XQuery

a

```
for $x in /db/experts/expert
where $x/expertizes/expertize[@topic = /db/topics/topic[name = "XML"]/@id]
return $x/name
```

Result

```
<?xml version="1.0" encoding="UTF-8"?>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">Jacob</name>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">Oliver</name>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">John</name
```

b

```
for $x in /db/topics/topic
where $x/@parent = /db/topics/topic[name = "Computer Science"]/@id
return $x/name
```

Result

```
<?xml version="1.0" encoding="UTF-8"?>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">Java</name>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">XML</name
```

c

```
let $topic_id := /db/topics/topic[name = "Java"]/@id

for $x in /db/experts/expert[name = "Oliver"]/recommendations/recommendation
where /db/experts/expert[@id = $x/@recommendee]/expertizes/expertize/@topic = $topic_id
return  /db/experts/expert[@id = $x/@recommendee]/name
```

Result

```
<?xml version="1.0" encoding="UTF-8"?>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">Jacob</name
```

d

```
let $topic_id := /db/topics/topic[name = "Java"]/@id

for $x in /db/experts/expert[name = "Oliver"]/recommendations/recommendation
    return
    for $y in /db/experts/expert[@id = $x/@recommendee]/recommendations/recommendation
        where /db/experts/expert[@id = $y/@recommendee]/expertizes/expertize/@topic =
$topic_id
        return /db/experts/expert[@id = $y/@recommendee]/name
```

Result

```
<?xml version="1.0" encoding="UTF-8"?>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">John</name
```

e

```
declare function local:addRecs($root, $expert, $root_expert, $res, $topic)
{
    for $x in $expert/recommendations/recommendation
    let $recomendee := $root/experts/expert[@id = $x/@recommendee]
    where $recomendee/expertizes/expertize/@topic = $topic
    let $res := local:recRel($root, $recomendee, $root_expert, $res, $topic)
    return  $res
};

declare function local:recRel ($root, $expert, $root_expert, $res, $topic)
{
if( fn:empty($expert/recommendations/recommendation) )
then (
    if($expert=$root_expert)
    then()
    else(
    insert-before($expert/name, 1, $res) ))
else (
    if($expert=$root_expert)
    then(
        local:addRecs($root, $expert, $root_expert, $res, $topic)
    )
    else(
        let $res :=  insert-before($expert/name, 1, $res)
        return local:addRecs($root, $expert, $root_expert, $res, $topic)
    )
)
};

local:recRel(/db, /db/experts/expert[name = "Oliver"], /db/experts/expert[name = "Oliver"], (),
"ID000")
```

Result

```
<?xml version="1.0" encoding="UTF-8"?>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">Jacob</name>
<name xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">John</name>
```