

Introduction to the Semantic Web

Worksheet 5: SPARQL

Deadline: Tuesday, November 20, 13:00

Consider the following knowledge base:

```
@prefix ex: <http://example.org/> .
@prefix unit: <http://example.org/unit/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
unit:kilometre rdf:type rdfs:Datatype .
ex:Sun ex:hasRadius "1.392e6"^^unit:kilometre ;
ex:hasSatellite ex:Mercury, ex:Venus, ex:Earth, ex:Mars .
ex:Mercury ex:hasRadius "2439.7"^^unit:kilometre .
ex:Venus ex:hasRadius "6051.9"^^unit:kilometre .
ex:Earth ex:hasRadius "6372.8"^^unit:kilometre ;
ex:hasSatellite ex:Moon .
ex:Mars ex:hasRadius "3402.5"^^unit:kilometre ;
ex:hasSatellite ex:Phobos, ex:Deimos .
ex:hasRadius "1737.1"^^unit:kilometre .
```

Write SPARQL queries which extract the following results in tabular form.

1. objects which circle the sun or one of its satellites.
2. objects with a radius of more than 3.000 km and, if applicable, the object whose satellite they are.
3. satellites of an object with a diameter of more than 3.000 km.

Question 2

Open the DBpedia-URI of Bielefeld University in a Browser: http://dbpedia.org/resource/Bielefeld_University

Based on these triples, formulate the following SPARQL-queries and test them against the official DBpedia SPARQL endpoint: <http://dbpedia.org/sparql>

1. Who is the rector of Bielefeld University?
2. How many students study at Bielefeld University?
3. Give me a list of all German universities, ordered by founding date.
4. Give me a list of all German universities that have more than 10.000 students.
5. Give me a list of all famous alumni of Bielefeld University and their images.
6. Does Bielefeld exist?