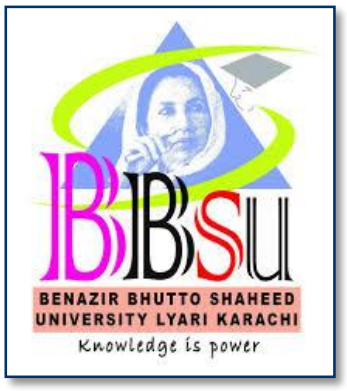


BENAZIR BHUTTO SHAHEED UNIVERSITY

LYARI, KARACHI

WEB SEMANTICS ASSIGNMENT # 03

Submitted to:

Sir Anwar Ali Sathio

Submitted by:

Name: Salman Abdul Rahim

Department: Computer Science

Semester: 7th – B

Roll #: 616

Q1: Describe the motive of Semantic Web in your own words.

The Semantic Web is a mesh of data that are associated in this manner which they can readily be processed by machines rather than human operators. It can be conceived as a protracted version of the existing Internet, and it represents a powerful means of data representation in the form of a globally linked database.

Q2: What is an OWL ontology? What are the components within an OWL ontology?

The ontology provides a vocabulary for expressing facts about topological (ordering) relations among instants and intervals, together with information about durations, and about temporal position including date-time information. The components of owl are domain, property and range.

Q3: What are named classes? What are disjoint classes?

Name classes defines the existence of classes with their specific name. Disjoint classes are an extended UML Dependency between two OWL Classes that have no common individuals.

Q4: Briefly describe the characteristics of the following properties:

INVERSE PROPERTIES: Properties is useful by defining property over both sides.

FUNCTIONAL PROPERTIES: A functional property is a property that can have only one (unique) value y for each instance x.

INVERSE FUNCTIONAL PROPERTIES: . A class (a) can have dependency on the other class (b) and class (a) can depending on class(c)

TRANSITIVE PROPERTIES: property has dependency in every perspective of statement.

SYMMETRIC PROPERTIES: No change in property while change the domain and range.

ASYMMETRIC PROPERTIES: Class A and B can be similar but class B and A are not similar x=y=z but x is not equal to z

REFLEXIVE PROPERTIES: Many of classes have only single property.

IRREFLEXIVE PROPERTIES: One property with zero dependency on other class.

Q5: What kind of services are offered by an OWL-DL reasoner?

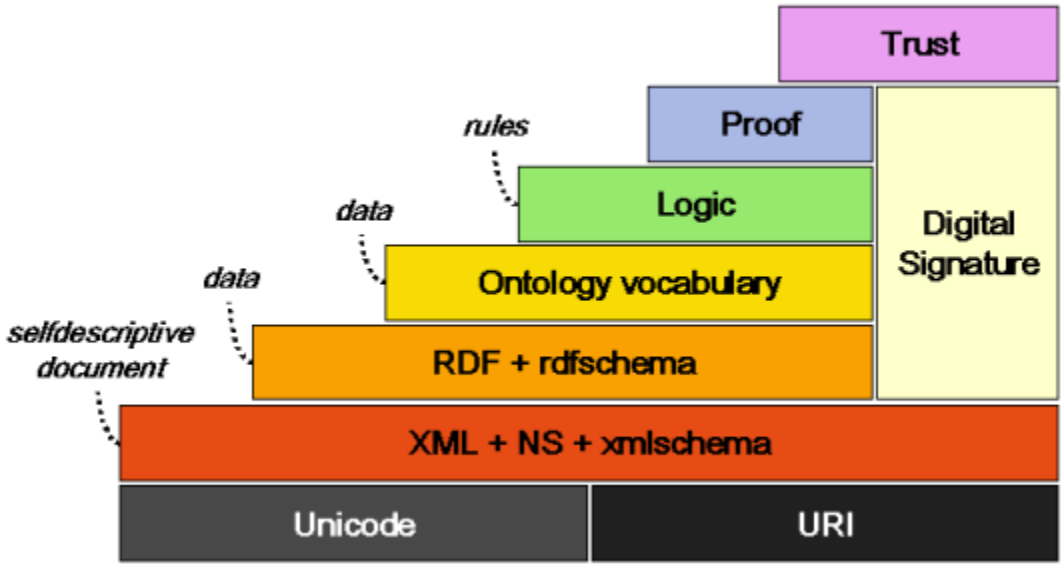
OWL-DL is a sublanguage of OWL Full which restricts the way in which the constructors from OWL and RDF can be used. OWL -DL puts constraints on the mixing with RDF and requires disjointness of classes, properties, individuals and data values.

Q6: Assign property values to the individuals (A) and (B) so that it will be inferred to be part of the (B) class.

Salman goes to a party

.

Q9: Discuss following figure



The first layer represents the pre-semantic Web. It provides universal character recognition and the URI system of referencing, which supports hyperlinking. At the second layer, applications exchange metatags but understand them purely qua character strings. At the third and fourth layers, with the introduction of Resource Description Framework (RDF) and ontology vocabularies, meaning is added to the tags, such that applications may be said to begin to understand the terms they are exchanging in metadata. The fifth and sixth layers add the ability to perform inferencing over shared knowledge. Final layer provides mechanisms for the verification and authentication of knowledge.

Q10: Map all the concepts taught in today's lecture (04-05-21) to explain departmental ontology given below.

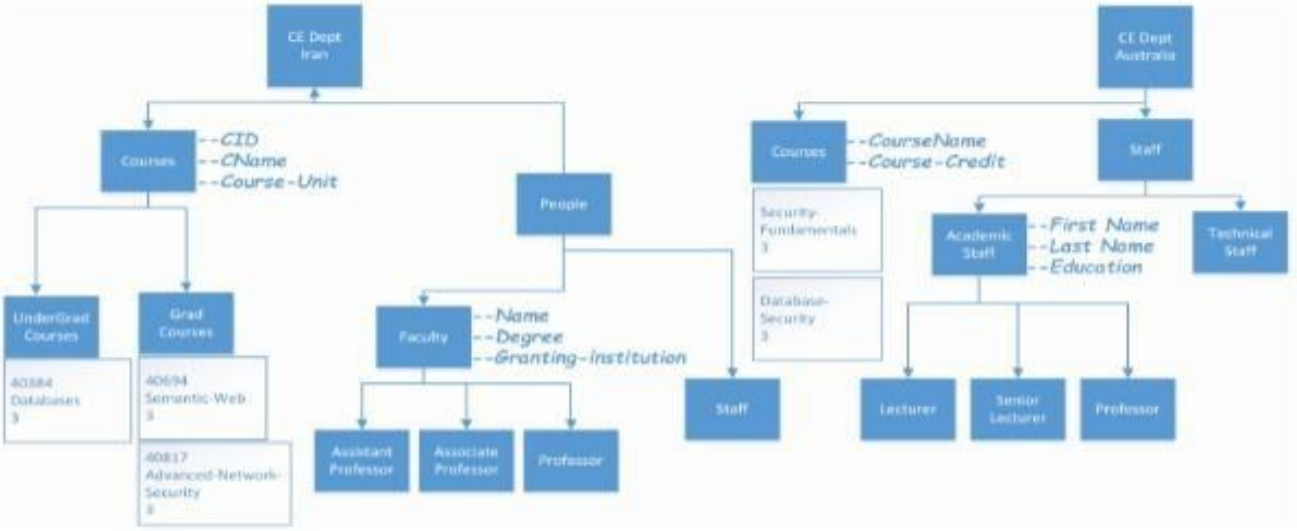


Figure 1: CE Department Ontologies

It is an ontology of CE Departments and have 2 main classes

1) CE dept iran

2) CE dept Australia

Which defines their relationship, data property, object property and class.

CE dept. Iran classes

1) faculty and staff
2) under Grad course
3) grad courses
4) assistant professor
5) associate professor
6) property
7) grad courses
8) assistant professor
9) courses, people

CE dept. Australia classes

1) Academic staff
2) Technical staff
3) Lecturer
4) Senior lecturer
5) Professor
6) CE dept. Australia
7) Courses
8) Staff

CE DEPT IRAN DATA PROPERTY:

1) CID
2) C-name
3) Course unit
4) Name
5) Degree
6) Granting institution

CE DEPT AUSTRALIA DATA PROPERTY:

1) Course Name
2) Course (Credit
3) First-name
4) Last-name
5) Education

CE DEPT IRAN INDIVIDUALS:

1) 40384 databases 3
2) 40694 semantic web 3
3) 40817 semantic web 3

CE DEPT AUSTRALIA INDIVISUALS:

1) Security fundamental 3
2) Database security 3

CE DEPT IRAN OBJECT PROPERTY

1) CE dept. courses may have courses and people.
2) Under grad courses and a grad course are belongs to courses.
3) Faculty and staff must have a people.
4) Faculty has a professor, assistant professor are associate professor.

CE DEPT AUSTRALIA OBJECT PROPERTY

1) CE dept. Australia can be courses and staff.
2) Academic staff and Technical staff have a staff.
3) Academic staff has lecturers, senior lecturers and professors.