Exercise 2 “Advanced Data Models”

Due until 7 May, 2008 before/after lecture

Exercise 2.1 [XML, RDF, and OWL] :
Briefly Explain the relationship among XML, RDF, and OWL. (2 pt.)

Exercise 2.2 [XML Schema and XQuery] :
Consider the XML Schema document Lectures.xsd linked from our homepage which constraints the format of XML documents that describe a collection of lectures. These lectures can be part of several courses and can end with an oral or written examination.

1. Decide for the two sample XML documents linked from our homepage (Lectures1.xml and Lectures2.xml), whether they are valid according to the given schema. For the invalid document(s), give all reasons why they violate the schema constraints.

2. Describe the following query in XQuery:
   List all lectures with an oral examination grouped by their instructors in the following format:

   
   `<lectures>
     <instructor name=INSTRUCTOR_NAME email=INSTRUCTOR_EMAIL>
       <lecture lang=LECTURE_LANG>Lecture_TITLE</lecture>
     </instructor>
   </lectures>

   The instructors should be sorted in alphabetic order. Formulate your query against an XML document ‘lectures.xml’ that is considered to be valid according to the given schema.

Exercise 2.3 [OWL] :
Recall the scenario in Exercise 1.2, and model the scenario in OWL. (4 pt.)