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DAY 4

TRAINING REPORT

1. SEMANTIC WEB:

Key components of the Semantic Web include:

1. **Ontologies**: These are formal representations of a set of concepts within a domain and the relationships between those concepts. Ontologies are used to model knowledge and facilitate understanding and reasoning.
2. **RDF (Resource Description Framework)**: RDF is a standard model for data interchange on the web. It is used to describe resources and their relationships in a machine-readable way.
3. **OWL (Web Ontology Language)**: OWL is used to explicitly represent the meaning of terms in vocabularies and the relationships between those terms. It is more expressive than RDF and allows for richer modeling of knowledge.
4. **SPARQL (SPARQL Protocol and RDF Query Language)**: SPARQL is a query language used to retrieve and manipulate data stored in RDF format. It allows for complex queries to be performed on the data.
5. **Linked Data**: This is a method of publishing structured data so that it can be interlinked and become more useful. Linked Data relies on standard web technologies such as HTTP, RDF, and URIs.

2.RDF(RESOURCE DESCRIPTION GRAPH):

RDF, or Resource Description Framework, is a standard model for data interchange on the web. It facilitates the merging of data even if the underlying schemas differ and specifically supports the evolution of schemas over time without requiring all the data consumers to be changed.

Key aspects of RDF include:

1. **Resources**: Anything that can be identified by a URI (Uniform Resource Identifier). This includes web pages, images, documents, and even abstract concepts.
2. **Triples**: The basic structure in RDF, which consists of three parts:
   - **Subject**: The resource being described.
   - **Predicate**: The property or characteristic of the subject.
   - **Object**: The value of the property or characteristic.

   An RDF triple can be thought of as a simple sentence, like "The sky (subject) is (predicate) blue (object)."

3. **Graphs**: RDF data can be represented as a graph, where the nodes represent resources and literals, and the edges represent the predicates. This makes it easier to visualize and query the relationships between data.
4. **Serialization Formats**: RDF data can be serialized in various formats, including:

- o **RDF/XML**: An XML-based syntax.
- o **Turtle**: A more human-readable text format.
- o **N-Triples**: A simpler, line-based format.
- o **JSON-LD**: A JSON-based format that is easy to integrate with web applications.

5. **URIs and Literals**: In RDF, URIs are used to uniquely identify resources, while literals represent values such as strings, numbers, and dates.

6. **Vocabulary and Schema**: RDF does not enforce any specific vocabulary or schema. This flexibility allows users to define their own vocabularies or use existing ones like FOAF (Friend of a Friend) or Dublin Core.

RDF Triple Diagram

/example.org/person/123 has property http://xmlns.com/foaf/0.1/name — is — "John Doe"