

## Assignment 3: SPARQL Queries

### 1. Simple set

#### 1.1 Get all the classes

##### **Query**

```
SELECT DISTINCT ?class
WHERE{
  ?class a <http://www.w3.org/2000/01/rdf-schema#Class>
}
```

##### **Link**

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+DISTINCT+%3Fclass%0D%0AWHERE%7B%0D%0A+%3Fclass+a+%3Chttp%3A%2F%2Fwww.w3.org%2F2000%2F01%2Frd-schema%23Class%3E%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+DISTINCT+%3Fclass%0D%0AWHERE%7B%0D%0A+%3Fclass+a+%3Chttp%3A%2F%2Fwww.w3.org%2F2000%2F01%2Frd-schema%23Class%3E%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

#### 1.2 Get all the subclasses of the class Establishment

##### **Query**

```
SELECT ?subclass
WHERE{
  ?subclass <http://www.w3.org/2000/01/rdf-schema#subClassOf> <http://GP-onto.fi.upm.es/exercise2#Establishment>
}
```

##### **Link**

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Fsubclass%0D%0AWHERE%7B%0D%0A+%3Fsubclass+%3Chttp%3A%2F%2Fwww.w3.org%2F2000%2F01%2Frd-schema%23subClassOf%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Establishment%3E%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fsubclass%0D%0AWHERE%7B%0D%0A+%3Fsubclass+%3Chttp%3A%2F%2Fwww.w3.org%2F2000%2F01%2Frd-schema%23subClassOf%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Establishment%3E%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

#### 1.3 Get all instances of the class City

##### **Query**

```
SELECT DISTINCT ?instance
WHERE{
  ?instance a <http://GP-onto.fi.upm.es/exercise2#City>
}
```

##### **Link**

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+DISTINCT+%3Finstance%0D%0AWHERE%7B%0D%0A+%3Finstance+a+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23City%3E%0D%0A%7D%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+DISTINCT+%3Finstance%0D%0AWHERE%7B%0D%0A+%3Finstance+a+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23City%3E%0D%0A%7D%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

#### 1.4 Get the number of inhabitants of Santiago de Compostela

##### **Query**

```
SELECT ?value
WHERE{
  <http://GP-onto.fi.upm.es/exercise2#Santiago_de_Compostela> <http://GP-onto.fi.upm.es/exercise2#hasInhabitantNumber> ?value
}
```

##### **Link**

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Fvalue%0D%0AWHERE%7B%0D%0A+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Santiago\\_de\\_Compostela%3E%0D%0A%7D%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fvalue%0D%0AWHERE%7B%0D%0A+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Santiago_de_Compostela%3E%0D%0A%7D%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

[ERE%7B%0D%0A%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Santiago\\_de\\_Compostela%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Fvalue%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fvalue%0D%0A%7B%0D%0A%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Santiago_de_Compostela%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Fvalue%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

### 1.5 Get the number of inhabitants of Santiago de Compostela and Arzua

#### Query

```
SELECT ?value
WHERE{
  {<http://GP-onto.fi.upm.es/exercise2#Santiago_de_Compostela> <http://GP-onto.fi.upm.es/exercise2#hasInhabitantNumber> ?value}
  UNION
  {<http://GP-onto.fi.upm.es/exercise2#Arzua> <http://GP-onto.fi.upm.es/exercise2#hasInhabitantNumber> ?value}
}
```

#### Link

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Fvalue%0D%0A%7B%0D%0A%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Santiago\\_de\\_Compostela%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Fvalue%0D%0A%7B%0D%0A%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Arzua%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Fvalue%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fvalue%0D%0A%7B%0D%0A%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Santiago_de_Compostela%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Fvalue%0D%0A%7B%0D%0A%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Arzua%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Fvalue%0D%0A%7D%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

### 1.6 Get all places, together with the number of inhabitants, ordered by the place name (ascending)

#### Query

```
SELECT ?place ?inhabitants
WHERE{
  ?location <http://www.w3.org/2000/01/rdf-schema#subClassOf> <http://GP-onto.fi.upm.es/exercise2#Locality>.
  ?place a ?location .
  OPTIONAL {?place <http://GP-onto.fi.upm.es/exercise2#hasInhabitantNumber> ?inhabitants}
} ORDER BY ?place
```

#### Link

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Fplace+%3Finhabitants%0D%0A%7B%0D%0A%3Chttp%3A%2F%2Fwww.w3.org%2F2000%2F01%2Frd-schema%23subClassOf%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Locality%3E.%0D%0A%3Fplace+a+%3Flocation+.%0D%0A%3FOPTIONAL+%3Fplace+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Finhabitants%7D%0D%0A%7D+ORDER+BY+%3Fplace%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fplace+%3Finhabitants%0D%0A%7B%0D%0A%3Chttp%3A%2F%2Fwww.w3.org%2F2000%2F01%2Frd-schema%23subClassOf%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23Locality%3E.%0D%0A%3Fplace+a+%3Flocation+.%0D%0A%3FOPTIONAL+%3Fplace+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise2%23hasInhabitantNumber%3E+%3Finhabitants%7D%0D%0A%7D+ORDER+BY+%3Fplace%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

### 1.7 Get all instances of Locality together with their number of inhabitants (if this information exists)

#### Query

```
SELECT ?locality ?inhabitants
WHERE{
  ?locality <http://GP-onto.fi.upm.es/exercise2#hasInhabitantNumber> ?inhabitants .
  ?locality a <http://GP-onto.fi.upm.es/exercise2#Locality>
}
```

#### Link

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Flocality+%3Finhabitants%0D%0AWHERE%7B%0D%0A+%3Flocality+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2FExercise%23hasInhabitantNumber%3E+%3Finhabitants+. %0D%0A+%3Flocality+a+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2FExercise%23Locality%3E%0D%0A%7D%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Flocality+%3Finhabitants%0D%0AWHERE%7B%0D%0A+%3Flocality+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2FExercise%23hasInhabitantNumber%3E+%3Finhabitants+. %0D%0A+%3Flocality+a+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2FExercise%23Locality%3E%0D%0A%7D%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

## 1.8 Get all places with more than 200.000 inhabitants

### Query

```
SELECT ?place ?inhabitants
WHERE{
  ?place <http://GP-onto.fi.upm.es/exercise2#hasInhabitantNumber> ?inhabitants .
  FILTER(<http://www.w3.org/2001/XMLSchema#integer>( ?inhabitants) >=
    "200000"^^<http://www.w3.org/2001/XMLSchema#integer>)
}
```

**Link**

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Fplace+%3Finhabitants%0D%0AWHERE%7B%0D%0A+%3Fplace+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasInhabitantNumber%3E+%3Finhabitants+. %0D%0A+FILTER%28%3Chttp%3A%2F%2Fwww.w3.org%2F2001%2FXMLSchema%23integer%3E%28%3Finhabitants%29+%3E%3D+%22200000%22%5E%5E%3Chttp%3A%2F%2Fwww.w3.org%2F2001%2FXMLSchema%23integer%3E%29%0D%0A%7D%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fplace+%3Finhabitants%0D%0AWHERE%7B%0D%0A+%3Fplace+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasInhabitantNumber%3E+%3Finhabitants+. %0D%0A+FILTER%28%3Chttp%3A%2F%2Fwww.w3.org%2F2001%2FXMLSchema%23integer%3E%28%3Finhabitants%29+%3E%3D+%22200000%22%5E%5E%3Chttp%3A%2F%2Fwww.w3.org%2F2001%2FXMLSchema%23integer%3E%29%0D%0A%7D%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on)

### 1.9 Get postal address data for Pazo\_Breogan (street, number, locality, province)

### Query

```
SELECT ?street ?number ?locality ?province
WHERE{
  <http://GP-onto.fi.upm.es/exercise2#Pazo_Breogan> <http://GP-
  onto.fi.upm.es/exercise2#hasAddress> ?address .
  ?address <http://GP-onto.fi.upm.es/exercise2#hasStreet> ?street .
  ?address <http://GP-onto.fi.upm.es/exercise2#hasNumber> ?number .
  <http://GP-onto.fi.upm.es/exercise2#Pazo_Breogan> <http://GP-onto.fi.upm.es/exercise2#isPlacedIn>
  ?locality .
  ?locality <http://GP-onto.fi.upm.es/exercise2#inProvince> ?province
```

**}Link**

[http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado\\_20122013&query=SELECT+%3Fstreet+%3Fnumber+%3Flocality+%3Fprovince%0D%0AWHERE%7B%0D%0A+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23Pazo\\_Breogan%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasAddress%3E+%3Faddress+.%0D%0A+%3Faddress+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasStreet%3E+%3Fstreet+.%0D%0A+%3Faddress+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasNumber%3E+%3Fnumber+.%0D%0A+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23Pazo\\_Breogan%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23isPlacedIn%3E+%3Flocality+.%0D%0A+%3Flocality+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23inProvince%3E+%3Fprovince%0D%0A%7D%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on](http://sandbox.linkeddata.es/sparql?default-graph-uri=http%3A%2F%2Fsandbox.linkeddata.es%2FGrado_20122013&query=SELECT+%3Fstreet+%3Fnumber+%3Flocality+%3Fprovince%0D%0AWHERE%7B%0D%0A+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23Pazo_Breogan%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasAddress%3E+%3Faddress+.%0D%0A+%3Faddress+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasStreet%3E+%3Fstreet+.%0D%0A+%3Faddress+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23hasNumber%3E+%3Fnumber+.%0D%0A+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23Pazo_Breogan%3E+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23isPlacedIn%3E+%3Flocality+.%0D%0A+%3Flocality+%3Chttp%3A%2F%2FGP-onto.fi.upm.es%2Fexercise%23inProvince%3E+%3Fprovince%0D%0A%7D%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A%0D%0A&format=text%2Fhtml&timeout=0&debug=on)



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