

INFO-H-509

Exercises 4

XQuery

XPath 2.0

- Path expression in XML file
- Returns all the corresponding nodes
 - `//etudian[prenom="Avit"]/adresse`
 - `//client[@id="42"]/nom`
 - `/clients/client/nom[.="Sidis"]`
- `/` : Childs
- `//` : Descendants
- `/u/*/v` : Elements v, great children of u
- `/u/* /name()` : Names of the child elements of u

Xquery 1.0

- Xpath 2.0 + Expressions FLWOR
- “SQL for XML”
- Turing complete
- Functions, recursivity,...
- Build of results

FLOWR Expressions

- (for|let) + where? orderby? return!
- for : iterates over a group of nodes
- let : assigns values to a variable
- return : build the result
- Example :

```
for $client in //clients
let $adresse := $client/adresse
where $client/nom = « Sidids »
return <number>{$adresse/numero/text()}</
number>
```
- Each clause can be seen as a box taking a flow of nodes as input and returning a flow of nodes

Quantifiers

- Universal :

where all $\$var$ in $expr$ satisfies $bool_expr$

- Existential :

where some $\$var$ in $expr$ satisfies $bool_expr$

Build of results

- Either in full letters

```
return <machin>{expr}</machin>
```

- Either by using builders

```
return element machin {expr}
```

```
return element a {attribute b {12},  
expre}
```

Useful functions

- `distinct-values(expr)` : returns the distinct values of the input sequence
- `count()`, `max()`, `abs()`, `avg()`
- `empty()`, `exists()`, `not()`
- `string-join($names, “, “)`
- `concat(“(“,$name,”)”)`
- `let $a := if bool_expr then $b/
u else $b/v`

eXist

- Native DB XML Engine
- Launch the client :
`/opt/eXist/bin/client.sh`
- Choose the mode “embedded”
- Go to the collection “dblp”
- Launch the Query Dialog

How to make your queries ?

```
java -cp "saxon9he.jar"  
net.sf.saxon.Query -s:'source file'  
-q:'query file' -o:'output file'
```