TRAINING TR-102 DAY 13 REPORT

27 June, 2024

1. ## Introduction to SPARQL

   Definition: SPARQL (SPARQL Protocol and RDF Query Language) is a query language and protocol used to retrieve and manipulate data stored in RDF format.
   Purpose: It enables querying of RDF datasets to extract meaningful information based on specific criteria.

2. ## Writing SPARQL Programs

   Basic Structure:
   - **PREFIX:** Defines namespace prefixes to simplify URIs.
   - **SELECT:** Specifies the variables to be returned in the query results.
   - **WHERE:** Contains the triple patterns to match in the RDF data.

   Example:

   ```
   ruby
   Copy code
   PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
   PREFIX foaf: <http://xmlns.com/foaf/0.1/>
   SELECT ?name
   WHERE {
     ?person rdf:type foaf:Person .
     ?person foaf:name ?name .
   }
   ```

3. ## Performing Queries in SPARQL

   Query Types:
   - **SELECT Queries:** Used to extract data by selecting specific variables.
   - **ASK Queries:** Returns a boolean indicating whether a query pattern exists.
   - **CONSTRUCT Queries:** Creates new RDF graphs based on query results.
   - **DESCRIBE Queries:** Retrieves data about resources, typically returning RDF graphs.

   Executing Queries:

   - **Using SPARQL Endpoints:** Submitting queries to SPARQL endpoints via HTTP.
   - **Using Fuseki:** Running queries locally on the Apache Jena Fuseki server.

Conclusion:

Day 13 focused on understanding and using SPARQL for querying RDF datasets. Participants

learned the fundamentals of SPARQL, including its syntax and structure, and practiced writing basic SPARQL queries. The session covered various types of queries (SELECT, ASK, CONSTRUCT, DESCRIBE) and demonstrated how to execute these queries using SPARQL endpoints and Apache Jena Fuseki. This knowledge is essential for effectively retrieving and manipulating data in semantic web applications.