Project #2: Java Faculty RDF to Homepage

Due: Tuesday, November 9

This is an individual assignment and will count for 20% of your overall grade. Be sure to start early, particularly if you are not comfortable programming in Java and using external packages.

One potential problem with providing semantic data is keeping it synchronized with your other information sources. For example, I often update my web page with new information, but forget to update my corresponding RDF/OWL. One solution is to make RDF the primary source of information and use it to automatically generate the HTML page. This assignment will explore how to accomplish this for a simple web page. You are expected to use the Jena Semantic Web Framework to read and process the RDF file.

On the course web page, I have provided a faculty ontology that describes the subset of the academic domain that deals with information about faculty members. You will need to write a program that converts an RDF file that uses the ontology into a home page for the faculty member. Your file should be run as:

`java FacRdf2Html` *rdf-file faculty-instance*

where *rdf-file* is the pathname of an RDF file containing data that commits to the Faculty ontology, and *faculty-instance* is the absolute URI of the instance representing the faculty member in the file. You may assume that the RDF file imports the given ontology, and the URI of this ontology can be used to retrieve the ontology from the Web.

The output of your program should be a valid HTML file that contains the following information in an organized and aesthetically pleasing manner:

- name of the faculty member
- rank of the faculty member (Assistant Professor, Associate Professor, or Full Professor)
- department of the faculty member (including link to its webpage)
- university of the faculty member (including link to its webpage)
- a photo
- postal address
- e-mail address
- phone number
- fax number
- office location
- course number, name, and web site (if applicable) of all courses offered in the four most recent semesters
- citation information (and a link to the electronic copy) for the following publications:
  - all journal articles published in the last six years
  - the 10 most recent refereed conference publications
  - any other publications in the current year
- information on all degrees held, including the degree type (B.S., M.S., Ph.D., etc.), institution and year

In the directory http://www.cse.lehigh.edu/~heflin/courses/sw-2010/proj2/ you will find a sample RDF file and the ontology that it imports. Although the sample RDF file specifies data about myself, your output does not need to copy my current homepage (in fact, the RDF file lacks information for a complete copy of this page). You are welcome, but not required, to use technologies like CSS, JavaScript, and AJAX to improve the look and feel of your web page. The only constraint is that your page can be viewed properly in both Mozilla Firefox and Internet Explorer. If your page requires additional style sheets or files for proper viewing (other than links specified in the RDF file), then these must be included with your submission or created by your program. Note, I will test your program with different variations of the RDF file. You can assume that the ontology will not change, but should try to avoid hard-coding semantics of the ontology in your application.

Use of Jena

For this project, you must use the most recent version of Jena to parse the input files. The Jena distribution includes a number of JAR files, and many (but not all) of these will need to be in your classpath for your program to compile and run. You will need to use classes from the **com.hp.hpl.jena.rdf.model** package, and may find the **com.hp.hpl.jena.vocabulary.*** packages useful as well. Note, the sample RDF file uses the <rdf:Seq> and <rdf:li> constructs in order to provide ordered lists of authors. See the "RDF/XML Syntax Specification (Revised)" (http://www.w3.org/TR/rdf-syntax-grammar/), Sect. 2.15 for a description of how these relate to triples.

Submission Instructions

This assignment is due by the beginning of class on Tuesday, November 9. Create a zip or tar file that contains both your source code (.java) and compiled (.class) files (but do not include any of the Jena files in it). Please include a README.txt file that lists all libraries that must be in the classpath in order for your program to run. If you use a .BAT file or some other form of script to compile and run your program, please include this as well. The electronic version of your program file must be e-mailed to me with subject line "CSE 428 – Project #2 Submission". Also print out your .java files, and turn them in during class. All of your files should be reasonably commented, including an initial comment that identifies you as the author and descriptive comments for each class and method.