

## Exercise Sheet 6

### XQuery (1)

#### Exercise 1: Simple queries in XQuery

Consider the following document, which you can access using the relative URI "bib.xml".

```
<?xml version="1.0"?>
<bib>
  <book year="1994">
    <title>TCP/IP Illustrated</title>
    <author>Stevens</author>
    <publisher>Addison-Wesley</publisher>
    <price>65.95</price>
  </book>
  <book year="1994">
    <title>Principles of Databases</title>
    <author>Abiteboul</author>
    <publisher>Addison-Wesley</publisher>
    <price>35.89</price>
  </book>
  <book year="1992">
    <title>Advanced Programming in the Unix environment</title>
    <author>Stevens</author>
    <publisher>Addison-Wesley</publisher>
    <price>65.95</price>
  </book>
  <book year="2000">
    <title>Data on the Web</title>
    <author>Abiteboul</author>
    <author>Buneman</author>
    <author>Suciu</author>
    <publisher>Morgan Kaufmann Publishers</publisher>
    <price> 39.95</price>
  </book>
  <book year="1992">
    <title>The Economics of Technology
      and Content for Digital TV</title>
    <editor>
      Gerbarg
      <affiliation>CITI</affiliation>
    </editor>
    <publisher>Kluwer Academic Publishers</publisher>
    <price>129.95</price>
  </book>
</bib>
```

Write the following queries and run them using oXygen:

- 1.1. Give the titles of all books sorted by price.
- 1.2. How many books have been written by Abiteboul?
- 1.3. Give for each author the number of books which he has written.

## Exercise 2: Namespaces in XQuery

Consider the following document:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE eth SYSTEM "eth.dtd">
<eth xmlns="http://www.ethz.ch"
     xmlns:db="http://www.dbis.ethz.ch"
     date="11.11.2006"
     db:date="12.11.2006">
  <date>13.11.2006</date>
  <president number="1">Empty</president>
  <Rektor>Name 2</Rektor>
</eth>
```

Correct the following XQuery expressions so that they refer to the correct namespace, in order to determine the value of the *date* subelement and of the two *date* attributes.

- 2.1. /eth/date
- 2.2. /eth/@date

Hint: you can bind a prefix *pre* to a URI `http://www.example.com` with the following prolog declaration:

```
declare namespace pre = "http://www.example.com";
```

You can then use the prefix in path expressions.

## Exercise 3: Properties of XQuery Comparison Operators

- 3.1. Find a variable binding for  $\$x$  so that  $\$x=1$  and  $\$x=2$ . Can one infer that, in XQuery,  $1=2$ ?
- 3.2. Find variable bindings for  $\$x$ ,  $\$y$  and  $\$z$  so that  $\$x > \$y$  and  $\$y > \$z$ , but  $\$x > \$z$  is not true.
- 3.3. Find a variable binding for  $\$x$  so that neither  $\$x \text{ eq } \$x$  nor  $\$x = \$x$  is true. Explain why.