(TR-102)
MASTERING THE SEMANTIC WEB

Training Day 9 Report:

24 June 2024

The ninth day of the training focused on introducing OWL, along with VOWL, and creating RDFs using it.

Introduction to OWL:

The Web Ontology Language (OWL) is a semantic web language designed to represent rich and complex knowledge about things, a group of things, and relations between things.

Versions of OWL:

- **OWL1(Web Ontology Language 1.0):**
  - Enables ontology creation and sharing on the Semantic Web; more expressive than RDF Schema (RDFS).
  - Features include defining classes, properties (object and datatype), member restrictions, and RDF/RDFS compatibility.
- **OWL2(Web Ontology Language 2.0):**
  - Extends OWL1 with new constructors (property chains, disjoint unions) and enhanced datatype support
  - Introduces better metadata annotations, profiles (EL, QL, RL), and maintains backward compatibility with OWL
  - OWL2 is presently used.

Ontologies: Ontologies are described as a way of showing the properties of a subject area and how they are related, by defining a set of concepts and categories that represent the subject.

Triples of OWL: OWL also uses triples similar to RDF, covering concepts, relationships, and instances.

- **Concepts** represent a set of classes or entities or things within a domain, which are used to classify individuals or other classes or a combination of both.
- **Instances** are used to refer to the things represented by the concept. It may include concrete objects such as people, animals, tables, or abstract individuals such as numbers and words.
- **Relationship** specifies how objects are related to one another.

Introduction to VOWL:

VOWL (Visual Notations for OWL Ontologies) is a graphical approach to represent OWL ontologies visually.

It uses symbols and shapes to show classes, properties, relationships, and complex chains of properties.

- **Classes** - The main concepts or things in the ontology, shown as labelled circles.
- **Properties** - The relationships between classes, shown as labelled arrows.
- **Individuals** - Specific instances of classes, shown as smaller circles.
- **Datatypes** - The types of data associated with properties, shown as small squares.

VOWL enhances understanding, communication, and collaboration among stakeholders by providing an intuitive way to navigate and comprehend complex ontological structures. It's widely used in Semantic Web applications to make ontology development and usage more accessible and effective.

- Creation of RDFs using VOWL was the key task.

Conclusion:

Day 9 of Training TR-102 focused on OWL and VOWL, key Semantic Web tools. Participants learned OWL's capabilities from basic ontology creation to advanced features in OWL2. VOWL's visual approach enhances ontology understanding and collaboration. This session equips participants to apply these tools for improved data interoperability and efficient ontology development in Semantic Web applications.