Distributed Programming II

A.Y. 2019/20

Lab5

All the material needed for this assignment is included in the *.zip* archive where you have found this file. Please extract the archive to an empty directory (that will be called `[root]`) where you will work.

Purpose

The aim of this Lab is to experiment with the design and documentation of RESTful web services The exercise gives you the opportunity to apply the knowledge acquired about REST and about design guidelines.

Exercise 1

1. Complete the design of a RESTful web service for managing a bibliography, which has been initiated as an exercise in the classroom, so that it fulfills the following requirements (the first ones are the same that were already considered in the exercise):
   - Allow clients to search the bibliography by keyword, type (article/book) and publication year
   - For each item in the bibliography, allow clients to get all available data (according to data model)
   - Allow clients to navigate through items by citation
   - Allow clients to add new items to the bibliography (including related data, such as journal information and citations)
   - Allow clients to modify or delete items in the bibliography
   - Allow clients to create bookshelves, i.e. lists of items belonging to the bibliography. Each bookshelf can contain zero or more items, up to a maximum number, which is fixed in the system. Moreover, each bookshelf must have a name, which can be any string. The same item can appear in multiple bookshelves.
   - Allow clients to search bookshelves by name (by passing a name prefix as search key), read the items in a bookshelf, add items to a bookshelf, remove items from a bookshelf, and remove bookshelves.
   - Consider that when an item is removed from the bibliography, the system must also automatically remove it from all bookshelves.
   - Allow clients to get the number of reads for a bookshelf, i.e., how many times the bookshelf has been accessed in read mode (by reading the contents of the bookshelf or by reading an item from the bookshelf)

   For your convenience, the package of this Lab includes (under `[root]/doc`) a copy of RFC 7231 (HTTP 1.1 standard semantics)
2. The design must be documented by completing the schema `[root]/xsd/biblio.xsd` and the spreadsheet `[root]/doc/design/design.ods`, that already contain the documentation of the design discussed in the classroom.

3. Once the design is completed, check the validity of the schema `[root]/xsd/biblio.xsd`.

Submission instructions

The solution of the exercise in this Lab will be submitted along with the solution of Lab 6. The deadline will be at the end of the course.

A submission will be accepted as valid only if:

- the files `[root]/doc/design/design.ods` and `[root]/xsd/biblio.xsd` exist and the latter is a valid XML Schema document;

The validity of an XML file or schema can be checked by any XML validation program. For example, it can be checked by the Eclipse validate command.