

Exercise Sheet 12

Submit until Tuesday, February 4 at 4:00pm

Exercise 1 (10 points)

Write a program that reads a SPARQL query from standard input and writes the corresponding SQL query to standard output. The idea of the translation was explained in the lecture (by an example + a few hints). However, assume a single table for the whole data, with three columns *subject*, *predicate*, *object*, and not one table per relation as in the example in the lecture.

It is enough if your program can deal with simple SPARQL queries, where the parts of the WHERE clause are all of the form $\langle \text{variable} \rangle \langle \text{TAB} \rangle \langle \text{relation name} \rangle \langle \text{TAB} \rangle \langle \text{variable or literal} \rangle$. In full SPARQL, the relation name can also be a variable, and there are lots of additional features like LIMIT, UNION, FILTER, etc. Also note that in standard SPARQL, the three parts of a triple are not separated by TABs; we assume that here to facilitate the query parsing.

Exercise 2 (5 points)

Consider the query *German female musicians born in Asia*. Formulate the appropriate SPARQL query on the Freebase dataset linked on the Wiki (use *grep* to figure out the names of the entities and relations needed for the query). Use your program from Exercise 1 to produce a corresponding SQL query. Run that query on the Freebase dataset using SQLite, and report the number of query results and the query time in the table on the Wiki. Also commit to the SVN a file containing your SPARQL query, the corresponding SQL query, and the query result.

Exercise 3 (5 points)

Repeat Exercise 2 for a query of your choice. The SPARQL query should have at least three parts in its WHERE clause, and it should have more than one and less than one hundred results.

Add your code for Exercise 1 as well as the two files for your two queries from Exercise 2 and 3 to a new sub-directory *exercise-sheet-12* of your folder in the course SVN, and commit it. Make sure that *compile*, *test*, and *checkstyle* run through without errors on Jenkins. As usual, also commit a text file *experiences.txt* where you briefly describe your experiences with this exercise sheet and the corresponding lecture. As a minimum, say how much time you invested and if you had major problems, and if yes, where.