

SPARQL

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1 Exercises – DBPedia

Use the <http://dbpedia-live.openlinksw.com/sparql/> endpoint for posing queries. For finding suitable resources, please use either the DBPedia ontology in WebProtégé <http://webprotege.stanford.edu>, or the browser available at http://live.dbpedia.org/page/Czech_Republic.

Ex. 1 — Find all types (classes) of a Gray wolf in DBPedia.

Answer (Ex. 1) —

```
SELECT DISTINCT ?o
WHERE
{
  <http://dbpedia.org/resource/Gray_wolf> a ?o
}
```

Ex. 2 — Find labels of Gray wolf in czech, english and german languages.

Answer (Ex. 2) —

```
SELECT DISTINCT ?l
WHERE
{
  <http://dbpedia.org/resource/Gray_wolf> rdfs:label ?l.
  FILTER (lang(?l) in ("cs", "en", "de"))
}
```

Ex. 3 — Find the name for the Czech Republic in all official languages of EU member states.

Answer (Ex. 3) —

```
SELECT DISTINCT ?country ?language ?l ?tag
WHERE
{
  <http://dbpedia.org/resource/Czech_Republic> rdfs:label ?l.
  ?country dct:subject <http://dbpedia.org/resource/Category:
    Member_states_of_the_European_Union> .
}
```

```

?country dbpedia-owl:officialLanguage ?language .
?language <http://dbpedia.org/property/iso> ?tag .
FILTER (strlen(?tag)=2 && lang(?l)=str(?tag))
}

```

Ex. 4 — How many czech writers died in the Czech Republic according to DBPedia ?

Answer (Ex. 4) —

```

SELECT COUNT(?x)
{
  ?x <http://dbpedia.org/ontology/deathPlace> <http://dbpedia.org/resource/
    Czech_Republic> .
  ?x dct:subject <http://dbpedia.org/resource/Category:Czech_writers>
}

```

Ex. 5 — How many world countries have more than one official language ?

Answer (Ex. 5) —

```

SELECT count(?country) {
  SELECT DISTINCT ?country, COUNT(?language)
  WHERE
  {
    ?country dbpedia-owl:officialLanguage ?language .
  }
  GROUP BY ?country
  HAVING COUNT(?language) > 1
}

```

Ex. 6 — Find five countries with the highest population.

Answer (Ex. 6) —

```

SELECT DISTINCT ?country ?cnt
WHERE
{
  ?country a dbpedia-owl:Country .
  ?country dbpprop:populationCensus ?cnt
}
ORDER BY DESC(?cnt)
LIMIT 5

```

Ex. 7 — Find all parliamentary republics optionally together with their czech name (if exist)

Answer (Ex. 7) —

```

SELECT DISTINCT ?country ?l
WHERE
{
  ?country a dbpedia-owl:Country .
  ?country dbpedia-owl:governmentType dbpedia:Parliamentary_republic .
  OPTIONAL {
    ?country rdfs:label ?l
  }
}

```

```
FILTER (lang(?l)="cs")
}
}
```

Ex. 8 — Find all female ancestors of the Prince Charles.

Answer (Ex. 8) —

```
SELECT * WHERE {
  <http://dbpedia.org/resource/Charles,_Prince_of_Wales> (<http://dbpedia.org/property
    /mother>)+ ?s.
}
LIMIT 10
```

2 Corese

Corese is one of the reference implementations of SPARQL 1.1.

1. Download and install it from <http://wimmics.inria.fr/node/33>.
2. Run it using `java -jar corese-3.1.1.jar`.
3. Press the + sign to create a new query

Ex. 9 — Using Corese, try to “Find all female ancestors of the Prince Charles” (the same query as in the previous section).

Answer (Ex. 9) —

```
SELECT * {
  SERVICE <http://dbpedia.org/sparql> {
    SELECT * WHERE {
      <http://dbpedia.org/resource/Charles,_Prince_of_Wales> (<http://dbpedia.org/
        property/mother>)+ ?s.
    }
    LIMIT 10
  }
}
```

3 Relevant References

- Corese <http://wimmics.inria.fr/node/33>
- WebProtege <http://webprotege.stanford.edu>
- DBPedia SPARQL endpoint <http://dbpedia-live.openlinksw.com/sparql>
- Europeana SPARQL endpoint <http://europeana.ontotext.com/sparql>

- OSW ontology SPARQL endpoint <http://onto.fel.cvut.cz/openrdf-sesame/repositories/osw-2014-summer>
- SPARQL endpoint list <http://www.w3.org/wiki/SparqlEndpoints>