   ```

2. ```
   SELECT * WHERE {
     ?s a s:Hotel .
     ?s dbo:location dbr:Italy .
     OPTIONAL { ?s dbp:website ?w }
   }
   ```

3. ```
   SELECT ?s ?n WHERE {
     ?s a s:Hotel .
     ?s dbo:location dbr:Italy .
     ?s dbp:numberOfRooms ?n .
     OPTIONAL {
       ?s a s:Hotel .
       ?s dbo:location dbr:Italy .
       ?s dbp:numberOfRooms ?n .
       ?s2 a s:Hotel .
       ?s2 dbo:location dbr:Italy .
       ?s2 dbp:numberOfRooms ?n2 .
       FILTER(?n < ?n2) }
     FILTER (!(bound(?n2)))
   }
   ```

Exploring DBpedia

Find the name of a hotel, whose developer is a director of a movie starring an actor whose death place was in a country where French, German and Italian are spoken.
   ```