

Assignment **01** – **XQuery**

Assignment

- Create an **XML document** with sample data from the domain of your individual topic
 - Work with mutually interlinked entities of at least **3 different types** (e.g., lines, flights, tickets)
 - Insert data about at least **15 particular entities** (e.g., 3 lines, 4 flights, 8 tickets)
- Create expressions for exactly **2 different XPath queries** (i.e., not more, not less)
- Use each of the following constructs at least once
 - Axes: **descendant** or **descendant-or-self** or **//** abbreviation
 - Predicates (all of the following)
 - Path expression (existence test), position testing, value comparison, general comparison
- Create expressions for exactly **3 different XQuery queries** (that cannot be expressed using XPath)
- Use each of the following constructs at least once
 - Direct or computed constructor
 - FLWOR expression (with at least one **FOR** clause)
 - Conditional expression
 - Existential or universal quantifier

Requirements

- Both the XML document and queries must be **well-formed** (i.e., syntactically correct)
- Put each XPath / XQuery expression into a standalone file (e.g., **xpath1.xp**)
- Always add a comment describing the intended **query meaning in natural language**
 - Comments are written as (**: comment :**)
- Each query expression must be evaluated to a **non-empty sequence**

Submission

- **data.xml**: XML document with your data to be queried
- **xpath1.xp** and **xpath2.xp**: files with XPath expressions
- **xquery1.xq**, **xquery2.xq**, and **xquery3.xq**: files with XQuery expressions

Execution

- Execute the following shell command to evaluate each individual XPath or XQuery query expression
 - **saxonb-xquery -s \$DataFile \$QueryFile**
 - **\$DataFile** is the input XML document to be queried, i.e., **data.xml**
 - **\$QueryFile** is a file with query expression to be evaluated, e.g., **xquery1.xq**

Tools

- **VideLibri XPath and XQuery Processor** – <http://videlibri.sourceforge.net/cgi-bin/xidelcgi>
- **Code Beautify XML Validator** – <https://codebeautify.org/xmlvalidator>

References

- **Extensible Markup Language (XML) 1.1 (Second Edition)**
 - W3C Recommendation (16 August 2006) – <https://www.w3.org/TR/xml11/>

- **XML Path Language (XPath) 3.1**
 - W3C Recommendation (21 March 2017) – <https://www.w3.org/TR/xpath-31/>
- **XQuery 3.1: An XML Query Language**
 - W3C Recommendation (21 March 2017) – <https://www.w3.org/TR/xquery-31/>