



UNIVERSITÉ
DE MONTPELLIER

Rapport de - HMIN234 Web Sémantique -
*TP2 - Web Sémantique et Social : Interrogation de
données RDF*

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1 Le graphe des Participants à l'UE Web Sémantique et Social :

Voir le fichier Exo1.ttl.

2 SPARQL : Interrogation et méta-interrogation :

Modèle : Voir dans le dossier SPARQL src/main/java/Movies.java

1. Séparer les triplets contenant des connaissances ontologiques des triplets représentant des données.

```
@prefix movies: <http://www.lirmm.fr/ulliana/movies#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix dbp: <http://dbpedia.org/> .
```

```
movies:directedBy rdfs:domain movies:Movie .
movies:playsIn rdfs:domain movies:Actor .
movies:playsIn rdfs:range movies:Movie .
movies:Actor rdfs:subClassOf movies:Artist .
movies:Director rdfs:subClassOf movies:Artist .
movies:Director rdfs:subClassOf movies:Artist .
movies:title rdf:type owl:DatatypeProperty .
movies:title rdfs:domain movies:Movie .
```

```
//Données
movies:m2 movies:title "Vertigo" .
movies:m1 rdf:type movies:Movie .
movies:m3 movies:directedBy dbp:Alfred_Hitchcock .
movies:a1 movies:playsIn movies:m4 .
```

2. Donner la requête SPARQL qui sélectionne tous les (identifiants des) films.

```
String q2_1 = "PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> "
              + "PREFIX mov: <http://www.lirmm.fr/ulliana/movies#> "
              + "SELECT ?s "
              + "WHERE {?s rdf:type mov:Movie}";
```

3. Donner la requête SPARQL qui sélectionne toutes les sous-classes de la classe artiste.

```
String q2_2 ="PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> "
+ "PREFIX mov: <http://www.lirmm.fr/ulliana/movies#> "
+ "SELECT ?movies "
+ "WHERE{{ ?movies rdf:type mov:Movie . }}"
+ " UNION { ?movies mov:title ?x . }"
+ " UNION { ?movies mov:directedBy ?x . }"
+ " UNION { ?x mov:playsIn ?movies . }"}";
```

4. Donner la requête SPARQL qui sélectionne tous les acteurs

```
String q2_3 = "PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> "
+ "PREFIX mov: <http://www.lirmm.fr/ulliana/movies#> "
+ "SELECT ?s "
+ "WHERE {?s rdfs:subClassOf mov:Artist}";
```

5. Pour chaque requête, dire s'il s'agit d'une interrogation ou d'une méta-interrogation
 - Q_1 : interrogation
 - Q_2 : interrogation
 - Q_3 : méta-interrogation

3 L'exploration d'un endpoint SPARQL : le cas DB-Pedia :

1. Choisissez une classes de l'ontologie qui commence par la première lettre de votre nom, et donnez la liste de ses sous-classes.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
SELECT ?subclass
WHERE {
?subclass rdfs:subClassOf ?varClass .
FILTER regex(?varClass, "http://dbpedia.org/ontology/SportsLeague").
}
LIMIT 100
```

subclass
http://dbpedia.org/ontology/BoxingLeague
http://dbpedia.org/ontology/FieldHockeyLeague
http://dbpedia.org/ontology/VolleyballLeague
http://dbpedia.org/ontology/VideogamesLeague
http://dbpedia.org/ontology/MixedMartialArtsLeague
http://dbpedia.org/ontology/CurlingLeague
http://dbpedia.org/ontology/BasketballLeague
http://dbpedia.org/ontology/HandballLeague
http://dbpedia.org/ontology/IceHockeyLeague
http://dbpedia.org/ontology/SoftballLeague

- Donner la liste des propriétés employées pour décrire les instances de la classe choisie.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
SELECT ?inst ?prop
WHERE {
  ?inst rdf:type <http://dbpedia.org/ontology/.....>.
  ?inst ?prop <http://dbpedia.org/ontology/.....>
}
LIMIT 100
```

- Vérifier si ces propriétés ont des sous-propriétés.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
ASK
FROM <http://dbpedia.org/ontology/RacingDriver>
WHERE {
  ?inst rdf:type <http://dbpedia.org/ontology/.....>.
  ?inst ?prop <http://dbpedia.org/ontology/.....>.
  ?subprop rdfs:subPropertyOf ?prop
}
```

4 Interrogation d'un flux RSS exporté en RDF :

- Quels sont les titres des articles (rss:item) publiés dans le flux RSS ?

```
String req1 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
              + "PREFIX rss: <http://purl.org/rss/1.0/> "
              + "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
```

```

+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?titre "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?item rdf:type rss:item ."
+ " ?item rss:title ?titre"
+ "} ";

```

2. Quel est le titre (rss:title) du flux (rss:channel) RSS ?

```

String req2 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?titre "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?item rdf:type rss:channel ."
+ " ?item rss:title ?titre"
+ "} ";

```

3. Donner les onze premiers articles du flux RSS par ordre chronologique.

```

String req3 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?article "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?article rdf:type rss:item "
+ "}"
+ "LIMIT 11" ;

```

4. Donner le deuxième article du flux RSS (ordre chronologique)

```

String req4 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ "" + "SELECT ?article "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"

```

```

+ " WHERE { "
+ " ?article rdf:type rss:item "
+ "}" "
+ "OFFSET 2"
+ "LIMIT 1";

```

5. Donner l'avant dernier article du flux RSS (ordre chronologique)

```

String req5 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?article "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?article rdf:type rss:item"
+ "}" "
+ "OFFSET 51"
+ "LIMIT 51" ;

```

6. Donner le deuxième ainsi que l'avant dernier article du flux RSS (requête UNION)

```

String req6 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?article "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ "{"
+ "SELECT ?article "
+ " WHERE { "
+ " ?article rdf:type rss:item"
+ "}" "
+ "OFFSET 1"
+ "LIMIT 1"
+ "}"
+ "UNION"
+ "{"
+ "SELECT ?article "
+ " WHERE { "
+ " ?article rdf:type rss:item"
+ "}" "

```

```
+ "OFFSET 51"
+ "LIMIT 51"
+ "}"
```

7. Donner la liste des couples d'articles publiés à la même date

```
String req7 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?item ?titre ?date "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?item rdf:type rss:item ."
+ " ?item rss:title ?titre ."
+ " ?item dc:date ?date"
+ "} ";
```

8. Quels sont les articles publiés le 2007-04-12 ?

```
String req8 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT ?item ?titre ?date "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?item rss:title ?titre ."
+ " ?item dc:date ?date"
+ "FILTER xsd:dateTime(?pub_date) "
+ ">= \"20070412T00:00+00:00\"^^xsd:string &&"
+ " xsd:dateTime(?pub_date) "
+ "< \"20070412T00:00+00:00\"^^xsd:string"
+ "} ";
```

9. Donnez la liste des auteurs (sans répétition) des articles dans ce flux RSS ?

```
String req9 = "PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#> "
+ "PREFIX rss: <http://purl.org/rss/1.0/> "
+ "PREFIX foaf: <http://xmlns.com/foaf/0.1/> "
+ "PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ ""
+ "SELECT "
```

```

+ "?item ?titre (distinct ?author) "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ " ?item rdf:type rss:item ."
+ " ?item rss:title ?titre ."
+ " ?item dc:author ?author"
+ "} ";

```

10. Dites si le flux RSS utilise la propriété “title” définie par l’espace de nommage Dublin Core (“dc :”)

```

String req10 = "PREFIX dc:<http://purl.org/dc/elements/1.1/>"
+ "PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ " "
+ "SELECT ?f "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ "?f dc:title ?o"
+ " }";

```

11. Dites si le flux RSS utilise la propriété “subject” définie par l’espace de nommage Dublin Core.

```

String req11 = "PREFIX dc:<http://purl.org/dc/elements/1.1/>"
+ "PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ " "
+ "SELECT DISTINCT ?s "
+ "FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ " WHERE { "
+ "?s dc:subject ?o "
+ " }"
+ "LIMIT 1";

```

12. Donnez la liste des dates de publication de tous les articles du flux RSS.

```

String req12 = "PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>"
+ " PREFIX dc: <http://purl.org/dc/elements/1.1/>"
+ " PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>"
+ " PREFIX rss: <http://purl.org/rss/1.0/>"
+ "PREFIX swq: <http://www.w3.org/2001/sw/SW-FAQ#>"
+ "SELECT ?o"
+ " FROM <http://www.w3.org/2001/sw/SW-FAQ-feed.rdf>"
+ "WHERE { ?s dc:date ?o}";

```


5 Interrogation du réseau social de l'UE :

1. Est il vrai que $G_{\text{personalFriend}} \subseteq G_{\text{socialFriend}}$?

```
PREFIX rdf: <http://www.w3.org/1999/02/22rdfsyntaxns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX ws: <http://www.lirmm.fr/~ulliana/HMIN234.rdf#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
ASK
FROM WHERE {
    GpersonalFriend ?inc GsocialFriend
}
```

2. Est il vrai que $G_{\text{socialFriend}} \subseteq G_{\text{personalFriend}}$?

```
PREFIX rdf: <http://www.w3.org/1999/02/22rdfsyntaxns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX ws: <http://www.lirmm.fr/~ulliana/HMIN234.rdf#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
ASK
FROM WHERE {
    GsocialFriend ?inc GpersonalFriend
}
```

3. Est il vrai que $G_{\text{personalFriend}}, G_{\text{socialFriend}} \subseteq G_{\text{knows}}$?

```
PREFIX rdf: <http://www.w3.org/1999/02/22rdfsyntaxns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX ws: <http://www.lirmm.fr/~ulliana/HMIN234.rdf#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
ASK
FROM WHERE {
    WHERE {
        GpersonalFriend ?inc Gknows
    }
    UNION
    WHERE {
        GsocialFriend ?inc Gknows
    }
}
```