**Introduction**

A l’objectif d’apprendre en Schéma XML, il est demandé de valider les document annuaire.xml, bank.xml et book.xml par rapport à ses grammaires.

**La méthodologie du travail**

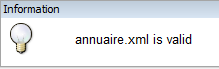
On a spécifié pour chaque élément d’un documment XML sa structure, son type, le nombre d’occurrence, ses attribut …etc.

**Les outils**

XML Copy Editor

**Partie TP:**

**Première partie:**



**XSD:**

<?xml version="1.0" encoding="UTF-8"?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">

<xsd:element name="annuaire">

<xsd:complexType>

<xsd:sequence>

<xsd:element name="personne" minOccurs="0" maxOccurs="unbounded">

<xsd:complexType>

<xsd:sequence>

<xsd:element name="identite">

<xsd:complexType>

<xsd:sequence>

<xsd:element name="nom" type="xsd:string"/>

<xsd:element name="prenom" type="xsd:string"/>

<xsd:element name="adresse">

<xsd:complexType>

<xsd:sequence>

<xsd:element name="rue" type="xsd:string"/>

<xsd:element name="code-postale" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>

<xsd:element name="ville" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>

<xsd:element name="telephone" minOccurs="0" maxOccurs="unbounded">

<xsd:complexType>

<xsd:simpleContent>

<xsd:extension base="xsd:string">

<xsd:attribute name="type" type="xsd:string"/>

</xsd:extension>

</xsd:simpleContent>

</xsd:complexType>

</xsd:element>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

</xsd:schema>

**2ème partie:**

**DTD:**

<!ELEMENT bank (accounts+,customers+,customer\_accounts+)>

<!ELEMENT accounts (savings\_accounts+,checking\_accounts+)>

<!ELEMENT savings\_accounts (savings\_account+)>

<!ATTLIST savings\_account

id ID #REQUIRED

interest CDATA #REQUIRED>

<!ELEMENT savings\_account (balance+)>

<!ELEMENT checking\_accounts (checking\_account+)>

<!ATTLIST checking\_account id ID #REQUIRED>

<!ELEMENT checking\_account (balance+)>

<!ELEMENT balance (#PCDATA)>

<!ELEMENT customers (customer+)>

<!ELEMENT customer (name,address)>

<!ATTLIST customer id CDATA #REQUIRED>

<!ELEMENT name (#PCDATA)>

<!ELEMENT address (#PCDATA)>

<!ELEMENT customer\_accounts (customer\_account+)>

<!ATTLIST customer\_account c\_id CDATA #REQUIRED>

<!ATTLIST customer\_account ac\_id CDATA #REQUIRED>

<!ELEMENT customer\_account (#PCDATA)>

**XSD:**

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">

<xs:element name="bank" >

<xs:complexType >

<xs:sequence>

<xs:element name="accounts">

<xs:complexType>

<xs:sequence>

<xs:element name="savings\_accounts">

<xs:complexType>

<xs:sequence>

<xs:element name="savings\_account" minOccurs="1" maxOccurs="unbounded">

<xs:complexType mixed="true">

<xs:sequence>

<xs:element name="balance" type="xs:integer"/>

</xs:sequence>

<xs:attribute name="id" type="xs:string"/>

<xs:attribute name="interest" type="xs:integer"/>

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="checking\_accounts">

<xs:complexType>

<xs:sequence>

<xs:element name="checking\_account" minOccurs="1" maxOccurs="unbounded">

<xs:complexType mixed="true">

<xs:sequence>

<xs:element name="balance" type="xs:integer"/>

</xs:sequence>

<xs:attribute name="id" type="xs:string"/>

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="customers" >

<xs:complexType>

<xs:element name="customer" minOccurs="1" maxOccurs="unbounded">

<xs:complexType mixed="true">

<xs:sequence>

<xs:element name="name" type="xs:string"/>

<xs:element name="address" type="xs:string"/>

</xs:sequence>

<xs:attribute name="id" type="xs:string"/>

</xs:complexType>

</xs:element>

</xs:complexType>

</xs:element>

<xs:element name="customer\_accounts">

<xs:complexType>

<xs:sequence>

<xs:element name="customer\_account" minOccurs="1" maxOccurs="unbounded">

<xs:simpleType>

<xs:complexContent>

<xs:restriction base="xs:string">

<xs:attribute name="c\_id" type="xs:string"/>

<xs:attribute name="ac\_id" type="xs:string"/>

</xs:restriction>

</xs:complexContent>

</xs:simpleType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

</xs:schema>

**Partie travail:**

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">

<xs:element name="books">

<xs:complexType>

<xs:sequence>

<xs:element name="book" minOccurs="1" maxOccurs="unbounded">

<xs:complexType mixed="true">

<xs:sequence>

<xs:element name="title">

<xs:complexType>

<xs:simpleContent>

<xs:extention base="xs:string">

<xs:attribute name="type">

<xs:simpleType>

<xs:restriction base="xs:string">

<xs:enumeration value="P"/>

<xs:enumeration value="H"/>

</xs:restriction>

</xs:simpleType>

</xs:attribute>

</xs:extention>

</xs:simpleContent>

</xs:complexType>

</xs:element>

<xs:element name="edition" minOccurs="0" maxOccurs="1">

<xs:simpleType>

<xs:restriction base='xs:integer'>

<xs:minInclusive value="1"/>

<xs:maxInclusive value="255"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="author" minOccurs="1" maxOccurs="unbounded">

<xs:complexType>

<xs:sequence>

<xs:element name="first" type="xs:string"/>

<xs:element name="middle" >

<xs:simpleType>

<xs:restriction base="xs:string">

<xs:pattern value="[a-zA-Z]|"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="last" type="xs:string"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="publishedDate">

<xs:complexType>

<xs:sequence>

<xs:element name="month">

<xs:simpleType>

<xs:restriction base="xs:unsignedByte">

<xs:minInclusive value="1"/>

<xs:maxInclusive value="12"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="day">

<xs:simpeType>

<xs:restriction base="xs:unsignedByte">

<xs:minInclusive value="1"/>

<xs:maxInclusive value="31"/>

</xs:restriction>

</xs:simpeType>

</xs:element>

<xs:element name="year" type="xs:integer"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="type" >

<xs:simpleType>

<xs:restriction base="xs:string">

<xs:enumeration value="fiction"/>

<xs:enumeration value="nonfiction"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="price">

<xs:simpleType>

<xs:restriction base="xs:decimal">

<xs:totalDigits value="5"/>

<xs:fractionDigits value="2"/>

<xs:minExclusive value="0"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

</xs:sequence>

<xs:attribute name="isbn" type="xs:string" use="required"/>

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

</xs:schema>