Owlready 2.0

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16/05/2023

Overview

Knowledge graphs

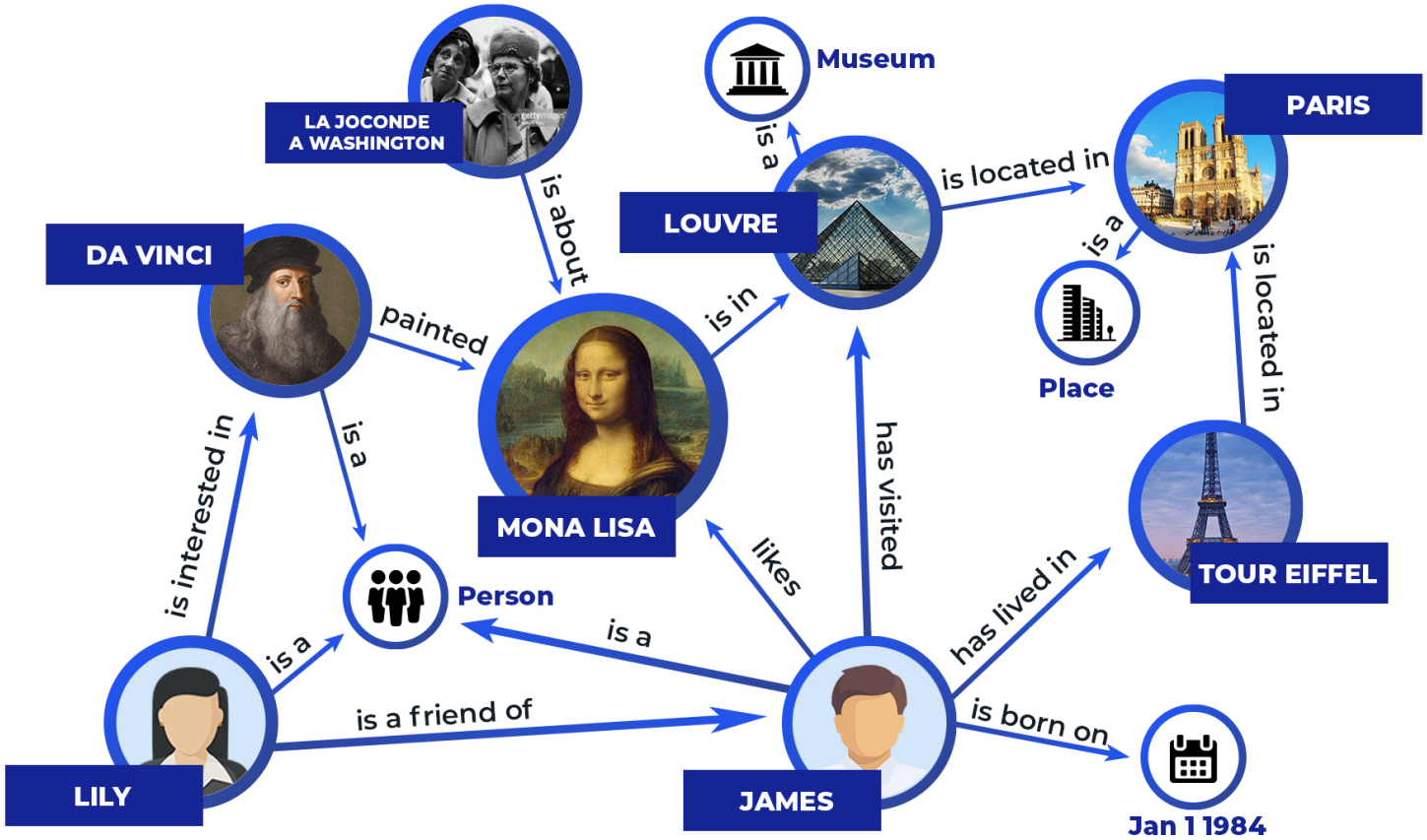

Figure: Knowledge graph [3]

Ontologies

Ontology

A formal description of all the entities of a domain and the relations existing between these entities [1].

Ontology

Ontology is a formal explicit description of concepts in a domain of discourse (classes), properties of each concept describing various features and attributes of the concept, and restrictions on properties [2].

Why ontology?

- To share a common understanding of the structure of information among people or software agents.
- To enable reuse of domain knowledge.
- To make domain assumptions explicit.
- To separate domain knowledge from the operational knowledge.
- To analyze domain knowledge.

Movie ontology

- Classes - Movie, People, Country, Company, Award
- Object properties - wins, actsIn, releasedIn, hasheadQuartesIn
- Data properties - title, releaseYear, name, capital

Classes

- Property restriction.
  - Value constraints (property.some(Class), property.only(Class), property.value(individual/data)
  - Cardinality constraints (property.exactly(cardinality, Class), property.min(cardinality, Class), property.max(cardinality, Class).
- Intersection, union and complement (Or([C1, C2, ..]), And([C1, C2, ...]), Not(Class))
- Class Axioms (subClass, equivalentClass, disjointWith)

Property features

- RDF Schema property constructs (subProperty, domain, range)
- Relations to other properties (equivalentProperty, inverseOf)
- Global cardinality (FunctionalProperty, InverseFunctionalProperty)
- Logical characteristics (Transitive, Symmetric)

Individuals

- sameAs
- differentFrom
- AllDifferent


IT'S TIME
FOR
coding

Difference between DBMS and Ontology

- DB has closed world assumption, Ontology has open world assumption.
- In DB, each individual has a single unique name, but in ontologies individuals might have more than one name.
- Ontologies allow you to infer implicit information, whereas databases do not.


Thank You
dankie
gracias
Merci
teşekkür ederim
сипос
Дзякуй
ευχαριστώ
хвала вам
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Вы благодарам
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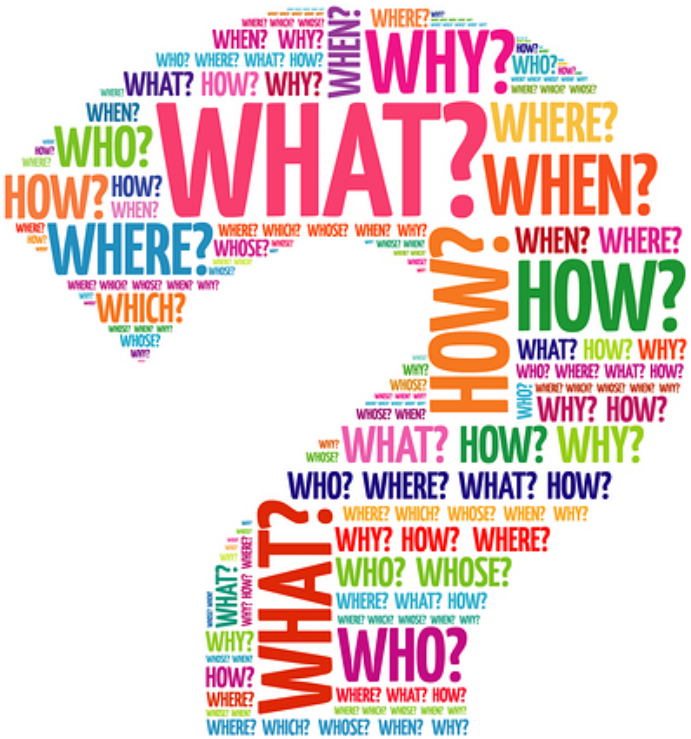
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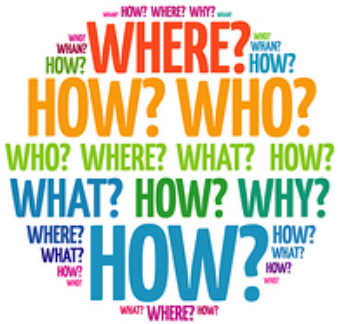
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