

## *Semantic Web*

### *Lab Assignment 3*

#### 1. Create and test queries using GRUFF.

Use data file “VC-DB-3.rdf”. You will need to make a new triple store or overwrite an existing one—you **will not be submitting it**.

Create a SPARQL query for each description below. Test your queries within Gruff.

Query ID	Description
1	A query that gives the subject where the full name is Jane Smith.
2	A query that lists the two ages in the data.
3	A query that lists the full names and ages of the two individuals for which we have both name and age.
4	A query that lists the full name and age for the person who is 23.
5	A query to list the given names of both individuals in #3. (Hint: blank node)

Store all queries in one text file named:

Lab3\_1\_<YourID>.txt

where <YourID> should be replaced with your first initial and last name. In the file, have empty lines between each query and have the line before each identified with a comment of the form:

#Query <id>

where <id> matches the query identifier in the table, above.

***See the end of exercise 2 for instructions on submittal to the eLearning site.***

#### 2. Persist graph to Jena from file and query.

- Use Jena to load “Monterey.rdf” into an in-memory default (i.e. un-named) Jena triple store. Print to the screen how long the insertion/loading step requires in tenths of seconds (e.g., “Load of Monterey.rdf took 2.5 seconds”).
- Use the Query and ResultSet classes of Jena to add a query to your class that gives **all information on monterey incident 1**, and write the query results to the file:  
./Lab3\_2\_<YourID>.xml  
in xml format, where <YourID> should be replaced with your first initial and last name.

Hints:

- The SPARQL query, in Gruff, for the top level information of the incident is:  

```
SELECT ?p ?o
WHERE { <http://urn.monterey.org/incidents#incident1> ?p ?o }
```
- An example of using Query and ResultSet in Jena can be found at:  
<http://www.ibm.com/developerworks/xml/library/j-sparql/>  
in the section named “Executing SPARQL queries with the Jena API”
- ResultSetFormatter.outputAsXML() provides an option to output information as an XML String which should provide the desired form. You will need to create an OutputStream for your output file or some other equivalent output process.

Prepare to submit your eclipse project: If your eclipse project for Lab 3 is quite large (>30MB) you will not be able to submit it to eLearning..

So please add the following steps to preparing your submittal:

1. If present, delete contents of the MyDatabases/ directory (problem is likely MyDatabases/Dataset1)
2. Confirm that your project still works
3. (Again, if present) Delete contents of the MyDatabases/ directory
4. Make your zip file

(The important thing is that your project works for the grader AND your zip file is a reasonable size [does not contain any triple store, MyDatabases/ directory]).

***Please compress your eclipse project as well as the .txt file from exercise #1 into one zip file, and submit the zip file on e-learning. Name your main java file lab3\_2.java.***

### **Grading (100 points):**

- 100 Nothing submitted
- 50 No Part 1 answer file
- 5 Particular query doesn't work in Gruff
- 50 Jena program not submitted
- 10 Program Doesn't Run
- 8 Program has wrong output
- 3 Has Log4j runtime complaint
- 5 Incorrect output filenames
- 5 Incorrect source filenames
- 10 Lacking use of Jena in-memory model