

Exercises on XPath

Exercise 1: XPath

Take a look at the following DTD (also available on Moodle as `appointment.dtd`, along with a sample file `appointment.xml`):

```
<!ELEMENT appointment (appointmentDetails, participantList)>
<!ELEMENT appointmentDetails (date, time, duration, location)>
<!ELEMENT date (#PCDATA)>
<!ELEMENT time (#PCDATA)>
<!ELEMENT duration (#PCDATA)>
<!ELEMENT location (#PCDATA)>
<!ELEMENT participantList (person*)>
<!ELEMENT person (firstName?, lastName, phone*)>
<!ATTLIST person id ID #REQUIRED>
<!ELEMENT firstName (#PCDATA)>
<!ELEMENT lastName (#PCDATA)>
<!ELEMENT phone (#PCDATA)>
<!ATTLIST phone type (office|home|mobile) "office">
```

Please specify XPath expressions which yield the following results:

- The child elements of participantList.
- The child *elements* of the document root.
- The child *nodes* of the document root.
- The grandchildren of the document root.
- Those firstName elements that are descendants of participantList.
- Those attributes of the phone element that have the name type.
- All the attributes of the XML document.
- The second person child element of participantList.
- The last person child element of participantList.
- The second phone number of the second person.
- Those person elements whose firstName element contains the string "Han".
- Those person elements that have a phone element whose attribute type has the value "home".
- The second person element **if** it has a phone element whose attribute type has the value "home".
- The second person element **that** has a phone element whose attribute type has the value "home".
- Those person elements that have both a firstName element and a phone element with a type attribute.

Please use the XML Editor to check your results.

Exercise 2: XPath

Take a look at the following DTD (also available on Moodle as `bookstore.dtd`, along with a sample file `bookstore.xml`):

```
<!ELEMENT bookstore (book+)>
<!ELEMENT book (title, author+, year, price)>
<!ATTLIST book category CDATA #REQUIRED>
<!ELEMENT title (#PCDATA)>
<!ATTLIST title lang (en|de) #REQUIRED>
<!ELEMENT author (#PCDATA)>
<!ELEMENT year (#PCDATA)>
<!ELEMENT price (#PCDATA)>
```

Please specify XPath expressions which yield the following results:

- a) Those books with an english title.
- b) Those books that cost more than 30 Euros.
- c) Those books that have more than one author.
- d) The categories of those books (partially) written by James Linn.
- e) Those co-authors of James Linn whose last name begins with a "C". (Beware: Middle initials possible!).

Please use the XML Editor to check your results.