
Lab 04

Exercise 01: We consider the following XML schema

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema
xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:element name="bond_movies">
<xs:complexType>
<xs:sequence>
<xs:element maxOccurs="unbounded" name="movie">
<xs:complexType>
<xs:sequence>
<xs:element name="title" type="xs:string" />
<xs:element name="bond" type="xs:string" />
<xs:element name="bond_girl" type="xs:string" />
<xs:element name="regie" type="xs:string" />
<xs:element name="year" type="xs:gYear" />
<xs:element name="duration" type="durationType" />
</xs:sequence>
<xs:attribute name="number" type="numberType"
use="required" />
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="month" type="monthType"
use="required" />
<xs:attribute name="year" type="xs:gYear" use="required"
/>
</xs:complexType>
</xs:element>
<xs:simpleType name="monthType">
<xs:restriction base="xs:string">
<xs:enumeration value="January"/>
<xs:enumeration value="February"/>
<xs:enumeration value="March"/>
<xs:enumeration value="May"/>
<xs:enumeration value="June"/>
<xs:enumeration value="July"/>
<xs:enumeration value="August"/>
<xs:enumeration value="September"/>
<xs:enumeration value="October"/>
<xs:enumeration value="November"/>
<xs:enumeration value="December"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="durationType">
<xs:restriction base="xs:short">
<xs:minInclusive value="0"/>
<xs:maxInclusive value="300"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="numberType">
<xs:restriction base="xs:string">
<xs:length value="3"/>
<xs:pattern value="_\d{2}"/>
</xs:restriction>
</xs:simpleType>
</xs:schema>
```

1. Give a valid document for this schema.

NB:

To validate your files, you can use the following command:

xmllint --noout --schema schemaCatalogue.xsd catalogue.xml.

2. Provide an equivalent DTD that validates the same documents as this schema.

Exercise 02:

Create a XML schema document that contains details of cars (Lab 02, exercise 04)

Exercise 03:

Propose a BibTex.xsd file allowing the definition of XML documents representing Bibtex files (as described in Lab 02 exercise 03).

Exercise 04:

We propose to create a file-sharing application in which all information is represented in the form of XML files. First, we focus on storing a list of to download, here is an example represented in the form of a tree:

1. Translate the example tree into a well-formed XML file.
2. Give an XML schema used to instantiate this type of XML document while taking into account the following constraints:
 - Each file to be downloaded is represented by a file element.
 - The file list may optionally be empty; We consider two categories of files, movies and songs: A film is described by: Title: the title of the film and Duration: the duration in seconds of the film;
 - A song is described: Title: the title of the song, Duration: the duration of the song in seconds, Artist: the performer of the song and Album: the title of the album from which the song is taken;
 - The storage description is specified by: Name gives the name of the file; Format specifies the format of the file. The avi and mpg formats are considered for films, and the mp3 and ogg formats for songs. The format does not necessarily correspond to the end of the file name; Size indicates the size of the file in bytes.

