(TR-102)
MASTERING THE SEMANTIC WEB

Training Day 16 Report:

3 July 2024

On the sixteenth day of the training, participants were introduced to TOTP (Time-based OneTime Password) apps. They downloaded a TOTP app and set up two-factor authentication on their GitHub accounts. Additionally, the day included further study and detailed exploration of SPARQL queries.

TOTP (Time-based One-Time Password) Apps and Two-Factor Authentication (2FA)

- The session included an introduction to Time-based One-Time Password (TOTP) apps.
- The training included a detailed explanation of TOTP and its importance in enhancing security through two-factor authentication.
- Participants downloaded a TOTP app and used it to set up two-factor authentication on their GitHub accounts.
- Each participant successfully implemented 2FA on their GitHub account, ensuring an additional layer of security.

SPARQL Queries:

The session included an in-depth study and practice of SPARQL queries using the following resources:

1. **Cambridge Semantics: SPARQL Queries**
    - Basic Queries:
        1. SELECT queries to retrieve data. o Constructing queries to filter and sort results.
    - Advanced Features:
        1. Use of CONSTRUCT to create new RDF graphs.
        2. ASK queries to return boolean results.
        3. DESCRIBE queries to return RDF data about resources.
    - Functions and Expressions:
        1. String manipulation, mathematical operations, and date functions.
        2. Aggregation functions like COUNT, SUM, AVG, MIN, MAX.
    - Modifying Data:
        1. INSERT DATA, DELETE DATA, MODIFY statements to alter RDF datasets.

2. **Medium: Constructing SPARQL Queries** • Best Practices: o Structuring q
    - Best Practices:
        1. Structuring queries for readability and efficiency.
        2. Use of comments and proper indentation.
    - Complex Queries:
        1. Nested queries and subqueries.
        2. OPTIONAL and UNION clauses to handle optional data and multiple patterns.
    - Example Queries:
        1. Practical examples demonstrating real-world use cases.
        2. Step-by-step breakdown of constructing complex queries

Implementation:

1. Participants practiced writing and executing various SPARQL queries based on the examples and guidelines provided by the resources.
2. Queries included retrieving specific data, constructing new RDF triples, and manipulating datasets.
3. Emphasis was placed on understanding query optimization and the efficient use of SPARQL features.

Conclusion:

Day 16 of the training was successful in providing participants with practical knowledge and hands-on experience with TOTP apps for 2FA and advanced SPARQL queries. The comprehensive study of SPARQL from the provided resources enabled participants to enhance their query-writing skills and better understand the intricacies of RDF data manipulation.