# Seminar 4 – SPARQL more operators solutions

```sparql
# 1. the number of texts created by Dante Alighieri, grouped by language
PREFIX dctypes: <http://purl.org/dc/dcmitype/>
PREFIX dcterms: <http://purl.org/dc/terms/>
PREFIX wd: <http://www.wikidata.org/entity/>
SELECT ?language    (COUNT(?textIRI) AS ?textCount)
WHERE {
?textIRI a dctypes:Text ;
    dcterms:creator wd:Q1067 ;
    dcterms:language ?language .
}
GROUP BY ?language

# 2. labels of all texts created by Dante Alighieri, minus those written in
Latin
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX dctypes: <http://purl.org/dc/dcmitype/>
PREFIX dcterms: <http://purl.org/dc/terms/>
PREFIX wd: <http://www.wikidata.org/entity/>
SELECT  ?textLabel
WHERE {
?textIRI a dctypes:Text ;
    rdfs:label ?textLabel ;
    dcterms:creator wd:Q1067 .
MINUS   { ?textIRI dcterms:language wd:Q397 . }
}

# 3. IRIs and labels of all people who do not have children
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX  : <http://example.org/>
SELECT  ?personIRI ?personLabel
WHERE {
?personIRI a foaf:Person    ;
    rdfs:label ?personLabel .
    FILTER NOT EXISTS   {
        ?personIRI  :hasChild ?childIRI .
    }
}

# 4. distinct labels of people who did not write any texts in Italian nor
Latin
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX dctypes: <http://purl.org/dc/dcmitype/>
```

```sparql
PREFIX dcterms: <http://purl.org/dc/terms/>
PREFIX wd: <http://www.wikidata.org/entity/>
SELECT DISTINCT ?personLabel
WHERE {
?personIRI a foaf:Person     ;
    rdfs:label ?personLabel .
FILTER NOT EXISTS   {
?textIRI rdf:type dctypes:Text ;
    dcterms:creator ?personIRI   .
{ ?textIRI dcterms:language wd:Q652 .    }
UNION
{ ?textIRI dcterms:language wd:Q397 . }
}
}
```

# 5. Retrieve the IRI and the price of all the print editions of the Divine Comedy, ordered by price

```sparql
PREFIX : <http://example.org/>
PREFIX wd: <http://www.wikidata.org/entity/>
SELECT ?printEdition
WHERE {
  wd:Q40185 :hasPrintEdition ?printEdition .
  ?printEdition :price ?price .
} ORDER BY ?price
```

# 6. Retrieve the IRI and the price of all the print editions that have been written in Italian, filtered by price < 50
```sparql
PREFIX : <http://example.org/>
PREFIX wd: <http://www.wikidata.org/entity/>
PREFIX dcterms: <http://purl.org/dc/terms/>
SELECT ?printEdition ?price
WHERE {
  ?iri :hasPrintEdition ?printEdition.
  ?printEdition dcterms:language wd:Q652 ;
            :price ?price .
    FILTER (?price < 50)
}
```

# 7. Compute the total price of print editions written in Italian or English
```sparql
PREFIX : <http://example.org/>
PREFIX wd: <http://www.wikidata.org/entity/>
PREFIX dcterms: <http://purl.org/dc/terms/>

SELECT (SUM(?price) AS ?sum)
WHERE {
   ?printEdition :price ?price .
  {?printEdition dcterms:language wd:Q652 . }
```

```
                 UNION
   {?printEdition dcterms:language wd:Q1860 .}
}

# 8. Compute the average price of print editions written after 1860
PREFIX : <http://example.org/>
PREFIX dcterms: <http://purl.org/dc/terms/>
prefix xsd: <http://www.w3.org/2001/XMLSchema#>
SELECT (AVG(?price) AS ?avg)
WHERE {
   ?iri :hasPrintEdition ?printEdition.
   ?printEdition :price ?price ;
      dcterms:issued ?date .

FILTER (?date > "1860"^^xsd:date)
}


# 9. Retrieve the labels of authors of works whose print editions have an
average price > 60 (use GROUP BY and HAVING)
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://example.org/>
PREFIX wd: <http://www.wikidata.org/entity/>
PREFIX dcterms: <http://purl.org/dc/terms/>
SELECT ?label (AVG(?price) AS ?avg)
WHERE {
  ?work dcterms:creator ?author .
  ?author rdfs:label ?label .
  ?work :hasPrintEdition ?printEdition .
   ?printEdition :price ?price .
} GROUP BY ?label HAVING (?avg > 60)

# 10. Retrieve the texts that are not print editions (alphabetically ordered),
starting from the third result
PREFIX : <http://example.org/>
PREFIX dctypes: <http://purl.org/dc/dcmitype/>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
SELECT ?label
WHERE {
  ?text a dctypes:Text ;
        rdfs:label ?label .
  MINUS { ?work :hasPrintEdition ?text . }
} ORDER BY ?label OFFSET 2

# 11. Compute the average price of Divine Comedy print editions if the price
of each print edition is reduced by 8 (use BIND without GROUP BY)
PREFIX : <http://example.org/>
PREFIX wd: <http://www.wikidata.org/entity/>
SELECT (AVG(?newPrice) AS ?avg)
```

```sparql
WHERE {
 wd:Q40185 :hasPrintEdition ?text .
 ?text :price ?price .
  BIND((?price - 8) AS ?newPrice)
}


# 12. Retrieve the authors who have created more than 2 works, excluding the
print editions
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://example.org/>
PREFIX dcterms: <http://purl.org/dc/terms/>
PREFIX dctypes: <http://purl.org/dc/dcmitype/>
SELECT ?label (COUNT(?text) AS ?count)
  WHERE {
 ?text a dctypes:Text ;
     dcterms:creator ?author .
   ?author rdfs:label ?label .
    MINUS {?work :hasPrintEdition ?text }.
  } GROUP BY ?label HAVING (?count > 2)
```