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"
- 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)

a. Give the XSLT style sheet that has been used to produce the following HTML page (figure 1) from Listing 1. It is forbidden to use only one template (Template) for the all purpose of the transformation (e.g. everything included within the Match= « / » template). The use of the "for-each" is not allowed!!

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 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)