Aim Shams University

Faculty of Engineering – ICHEP

Computer Engineering and Software Systems

CSE488: Ontologies and The Semantic Web

Major Task – SPARQL QUERIES

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MAIN 10 SPARQL QUERIES

I. List the instances of the class Actor

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?actor
WHERE {
  ?actor rdf:type :actor .
}
```

II. List the instances of the class writer

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?writer
WHERE {
  ?writer rdf:type :writer .
}
```

III. List the instances of the class director

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?director
WHERE {
  ?director rdf:type :director .
}
```

IV. List the name of all Thriller movies. For each one, display its director.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle ?directorName
WHERE {
  ?movie rdf:type :movie ;
         :movie_genre "Thriller" ;
         :movie_title ?movieTitle .
  ?movie :hasDirector ?director .
  ?director :person_name ?directorName .
}
```

V. List the name of all Crime Thriller movies.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle
WHERE {
  ?movie rdf:type :movie ;
         :movie_genre "Crime" , "Thriller" ;
         :movie_title ?movieTitle .
}
```

VI. List the male actors in the movie in specific film.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?actorName
WHERE {
  ?movie rdf:type :movie ;
         :movie_title "Titanic" ;
         :hasActor ?actor .
  ?actor rdf:type :actor ;
         :person_gender "Male" ;
         :person_name ?actorName .
}
```

VII. How many movies have both "Action" and "Thriller" as genres?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT (COUNT(?movie) AS ?count)
WHERE {
  ?movie rdf:type :movie ;
         :movie_genre "Action" , "Thriller" .
}
```

VIII. List all the movies written by a specific writer.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle
```

```
WHERE {
  ?writer rdf:type :writer ;
          :person_name "Neil Gaiman" .
  ?movie rdf:type :movie ;
         :hasWriter ?writer ;
         :movie_title ?movieTitle .
}
```

IX. Find movies with a certain language.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle
WHERE {
  ?movie rdf:type :movie ;
         :movie_language "English" ;
         :movie_title ?movieTitle .
}
```

X. List the name of Actors older than 51 years.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?actorName
WHERE {
  ?actor rdf:type :actor ;
         :person_age ?age ;
         :person_name ?actorName .
  FILTER (?age > 51)
}
```

PROPOSED EXTRA 10 QUERIES

I. A query that contains at least 2 Optional Graph Patterns.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle ?directorName ?writerName
WHERE {
  ?movie rdf:type :movie ;
         :movie_title ?movieTitle .
  OPTIONAL {
```

```
    ?movie :hasDirector ?director .
    ?director :person_name ?directorName .
  }
  OPTIONAL {
    ?movie :hasWriter ?writer .
    ?writer :person_name ?writerName .
  }
}
```

II. A query that contains at least 2 alternatives and conjunctions.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle ?actorName ?directorName
WHERE {
  ?movie rdf:type :movie ;
         :movie_title ?movieTitle .
  {
    ?movie :hasActor ?actor .
    ?actor :person_name ?actorName .
  }
  UNION
  {
    ?movie :hasDirector ?director .
    ?director :person_name ?directorName .
  }
}
```

III. A query that contains a CONSTRUCT query form.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

CONSTRUCT {
  ?movie rdf:type :movie ;
         :movie_title ?movieTitle ;
         :hasActor ?actor ;
         :hasDirector ?director .
  ?actor rdf:type :actor ;
         :person_name ?actorName .
  ?director rdf:type :director ;
            :person_name ?directorName .
}
WHERE {
  ?movie rdf:type :movie ;
         :movie_title ?movieTitle .
  OPTIONAL {
    ?movie :hasActor ?actor .
    ?actor :person_name ?actorName .
  }
```

```
  OPTIONAL {
    ?movie :hasDirector ?director .
    ?director :person_name ?directorName .
  }
}
```

IV. A query that contains an ASK query form.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

ASK {
  ?movie rdf:type :movie ;
         :movie_title "Avatar" .
}
```

V. A query that contains a DESCRIBE query form.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

DESCRIBE ?movie
WHERE {
  ?movie rdf:type :movie ;
         :movie_title "Avatar" .
}
```

VI. A query with GROUP BY and HAVING.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?genre (COUNT(?movie) AS ?movieCount)
WHERE {
  ?movie rdf:type :movie ;
         :movie_genre ?genre .
}
GROUP BY ?genre
HAVING (COUNT(?movie) > 2)
```

VII. A query with ORDER BY.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?actorName ?age
WHERE {
```

```
    ?actor rdf:type :actor ;
            :person_name ?actorName ;
            :person_age ?age .
}
ORDER BY DESC(?age)
```

VIII. A query with LIMIT and OFFSET.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?actorName
WHERE {
  ?actor rdf:type :actor ;
            :person_name ?actorName .
}
LIMIT 5
OFFSET 2
```

IX. A query with FILTER.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle ?releaseYear
WHERE {
  ?movie rdf:type :movie ;
            :movie_title ?movieTitle ;
            :movie_year ?releaseYear .
  FILTER (?releaseYear > 2010)
}
```

X. A subquery.

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX : <http://www.semanticweb.org/noorh/ontologies/2024/4/untitled-
ontology-6/>

SELECT ?movieTitle
WHERE {
  ?movie rdf:type :movie ;
            :movie_title ?movieTitle ;
            :hasDirector ?director .
  {
    SELECT ?director
    WHERE {
      ?director rdf:type :director .
    }
  }
```

}