TRAINING TR-102 DAY 5 REPORT

18 June, 2024

Day 4 provided a comprehensive understanding of the Semantic Web and its components, including RDF, metadata exchange, linked data, FOAF, and relationship building. We also covered the basics of JSON and XML for data interchange and practiced creating RDF triples related to a bookshop. These concepts are fundamental for developing web applications that can effectively share and connect data across various sources, enhancing data integration and interoperability.

Web Evolution: Web 1.0, Web 2.0, Web 3.0

1. Web 1.0

Characteristics: Static pages, read-only content, limited interactivity.

Technology: HTML, CSS, basic JavaScript.

Example: Early informational websites.

2. Web 2.0

Characteristics: Dynamic content, user-generated content, social interaction.

Technology: AJAX, APIs, social media integration.

Example: Social media platforms, blogs, wikis.

3. **Web 3.0**

Characteristics: Semantic web, decentralized, enhanced user experience.

Technology: Blockchain, AI, machine learning.

Example: Decentralized applications (dApps), smart contracts.

Static vs. Dynamic Websites

1. Static Websites

Definition: Websites with fixed content, every user sees the same information.

Technology: HTML, CSS.

Pros: Fast loading, easy to develop and host, secure.

Cons: Not interactive, hard to update.

2. Dynamic Websites

Definition: Websites that display different content and allow user interaction.

Technology: Server-side scripting (PHP, ASP.NET), databases (MySQL, MongoDB).

Pros: Interactive, easier to update, scalable.

Cons: Slower loading, complex development, security risks.

URL, URI, URN

1. URL (Uniform Resource Locator)

Definition: Specifies the address of a resource on the internet.

Example: https://www.example.com/page

2. URI (Uniform Resource Identifier)

Definition: A string of characters that unambiguously identifies a particular resource.

Components: URLs and URNs.

Example: http://www.example.com, urn:isbn:0451450523

3. URN (Uniform Resource Name)

Definition: A URI that uses the urn scheme and is intended to serve as a persistent, location-independent resource identifier.

Example: urn:isbn:0451450523

Turtle Representation

Definition: A syntax for expressing data in the Resource Description Framework (RDF) graph model.

Use Case: Used for representing linked data and metadata.

Basic Syntax:

TURTLE

@prefix ex: <http://example.org/> .

ex:subject ex:predicate ex:object .

Conclusion

On Day 5, we explored the progression of the web from Web 1.0 to Web 3.0, delving into the differences between static and dynamic websites. We also learned about the distinctions between URL, URI, and URN, and got an introduction to Turtle representation for RDF data. This foundational knowledge is crucial for understanding the evolution of web technologies and their current and future applications.