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ESCUELA TÉCNICA SUPERIOR DE INGENIEROS  
INFORMÁTICOS



MASTER OF SCIENCE IN HEALTH AND MEDICAL DATA  
ANALYTICS  
OPEN DATA AND KNOWLEDGE GRAPHS

# ADVANCED SET OF SPARQL QUERIES

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Create the SPARQL query and the result for the following queries expressed in natural language. The endpoint that you can use for this exercise is: <http://es.dbpedia.org/sparql>

**1. Get all the properties that can be applied to instances of the Politician class (<<http://dbpedia.org/ontology/Politician>>)**

```
SELECT DISTINCT ?properties
WHERE {
  ?x a <http://dbpedia.org/ontology/Politician> .
  ?x ?properties ?value .
}
```

[https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties%0D%0AWHERE+%7B%0D%0A++%3F%3D%3Chttp%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3D%3Fproperties+%3Fvalue+.%0D%0A%7D&format=text%2Fhtml&timeout=10000&signal\\_void=on&signal\\_unconnected=on](https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties%0D%0AWHERE+%7B%0D%0A++%3F%3D%3Chttp%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3D%3Fproperties+%3Fvalue+.%0D%0A%7D&format=text%2Fhtml&timeout=10000&signal_void=on&signal_unconnected=on)

**2. Get all the properties, except rdf:type, that can be applied to instances of the Politician class**

```
SELECT DISTINCT ?properties
WHERE {
  ?x a <http://dbpedia.org/ontology/Politician> .
  ?x ?properties ?value .
  FILTER (?properties != rdf:type)
}
```

[https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties%0D%0AWHERE+%7B%0D%0A++%3F%3D%3Chttp%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3D%3Fproperties+%3Fvalue+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+rdf%3Atype%29%0D%0A%7D&format=text%2Fhtml&timeout=10000&signal\\_void=on&signal\\_unconnected=on](https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties%0D%0AWHERE+%7B%0D%0A++%3F%3D%3Chttp%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3D%3Fproperties+%3Fvalue+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+rdf%3Atype%29%0D%0A%7D&format=text%2Fhtml&timeout=10000&signal_void=on&signal_unconnected=on)

**3. Which different values exist for the properties, except for rdf:type, applicable to the instances of Politician?**

```
SELECT DISTINCT ?values
WHERE {
  ?x a <http://dbpedia.org/ontology/Politician> .
  ?x ?properties ?values .
  FILTER (?properties != rdf:type)
}
```

[https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fvalues%0D%0AWHERE+%7B%0D%0A++%3F%3D%3Chttp%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3D%3Fproperties+%3Fvalues+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+rdf%3Atype%29%0D%0A%7D&format=text%2Fhtml&timeout=10000&signal\\_void=on&signal\\_unconnected=on](https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fvalues%0D%0AWHERE+%7B%0D%0A++%3F%3D%3Chttp%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3D%3Fproperties+%3Fvalues+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+rdf%3Atype%29%0D%0A%7D&format=text%2Fhtml&timeout=10000&signal_void=on&signal_unconnected=on)

**4. For each of these applicable properties, except for `rdf:type`, which different values do they take globally for all those instances?**

```
SELECT DISTINCT ?properties (GROUP_CONCAT(DISTINCT ?values;  
SEPARATOR="\n") AS ?values)  
WHERE {  
  ?x a <http://dbpedia.org/ontology/Politician> .  
  ?x ?properties ?values .  
  FILTER (?properties != <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>)  
}
```

[https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties+%28GROUP\\_CONCAT%28DISTINCT+%3Fvalues%3B+SEPARATOR%3D%22%5Cn%22%29+AS+%3Fvalues%29%0D%0A+WHERE+%7B%0D%0A++%3F%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3Fproperties+%3Fvalues+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+%3Chttp%3A%2F%2Fwww.w3.org%2F1999%2F02%2F22-rdf-syntax-ns%23type%3E%29%0D%0A%7D%0D%0A%0D%0A&format=text%2Fhtml&timeout=10000&signal void=on&signal unconnected=on](https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties+%28GROUP_CONCAT%28DISTINCT+%3Fvalues%3B+SEPARATOR%3D%22%5Cn%22%29+AS+%3Fvalues%29%0D%0A+WHERE+%7B%0D%0A++%3F%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3Fproperties+%3Fvalues+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+%3Chttp%3A%2F%2Fwww.w3.org%2F1999%2F02%2F22-rdf-syntax-ns%23type%3E%29%0D%0A%7D%0D%0A%0D%0A&format=text%2Fhtml&timeout=10000&signal void=on&signal unconnected=on)

**5. For each of these applicable properties, except for `rdf:type`, how many distinct values do they take globally for all those instances?**

```
SELECT DISTINCT ?properties (COUNT(DISTINCT ?values) AS  
?numberDistinctValues)  
WHERE {  
  ?x a <http://dbpedia.org/ontology/Politician> .  
  ?x ?properties ?values .  
  FILTER (?properties != rdf:type)  
}
```

<https://dbpedia.org/sparql?default-graph-uri=http%3A%2F%2Fdbpedia.org&query=SELECT+DISTINCT+%3Fproperties+%28COUNT%28DISTINCT+%3Fvalues%29+AS+%3FnumberDistinctValues%29%0D%0A+WHERE+%7B%0D%0A++%3F%3A%2F%2Fdbpedia.org%2Fontology%2FPolitician%3E+.%0D%0A++%3F%3Fproperties+%3Fvalues+.%0D%0A++FILTER+%28%3Fproperties+%21%3D+rdf%3Atype%29%0D%0A%7D%0D%0A%0D%0A&format=text%2Fhtml&timeout=10000&signal void=on&signal unconnected=on>