

Assignment 11: XPath and XQuery

- This assignment will be published on January 16th, 2017.
- You may work on the assignments in groups of up to three people (if possible, keep the same groups as in the previous assignments).
- The groups will present the solution of this assignment on January 24th, 2017 at 11:30. We will meet in seminar room 0.124.
- All members of a group have to show up together for the grading of the assignment. For the grading, each group will need to have the query expressions (XPath and XQuery) and their results ready, e.g., using OPDS. Moreover, each group member might be asked questions about the solution.
- If you have questions, send an email to holger.schwarz@ipvs.uni-stuttgart.de.

Task 1 – XPath

The goal of this exercise is to use XPath expressions to retrieve parts of XML documents.

- To test your XPath and XQuery expressions you should use the ODPS system <https://odps.informatik.uni-stuttgart.de>. You need to register in this system. The password for course NBA2016 is: 20NBA16
- See ODPS_Intro_v05.pdf for a short introduction to the system.
- ODPS provides access to data in `xmlshop.xml` which is structured as described in `xmlshop.xsd`.

Task 1.1 – Retrieve content of `xmlshop.xml`

To retrieve the content of `xmlshop.xml`, go to the XQuery tab of ODPS and type in the following query in the STATEMENT field:

```
fn:doc('xmlshop.xml')
```

Before executing this query, please make sure that `xmlshop` is selected in the box below the STATEMENT field. As a result of the query the entire content of `xmlshop.xml` will be shown.

Task 1.2 – XPath

Provide XPath expressions that derive the requested information from `xmlshop.xml` as described below

Query A

- Retrieve a list of all titles of CDs.
- Provide two versions of this XPath expression. One using the verbose syntax of XPath, the other using abbreviations where possible.

Query B

- Retrieve a list of all titles (books, CDs, ...)
- Provide two versions of this XPath expression. One using the verbose syntax of XPath, the other using abbreviations where possible.

Query C

- Retrieve a list of all first authors of books.

Query D

- Retrieve the title of all books that cost more than 9.0.

Query E

- Retrieve the number of books in xmlshop.xml

Query F

- Retrieve the sum of the price of all rock CDs.

Query G

- Retrieve the entire book element for books having an ID BOOK_ID_3.

Task 2 – XQuery

Provide XQuery expressions for the following queries. Try to use functions on sequences and nodes when possible. You do not need complex FLWOR expressions for these queries, i.e., use the let clause and the return clause only. Test your queries in ODPS.

Query A

- Provide a list of all book titles in the reverse order to that in xmlshop.xml.

Query B

- Provide the titles of 10 subsequent CDs, starting with the 5th CD in the document.

Query C

- Provide a list of all book titles with the new title "Midnight Sun" added right after "Breaking Dawn".

Query D

- Provide a list of all price labels (with duplicates removed).

Query E

- Provide a list of all CD elements and compare it with the result you get when applying the fn:data() function to this sequence.

Query F

- Provide a list of all names in the document, i.e., names of companies and bands as well as forename and surname of persons.