

TP 2 XML

Objectives : Xpath, XSLT

Exercise 1 : XPath (30 min)

Let's consider XML documents corresponding to the description of an audio CD collection.
This collection is valid with respect to the following DTD:

```

<!ELEMENT CDlist      ((CD)+)>
<!ELEMENT CD          (composer, (performance)+,
                        publisher, (length)?)>
<!ELEMENT performance (composition, (soloist)?,
                        (orchestra, conductor)?)>
<!ELEMENT composer    (#PCDATA)>
<!ELEMENT publisher    (#PCDATA)>
<!ELEMENT length       (#PCDATA)>
<!ELEMENT composition  (#PCDATA)>
<!ELEMENT soloist      (#PCDATA)>
<!ELEMENT orchestra    (#PCDATA)>
<!ELEMENT conductor    (#PCDATA)>

```

Question 1: Give the XPath expressions that answer the following requests (we suppose that the initial context is the root tag i.e., CDlist):

- All compositions
- All compositions having only one "soloist"
- All performances having only one "orchestra" but no "soloist"
- All soloists having played with the London Symphony Orchestra in a CD published by Deutsche Grammophon
- All CDs having performances of the London Symphony Orchestra

Exercise 2: XPath (30 min)

Given the following XML document:

```

<?xml version="1.0" encoding="iso-8859-1"?>
<liste>
  <livre>
    <titre genre="jeu"> Le Texas Hold'EM Poker online</titre>
    <auteur>Mark Stohan</auteur>
    <auteur>Robert Bluman</auteur>
    <parution>2006</parution>
  </livre>
  <livre>
    <titre genre="jeu">Sudoku Manga</titre>
    <auteur>Sudoku Factory</auteur>
    <parution>2007</parution>
  </livre>
  <livre>
    <titre genre="jeu">Kakoku</titre>
    <auteur>Hizi Kagochi</auteur>
    <parution>2005</parution>
  </livre>
  <livre>
    <titre genre="photo">Manuel de la photo</titre>
    <auteur>Jackie Contiboeuf</auteur>
    <auteur>Alain Mocney</auteur>
    <parution>2006</parution>
  </livre>
</liste>

```

Give the XPath expressions corresponding to the following queries:

- All descendants of the second node "livre"
- All "titres" of "livre" nodes representing the following siblings of the first node "livre"
- All descendants of "livre" nodes representing the following siblings of the second node "livre"
- The last node "livre" having a title with its attribute "genre=jeu"

- The "titre" of the second "livre" with parution="2006"

Exercise 3: XSLT (1h)

Given the XML document introduced in listing 1 (see below)

- 1- Give the XSLT style sheet that has been used to produce the following HTML page (figure 1) from Listing 1.
You should provide two solutions:
 - a. A first solution in which, it is forbidden to use only one template (Template) for the all purpose of the transformation (e.g. every thing included within the Match= « / » template). The use of the “for-each” is not allowed!!
 - b. A solution of your choice.

N.B. : you can use whatever you like from HTML tables to SPAN & DIV tags

Belgian Waffles - \$5.95
two of our famous Belgian Waffles with plenty of real maple syrup650 (calories per serving)
Strawberry Belgian Waffles - \$7.95
light Belgian waffles covered with strawberries and whipped cream900 (calories per serving)
Berry-Berry Belgian Waffles - \$8.95
light Belgian waffles covered with an assortment of fresh berries and whipped cream900 (calories per serving)
French Toast - \$4.50
thick slices made from our homemade sourdough bread600 (calories per serving)
Homestyle Breakfast - \$6.95
two eggs, bacon or sausage, toast, and our ever-popular hash browns950 (calories per serving)

Figure 1: HTML page resulting from applying an XSLT style sheet to the XML file presented in Listing 2.

```
<?xml version="1.0" encoding="UTF-8"?>
<breakfast_menu>
  <food>
    <name>Belgian Waffles</name>
    <price>$5.95</price>
    <description>
      two of our famous Belgian Waffles with plenty of real maple syrup
    </description>
    <calories>650</calories>
  </food>
  <food>
    <name>Strawberry Belgian Waffles</name>
    <description>
      light Belgian waffles covered with strawberries and whipped cream
    </description>
    <price>$7.95</price>
    <calories>900</calories>
  </food>
  <food>
    <name>Berry-Berry Belgian Waffles</name>
    <price>$8.95</price>
    <description>
      light Belgian waffles covered with an assortment of fresh berries and
      whipped cream
    </description>
  </food>
</breakfast_menu>
```

Listing 1 : XML file

Exercise 4 : XSLT (1h30 min)

- Give an XSLT file that transforms bib.xml (in the TP zip file) into an html file equivalent to output.html (also given in the zip file of the TP)