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):
   a) All compositions
   b) All compositions having only one "soloist"
   c) All performances having only one "orchestra" but no "soloist"
   d) All soloists having played with the London Symphony Orchestra in a CD published by Deutsche Grammophon
   e) 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"
   • "titres" and all descendants of "livre" nodes representing the following siblings of the second node "livre"
   • The last node "livre" having 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.

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

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

```xml
<?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)