INFO116 AUTUMN 2013

ENGLISH

UNIVERSITY OF BERGEN

Course exam under social science programme

December 6th 2013, 09.00 – 12.00

No artificial aids allowed

Answer all of questions 1, 2 and 3, and choose any three out of questions 4 - 9. In total you

should answer six (6) questions. Each question is worth the same number of marks.

Side 1 av 6

Q.1

Parts (a) - (f) refer to the following data. In each of (a) - (f), write out the exact output of the

SPARQL query in the question.

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@prefix ab: <http://learningsparql.com/ns/addressbook#> .

@prefix d: <http://learningsparql.com/ns/data#> .



d:i0432 ab:firstName "Richard" . In other words

d:i0432 ab:lastName "Mutt" .



d:i0432 ab:homeTel "(229) 276-5135" .



d:i0432 ab:email "richard49@hotmail.com" .



d:i9771 ab:firstName "Cindy" .



d:i9771 ab:lastName "Marshall" .



d:i9771 ab:homeTel "(245) 646-5488" .



d:i9771 ab:email "cindym@gmail.com" .



d:i8301 ab:firstName "Craig" .



d:i8301 ab:lastName "Ellis" .



d:i8301 ab:email "craigellis@yahoo.com" .



d:i8301 ab:email "c.ellis@usairwaysgroup.com"



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(a)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?craigEmail

WHERE

{

?person ab:firstName "Craig" .

?person ab:email ?craigEmail .

}

?craigEmail

craigellis@yahoo.com

c.ellis@usairwaysgroup.com

(b)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?craigEmail

WHERE

{

?person ab:firstName "Craig" .

?person ab:lastName "Ellis" .

?person ab:email ?craigEmail .

}

?craigEmail

craigellis@yahoo.com

c.ellis@usairwaysgroup.com

Side 2 av 6(c)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?first ?last

WHERE

{

?person ab:homeTel "(229) 276-5135" .

?person ab:firstName ?first .

?person ab:lastName ?last .

}

|?first | ?last |

|Richard | Mutt|

(d)

PREFIX a: <http://learningsparql.com/ns/addressbook#>

SELECT ?propertyName ?propertyValue

WHERE

{

?person a:firstName "Cindy" .

?person a:lastName "Marshall" .

?person ?propertyName ?propertyValue .

}

|  |  |
| --- | --- |
| propertyName | propertyValue |
| a:email | [cindym@gmail.com](mailto:cindym@gmail.com) |
| a:firstName | Cindy |
| a:lastName | Marshall |
| a:homeTel | (245) 646-5488 |

(e)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT \*

WHERE

{

?s ?p ?o .

FILTER (regex(?o, "yahoo","i"))

}

|  |  |  |
| --- | --- | --- |
| s | p | o |
| @prefix d: <http://learningsparql.com/ns/data# d:i8301 | ab:email | craigellis@yahoo.com |
|  |  |  |

(f)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?craigEmail ?homeTel

WHERE

{

?person ab:firstName "Craig" .

?person ab:lastName "Ellis" .

?person ab:email ?craigEmail .

?person ab:homeTel ?homeTel .

}

|  |  |
| --- | --- |
| craigEmail | homeTel |
|  |  |
|  |  |
|  |  |

\*\*Begge må oppfylles, altså «egentlig» på en måte, så står det SELECT ?craigEmail \*AND\* ?homeTel, begge to må være «sanne» for at noe skal skrives ut, mangler den *ene* noe data, vil ikke noe skrives ut.

Side 3 av 6Q2.

Part (a) refers to the following data. Write out the exact output of the SPARQL query in the

question.

IMPORTANT: Assume that the SPARQL endpoint is able to perform OWL reasoning.

@prefix ab: <http://learningsparql.com/ns/addressbook#> .

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

@prefix owl: <http://www.w3.org/2002/07/owl#> .

ab:i0432

ab:firstName "Richard" ;

ab:lastName "Mutt" ;

ab:spouse ab:i9771 .

ab:i8301

ab:firstName "Craig" ;

ab:lastName "Ellis" ;

ab:patient ab:i9771 .

ab:i9771

ab:firstName "Cindy" ;

ab:lastName "Marshall" .

ab:spouse

rdf:type owl:SymmetricProperty ;

rdfs:comment "Identifies someone's spouse" .

ab:patient

rdf:type rdf:Property ;

rdfs:comment "Identifies a doctor's patient" .

ab:doctor

rdf:type rdf:Property ;

rdfs:comment "Identifies a doctor treating the named resource" ;

owl:inverseOf ab:patient .

(a)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?doctorFirst ?doctorLast ?spouseFirst ?spouseLast

WHERE

{

?s ab:firstName "Cindy" ;

ab:lastName "Marshall" ;

ab:doctor ?doctor ;

ab:spouse ?spouse .

?doctor ab:firstName ?doctorFirst ;

ab:lastName ?doctorLast .

?spouse ab:firstName ?spouseFirst ;

ab:lastName ?spouseLast .

}

Side 4 av 6Parts (b) and (c) refer to the following data. In each of (b) and (c), write out the exact output of

the SPARQL query in the question.

@prefix ab: <http://learningsparql.com/ns/addressbook#> .

@prefix d: <http://learningsparql.com/ns/data#> .

d:i0432 ab:firstName "Richard" .

d:i0432 ab:lastName "Mutt" .

d:i0432 ab:homeTel "(229) 276-5135" .

d:i0432 ab:nick "Dick" .

d:i0432 ab:email "richard49@hotmail.com" .

d:i9771 ab:firstName "Cindy" .

d:i9771 ab:lastName "Marshall" .

d:i9771 ab:homeTel "(245) 646-5488" .

d:i9771 ab:email "cindym@gmail.com" .

d:i8301 ab:firstName "Craig" .

d:i8301 ab:lastName "Ellis" .

d:i8301 ab:workTel "(245) 315-5486" .

d:i8301 ab:email "craigellis@yahoo.com" .

d:i8301 ab:email "c.ellis@usairwaysgroup.com" .

(b)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?first ?last ?workTel

WHERE

{

?s ab:firstName ?first ;

ab:lastName ?last ;

ab:workTel ?workTel .

}

(c)

PREFIX ab: <http://learningsparql.com/ns/addressbook#>

SELECT ?first ?last ?workTel ?nick

WHERE

{

?s ab:firstName ?first ;

ab:lastName ?last .

OPTIONAL

{

?s ab:workTel ?workTel ;

ab:nick ?nick .

}

}

Side 5 av 6Q3. For each of the HTML snippets in parts (a) and (b), write out the RDF triples embedded

into the snippets. You should write the RDF with the turtle notation.

(a)

<p vocab="http://schema.org/" prefix="ov: http://open.vocab.org/terms/" resource="#manu"

typeof="Person">

My name is

<span property="name">Manu Sporny</span>

and you can give me a ring via

<span property="telephone">1-800-555-0199</span>.

<img property="image" src="http://manu.sporny.org/images/manu.png" />

My favorite animal is the <span property="ov:preferredAnimal">Liger</span>.

</p>

(b)

<div vocab="http://schema.org/" resource="#bbg" typeof="LocalBusiness">

<h1 property="name">Beachwalk Beachwear &amp; Giftware</h1>

<span property="description"> A superb collection of fine gifts and clothing

to accent your stay in Mexico Beach.</span>

<div property="address" resource="#bbg-address" typeof="PostalAddress">

<span property="streetAddress">3102 Highway 98</span>

<span property="addressLocality">Mexico Beach</span>,

<span property="addressRegion">FL</span>

</div>

Phone: <span property="telephone">850-648-4200</span>

</div>

Q4. What do we mean by the word “semantics” in Information Systems? Why is “semantics”

useful (or even perhaps necessary) for the use of information in the world today?

Q5. What is Implicit Semantics? Give an example of how a semantic application can make use of

implicit semantics.

Q6. Suppose you saw the following comment on a social media web site, and you had to

automatically infer what the content of the message was: “Lily I loved your cheryl tweedy do ...

heart Amy.” What are the challenges to assigning meaning? How would you try and solve the

problem?

Q7. What is the idea of “Linked Data”? Why is linked data useful? What are the four rules of

linked data?

Q8. What is “provenance”, and why is it important? What are the major components needed to

track provenance as used in the Provenance Ontology?

Q9. What is a Cloud Platform as a Service? Explain the four types of semantic annotation for

cloud services (data, logic/process, non-functional, system), and explain how each one is relevant

for Platform as Service?

Side 6 av 6