

## Solution Sheet 6

### XQuery (1)

#### Exercise 1: Simple queries in XQuery

1.1.

```
for $b in doc("bib.xml")//book
order by xs:float($b/price) descending, $b/title ascending
return $b/title
```

1.2.

```
count(doc("bib.xml")//book[author = 'Abiteboul'])
```

1.3.

```
for $a in distinct-values(doc("bib.xml")//author)
return <res>
<name>{$a}</name>
<count>
{
count(doc("bib.xml")//book[author = $a])
}
</count>
</res>
```

#### Exercise 2: Namespaces in XQuery

a. To refer to the date subelement:

```
declare namespace def = "http://www.ethz.ch";
/def:eth/det:date
```

b. To refer to the date attribute which is in no namespace:

```
declare namespace def = "http://www.ethz.ch";
/def:eth/@date
```

To refer to the date attribute which is in a namespace:

```
declare namespace def = "http://www.ethz.ch";
declare namespace dbisns = "http://www.dbis.ethz.ch";
/def:eth/@dbisns:date
```

Note: try the following query to understand the behaviour of XQuery:

```
declare namespace def = "http://www.ethz.ch";
declare namespace dbisns = "http://www.dbis.ethz.ch";

<result>
<result0>{ //eth } </result0>
<result1>{ //def:eth } </result1>
<result2>{ //def:eth/@date } </result2>
<result3>{ //def:eth/@def:date } </result3>
<result4>{ //def:eth/@dbisns:date } </result4>
<result5>{ //def:eth/date } </result5>
<result6>{ //def:eth/def:date } </result6>
</result>
```

It will output:

```
<result>
  <result0/>
  <result1>
    <eth xmlns="http://www.ethz.ch"
        xmlns:xmldb="http://www.dbis.ethz.ch"
        date="11.11.2006"
        xmldb:date="12.11.2006">
      <date>13.11.2006</date>
      <president number="1">Empty</president>
      <Rektor>Name 2</Rektor>
    </eth>
  </result1>
  <result2 date="11.11.2006"/>
  <result3/>
  <result4 xmlns:xmldb="http://www.dbis.ethz.ch"
          xmldb:date="12.11.2006"/>
  <result5/>
  <result6>
    <date xmlns="http://www.ethz.ch"
          xmlns:xmldb="http://www.dbis.ethz.ch"
          >13.11.2006</date>
  </result6>
</result>
```

### Exercise 3: Properties of XQuery Comparison Operators

3.1.  $\$x := (1,2)$

$(1,2) = 1$

$(1,2) = 2$

= is not transitive, so one cannot infer  $1=2$ .

3.2.  $\$x := 1, \$y := (0, 3), \$y := 2$

$1 > (0,3)$  and  $(0,3) > 2$  but  $1 > 2$  is false.

> is not transitive either.

3.3.  $\$x := ()$  because

$() \text{ eq } ()$  returns  $()$  and  $() = ()$  returns false