(TR-102) MASTERING THE SEMANTIC WEB –

Training Day 11 Report :

27 June 2024

SPARQL Queries:

SPARQL (SPARQL Protocol and RDF Query Language) is the query language used for querying and manipulating RDF (Resource Description Framework) data. It allows to extract information stored in RDF format by writing queries.

Main SPARQL keywords and clauses used in the Queries:

1. SELECT

- The SELECT clause specifies the variables to be returned in the query result.
- Example:

  SELECT ?book ?title ?creator ?date

By: Inderjit Kaur URN:2303086 CRN:2221159

- This query selects the variables ?book, ?title, ?creator,and ?date.

2. WHERE

- The WHERE clause defines the pattern to match in the RDF data. It contains a set of triple patterns to match the data.
- Example:

```
WHERE {
   ?book a bibo:Book;
         dc:title ?title;
        dc:creator ?creator;
       dc:date ?date.
         }
```

  - This clause matches RDF triples where ?book is a book,with a title, creator, and date.

3. OPTIONAL

- The OPTIONAL keyword allows to include optional patterns in your query. If the pattern exists, it will be included in the results; otherwise, it will be left blank.
- Example:

```
OPTIONAL { ?book dc:publisher ?publisher. }
```

- This pattern includes the publisher if it exists.

4. FILTER

- The FILTER keyword restricts the query results based on a condition. It can be used to apply various constraints on the data.
- Example:

  FILTER (?language = :English)

- This filter ensures that only books in English are included in the results.

5. ORDER BY

- The ORDER BY clause sorts the results based on the specified variable(s).
- Example:

  ORDER BY ?date

- This clause sorts the results by the ?date variable.

6. LIMIT and OFFSET

- The LIMIT clause restricts the number of results returned by the query. The OFFSET clause specifies the starting point within the result set.
- Example:

  LIMIT 10

  OFFSET 0

- These clauses limit the results to 10 entries, starting from the first result.

7. DISTINCT

- The DISTINCT keyword ensures that duplicate results are removed.
- Example:

  SELECT DISTINCT ?language

- This query returns each distinct language only once.

8. DESCRIBE

- The DESCRIBE keyword returns a description of the resources found. It retrieves all triples about the specified resource.
- Example:

  DESCRIBE :Book1

- This query returns all information about :Book1.

9. SELECT *

- The SELECT * clause retrieves all variables and their values that match the query pattern.
- Example:

  SELECT *

- This query returns all properties and values for the matching pattern.

10. Triple Patterns

- Triple patterns are the basic building blocks of SPARQL queries. They consist of a subject, predicate, and object, and they match corresponding triples in the RDF data.

- Example:

  ?book dc:title ?title.

- This triple pattern matches any triple with the predicate dc:title and assigns the object to the variable ?title.

Then Queries were performed on Apache Jena Fuseki Server.