Training TR-102 Day 15 Report

3rd July, 2024

The fifteenth day of the training participants were introduced to TOTP (Time-based One-Time 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:**
    - SELECT queries to retrieve data.
    - Constructing queries to filter and sort results.
- **Advanced Features:**
    - Use of CONSTRUCT to create new RDF graphs.
    - ASK queries to return boolean results.
    - DESCRIBE queries to return RDF data about resources.
- **Functions and Expressions:**
    - String manipulation, mathematical operations, and date functions.
    - Aggregation functions like COUNT, SUM, AVG, MIN, MAX.
- **Modifying Data:**
    - INSERT DATA, DELETE DATA, MODIFY statements to alter RDF datasets.

2. **Medium: Constructing SPARQL Queries**

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

Implementation

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

Conclusion

Day 15 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.