

Training TR-102 Day 11 Report

27th June, 2024

The eleventh day of the training focused on SPARQL queries and their implementation using Apache Jena Fuseki.

SPARQL Queries

The training session included an in-depth exploration of various SPARQL query forms and clauses. Below is a summary of the SPARQL queries covered:

- **SELECT:** Used to retrieve specific variables from the data.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?name

WHERE {

 ?person foaf:name ?name.

}

- **WHERE:** Specifies the pattern to match in the dataset.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?name

WHERE {

?person foaf:name ?name.

}

- **LIMIT:** Limits the number of results returned.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?name

WHERE {

?person foaf:name ?name.

}

LIMIT 10

- **OFFSET:** Skips a specified number of results.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?name

WHERE {

?person foaf:name ?name.

}

OFFSET 5

- **ORDER BY:** Orders the results based on specified variables.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?name

WHERE {

 ?person foaf:name ?name.

}

ORDER BY ?name

- **FILTER:** Restricts the results to meet specified conditions.

eg.

PREFIX ex: <http://example.org/schema/>

SELECT ?person ?credit

WHERE {

 ?person ex:credit ?credit.

 FILTER(?credit > 500)

}

- **FILTER NOT EXISTS:** Ensures certain patterns do not exist in the result set.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?person

WHERE {

 ?person foaf:name ?name.

```
FILTER NOT EXISTS {
```

```
  ?person foaf:age ?age.
```

```
}
```

```
}
```

- **DESCRIBE:** Returns an RDF graph containing resources related to the query.

eg.

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
```

```
DESCRIBE ?person
```

```
WHERE {
```

```
  ?person foaf:name "Alice".
```

```
}
```

- **SELECT * WHERE:** A variant of SELECT to return all variables that match the pattern.

eg.

```
PREFIX ex: <http://example.org/schema/>
```

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
```

```
SELECT *
```

```
WHERE {
```

```
  ?subject ?predicate ?object.
```

```
}
```

- **OPTIONAL:** Returns results including optional patterns if they exist.

eg.

PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?person ?name ?age

WHERE {

 ?person foaf:name ?name.

 OPTIONAL { ?person foaf:age ?age. }

}

- Participants asked to perform the tasks using the SPARQL queries learnt on the dataset imported on the previous day.

Conclusion

The eleventh day of the training focused on mastering SPARQL queries using Apache Jena Fuseki. Participants gained practical knowledge in querying RDF data with them. Hands-on sessions enabled them to import datasets, execute queries, and troubleshoot effectively. This session prepares participants for advanced topics in semantic web technologies.