3. Unit: XQuery & Mondial

Information about the XML course, recommended tools as well as the Mondial Database, is found under
`http://www.stud.informatik.uni-goettingen.de/xml-lecture`

The following exercises work with the *Mondial* Database and are considered to be solved within the XQuery web interface of the *eXist* XML database system[a] and/or using the saxon XQuery engine.

[a] Remember to set the collection context in the web interface to "`/db/xmlcourse`".

Exercise 3.1 Give name and population size of the most populated country worldwide.

Exercise 3.2 List all organizations with the sum of the population of their members (in descending order, ignore different membertypes).

Exercise 3.3 Imagine the moment of sunrise in Dakar on 21th of September. On the same day, in which city rises the sun next?

Exercise 3.4 Which lakes, seas and rivers does Russia share with *exactly one* other country?

Exercise 3.5 The database contains redundant information about the population of countries (in country and in province). Compute all inconsistent countries, i.e., those whose population differs more than 10% from the sum of the population of their provinces.

Exercise 3.6 Compute all pairs of european countries that are adjacent to the same set of seas.

Exercise 3.7 How many countries and how much area encompass the islands in the Caribbean Sea?

Exercise 3.8 For all countries, give the sum of the population of all its neighbors (note that there are 260 countries).

Exercise 3.9 For each country with at least 3 cities, compute the sum of the inhabitants of the three biggest cities.

Exercise 3.10 Compute all cities that have more inhabitants that the average of all cities in that country.