

# EXERCISES WEEK 2 INF3580 SPRING 2012

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## 2 RDF

Read

- Semantic Web Programming: chapter 3.
- Foundations of Semantic Web Technologies: chapter 2.

### 2.1 Exercises from Foundations of Semantic Web Technologies

The exercises

- Exercise 2.1
- Exercise 2.2

are relevant.

### 2.2 FOAF - Friend of a friend

The FOAF project is one of the most well-known projects using RDF and a project where RDF is the core technology. Quoting foaf-project.org<sup>1</sup> :

FOAF is about your place in the Web, and the Web's place in our world. FOAF is a simple technology that makes it easier to share and use information about people and their activities (eg. photos, calendars, weblogs), to transfer information between Web sites, and to automatically extend, merge and re-use it online.

See also the following webpages for more information.

- FOAF project: home<sup>2</sup>
- FOAF project: Introducing FOAF<sup>3</sup>
- Wikipedia: FOAF (software)<sup>4</sup>
- XML Watch: Finding friends with XML and RDF<sup>5</sup> on IBM developer works

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<sup>1</sup><http://www.foaf-project.org/about>

<sup>2</sup><http://www.foaf-project.org/>

<sup>3</sup><http://www.foaf-project.org/original-intro>

<sup>4</sup>[http://en.wikipedia.org/wiki/FOAF\\_\(software\)](http://en.wikipedia.org/wiki/FOAF_(software))

<sup>5</sup><http://www.ibm.com/developerworks/xml/library/x-foaf.html>

### 2.2.1 Exercise

Go to the FOAF-a-Matic<sup>6</sup> and create your own FOAF file. If you are hesitant publishing information about yourself online, then make something up.

Befriend yourself with at least Martin Giese and Martin G. Skjæveland, who have the following FOAF files, respectively:

- <http://folk.uio.no/martingi/foaf.rdf>
- <http://folk.uio.no/martige/foaf.rdf>

### 2.2.2 Exercise

Publish your FOAF file to your homepage. If you don't have a homepage, you can create one using your UiO account. Follow the instructions on <http://folk.uio.no/>.

### 2.2.3 Exercise

In the FOAF file you have generated you are identified as me, e.g., the identifier for Martin G. Skjæveland is

<http://folk.uio.no/martige/foaf.rdf#me>

Explain why #me is used? What is the difference from

<http://folk.uio.no/martige/foaf.rdf>

and

<http://folk.uio.no/martige/foaf.rdf#me> ?

See Best Practice Recipes for Publishing RDF Vocabularies<sup>7</sup> and Cool URIs for the Semantic Web<sup>8</sup> for help.

Note that the URL to my FOAF file should not include the serialisation format, since what format the file is written should not be part of the identifier for the file. Instead I should have used *content negotiation* on the server decide what format and even file to return the user. However, I seems that the necessary software for content negotiation is not setup on the server.

### 2.2.4 Exercise

Set up a redirection service on your UiO homepage so that

<http://folk.uio.no/martige/id/martige>

,or a similar URL, 303-redirects to your FOAF file—assuming your username is martige.

For help see the articles referred to in the above exercise and USIT's Videresending med .htaccess<sup>9</sup>.

<sup>6</sup><http://www.ldodds.com/foaf/foaf-a-matic>

<sup>7</sup><http://www.w3.org/TR/2008/NOTE-swbp-vocab-pub-20080828/>

<sup>8</sup><http://www.w3.org/TR/2007/WD-cooluris-20071217/>

<sup>9</sup><http://www.usit.uio.no/it/web/tjenester/udir/udirhtaccess.html>

### 2.2.5 Exercise

Open your FOAF file with an RDF browser, e.g., SIOC RDF Browser<sup>10</sup> or FOAFer<sup>11</sup>, and find the interests of Aaron Swartz, who Tim Berners-Lee knows, who again Martin G. Skjæveland knows.

### 2.2.6 Exercise

Open your FOAF file in your favourite plain text editor. Add Ifl as Organisation with the following values:

- `rdf:ID = ifi`
- name in both Norwegian and English
- homepage
- logo, use e.g., <http://www.ifi.uio.no/gfx-bin/logo.jpg>
- the coordinates where Ifl is located, see <http://www.w3.org/2003/01/geo/>
- add at least yourself, Martin Giese and Martin G. Skjæveland as members of the organisation.

Use the FOAF ontology<sup>12</sup> to find the correct resource names for adding this information. You can write RDF using the RDF serialisation you prefer, but you will need to publish it in RDF/XML as that currently is the only standardised RDF serialisation language. There are applications available online which convert between RDF serialisations, one is found behind the next link. Make sure that your FOAF file is written in valid RDF syntax. Use an RDF validator, e.g., RDF Validator and Converter<sup>13</sup> or W3C's RDF validator<sup>14</sup> (accepts only RDF/XML), for this purpose. You can also use the library Raptor RDF Syntax Library<sup>15</sup> which ships with the package `raptor-utils` on a few Linux distributions.

### 2.2.7 Exercise

Add more information about yourself or your surroundings, e.g., a picture of yourself, where you live—maybe using coordinates, places you have been to, your interests, your chat identities, and so on.

See the FOAF ontology<sup>16</sup> and what FOAFer supports<sup>17</sup>, e.g., these relationships<sup>18</sup>, for the vocabulary you can use in your FOAF file.

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<sup>10</sup><http://sparql.captsolo.net/browser/>

<sup>11</sup><http://www.foafer.org/>

<sup>12</sup><http://xmlns.com/foaf/spec/index.rdf>

<sup>13</sup><http://www.rdfabout.com/demo/validator/>

<sup>14</sup><http://www.w3.org/RDF/Validator/>

<sup>15</sup><http://librdf.org/raptor/>

<sup>16</sup><http://xmlns.com/foaf/spec/index.rdf>

<sup>17</sup><http://www.foafer.org/supports>

<sup>18</sup><http://vocab.org/relationship/>

### **2.2.8 Exercise**

Open your FOAF file in Protégé and see how things look when Protégé interprets the RDF file as OWL. Try to find all the information you have written in your FOAF file. Pay attention to where you find which information, e.g., which information is located under the classes, properties and individuals tabs, respectively.