



STI · INNSBRUCK

Semantic Web Services PS

Exercise Sheet 6 – 06.05.2014

Please answer the following questions. Provide your elaborated answers in a PDF or a plain text file. If you make use of references when elaborating your answers, please add the proper citations to your document. The deadline for submissions to the tutors (ioan.toma@sti2.at and jose.garcia@sti2.at) is 12th May 2014 at 20:00 CET.

Exercise 1 (10 points)

Clarify in which ways the following RDF annotation representing a Person (Listing 1) does not comply with the FOAF schema. What are changes needed to be done to make this annotation compliant with the FOAF specification?

Listing 1: RDF annotation representing a Person

```
<rdf:RDF
  xmlns:j.0="http://xmlns.com/foaf/0.1/"
  xmlns:j.1="http://www.sti2.at/person#"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" >
  <rdf:Description rdf:about="http://www.dieter.fensel">
    <j.0:depiction>http://www.sti-
innsbruck.at/sites/default/files/images/members/dieter_fensel2.jpg
  </j.0:depiction>
    <j.1:workStreetAddress>Technikerstrasse 21a</j.1:workStreetAddress>
    <j.0:givenname></j.0:givenname>
    <j.0:mbox>dieter.fensel@sti2.at</j.0:mbox>
    <j.0:homepage>http://www.fensel.com</j.0:homepage>
    <j.1:middle_name></j.1:middle_name>
    <j.1:workOrganization>University of Innsbruck</j.1:workOrganization>
    <j.1:workDepartment>Institute of Computer Science</j.1:workDepartment>
    <j.1:workPostalCode>A6020</j.1:workPostalCode>
    <j.1:workFaxNumber>+43 512 507 9872</j.1:workFaxNumber>
    <j.1:workCity>Innsbruck</j.1:workCity>
    <j.0:name>Univ. Prof. Dr. Dieter Fensel</j.0:name>
    <j.1:workPhoneNumber>+43 512 507 6485, 6488</j.1:workPhoneNumber>
    <j.1:workCountry>Austria</j.1:workCountry>
    <j.0:title></j.0:title>
    <j.0:family_name>Fensel</j.0:family_name>
  </rdf:Description>
</rdf:RDF>
```

Exercise 2 (10 points)

Answer the questions about SPARQL queries.

a) Given the following data and SPARQL query, which result will the query deliver?

Data:

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
_:a foaf:name "Jose" ;
foaf:mbox <mailto:jose@example.net> .
_:b foaf:name "Ioan" .
```

SPARQL query:

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT ?name WHERE {
?node foaf:name ?name .
?node foaf:mbox ?mbox .
}
```

b) Given the following data and SPARQL query, which result will the query deliver?

Data:

```
@prefix dc10: <http://purl.org/dc/elements/1.0/> .
@prefix dc11: <http://purl.org/dc/elements/1.1/> .
_:a dc10:title "SPARQL Query Language Tutorial" .
_:b dc11:title "SPARQL Query Language (2nd ed)" .
_:c dc10:title "SPARQL" .
_:c dc11:title "SPARQL" .
```

SPARQL query:

```
PREFIX dc10: <http://purl.org/dc/elements/1.0/>
PREFIX dc11: <http://purl.org/dc/elements/1.1/>
SELECT DISTINCT ?title
WHERE { { ?book dc10:title ?title } UNION
{ ?book dc11:title ?title } }
```

c) What does the following SPARQL query performing?

```
CONSTRUCT { ?friend pim:fullName ?name .
?friend foaf:mbox ?mbox }
WHERE { ?person foaf:knows ?friend .
?friend foaf:given ?name .
?friend foaf:mbox ?mbox .
FILTER regex(?person, "Anna") .}
```