

Coursework C1: DTDs

For this piece of coursework you are asked to produce a DTD that captures the requirements listed below.

A DTD for a Student List

We want to store information about students in the Faculty of Computer Science. Consider the following requirements. (To solve this exercise properly, you need to define attributes and their properties. To understand how to use attributes, you may want to have a look at the lecture slides on DTDs.)

- A `studentlist` consists of one or more student entries.
- A student has a matriculation number by which they can be uniquely identified. For a student we want to record the student's name, the study programme in which the student is enrolled, and the courses the student has taken so far. For each student, we need to keep as well the year when the student enrolled.
- A student's name consists of the first name, the middle name, which is optional, and the last name.
- Study programs are "BSc in CS and Engineering", "BSc in Applied CS", "Master in CS", and "PhD in CS".
- Each course has a title. A course can be taken for some of the programs (but not for all of them). If a course can be taken for a program, then it is mandatory or optional for that program.
- We want to record as well which courses the student has already taken and whether the student has already received a course work mark for the course and, if so, the mark. Moreover, we want to record as well whether the student has already taken an exam for the course and, if so, what was the mark of the exam.

Tasks:

1. Write a DTD that defines the documents of type `studentlist` according to the requirements above.
Hint: You may want to use attributes of type `ID`, and of type `IDREF` to meet some of the requirements.
2. Give an instance of a `studentlist` document that is *valid* with respect to your DTD.
3. Give an instance of a `studentlist` that is *invalid* with respect to your DTD. Create an instance that contains only element and attribute names introduced in the DTD. Explain why it is invalid.

Deliverable

Your deliverable will consist of

- a `.dtd` file that contains the Studentlist DTD
- two files with XML documents that contain the example instances.

Please, submit your work by email to `Werner.Nutt AT unibz.it` no later than

Mon, 18 November 2013, 23:30 hours.