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## 1. Xml file content

```
<?xml version="1.0" encoding="utf-8" ?>
<?xml-stylesheet type="text/xsl" href="library_transform.xsl"?>

<library>
  <categories id="cat-1">
    <name>
      Fiction
    </name>
    <books>
      <book id="b-001">
        <title>1984</title>
        <bookAuthor id="A101">George Orwell</bookAuthor>
        <publication year="1949"/>
        <price currency="USD">9.99</price>
      </book>
      <book id="b-002">
        <title>To Kill a Mockingbird</title>
        <bookAuthor id="A102">Harper Lee</bookAuthor>
        <publication year="1960"/>
        <price currency="USD">7.99</price>
      </book>
    </books>
  </categories>
  <categories id="cat-2">
    <name>
      Science
    </name>
    <books>
      <book id="b-003">
        <title>A Brief History of Time</title>
        <bookAuthor id="A103">Stephen Hawking</bookAuthor>
        <publication year="1988"/>
        <price currency="USD">15.00</price>
      </book>
    </books>
  </categories>
</authors>
```

```

    <author id="A101">
      <authorName>George Orwell</authorName>
      <nationality>British</nationality>
    </author>
    <author id="A102">
      <authorName>Harper Lee</authorName>
      <nationality>American</nationality>
    </author>
    <author id="A103">
      <authorName>Stephen Hawking</authorName>
      <nationality>British</nationality>
    </author>
  </authors>
</library>

```

## 2. Xsl file content

```

<?xml version="1.0" encoding="UTF-8" ?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">

  <!-- Output settings -->
  <xsl:output method="html" indent="yes" />

  <!-- Root template -->
  <xsl:template match="/library">
    <html>
      <head>
        <title>Library Collection</title>
        <style>
          body { font-family: Arial, sans-serif; margin: 20px; }
          h1 { color: #2E8B57; }
          h2 { color: #4682B4; margin-top: 20px; }
          table { border-collapse: collapse; width: 100%; margin-top: 10px; }
          th, td { border: 1px solid #ddd; padding: 8px; text-align: left; }
          th { background-color: #f2f2f2; }
        </style>
      </head>
      <body>
        <h1>Library Collection</h1>

        <!-- Categories and Books -->
        <xsl:apply-templates select="categories" />

        <!-- Author Information -->
        <h2>Authors</h2>
        <table>
          <tr>

```

```

                <th>Author ID</th>
                <th>Name</th>
                <th>Nationality</th>
            </tr>
            <xsl:apply-templates select="authors/author" />
        </table>
    </body>
</html>
</xsl:template>

<!-- Template for Categories -->
<xsl:template match="categories">
    <h2>Category: <xsl:value-of select="name" /></h2>
    <table>
        <tr>
            <th>Book ID</th>
            <th>Title</th>
            <th>Author</th>
            <th>Publication Year</th>
            <th>Price (Currency)</th>
        </tr>
        <xsl:apply-templates select="books/book" />
    </table>
</xsl:template>

<!-- Template for Books -->
<xsl:template match="book">
    <tr>
        <td><xsl:value-of select="@id" /></td>
        <td><xsl:value-of select="title" /></td>
        <!-- Fetch Author Name using IDREF -->
        <td>
            <xsl:value-of
select="/library/authors/author[@id=current()/bookAuthor/@id]/authorName" />
        </td>
        <td><xsl:value-of select="publication/@year" /></td>
        <td><xsl:value-of select="price" /> (<xsl:value-of select="price/@currency"
/>)</td>
    </tr>
</xsl:template>

<!-- Template for Authors -->
<xsl:template match="author">
    <tr>
        <td><xsl:value-of select="@id" /></td>
        <td><xsl:value-of select="authorName" /></td>
        <td><xsl:value-of select="nationality" /></td>
    </tr>
</xsl:template>
</xsl:stylesheet>

```

### 3. Output of xml on browser

#### Library Collection

##### Category: Fiction

Book ID	Title	Author	Publication Year	Price (Currency)
b-001	1984	George Orwell	1949	9.99 (USD)
b-002	To Kill a Mockingbird	Harper Lee	1960	7.99 (USD)

##### Category: Science

Book ID	Title	Author	Publication Year	Price (Currency)
b-003	A Brief History of Time	Stephen Hawking	1988	15.00 (USD)

##### Authors

Author ID	Name	Nationality
A101	George Orwell	British
A102	Harper Lee	American
A103	Stephen Hawking	British

### 4. Internal Dtd

```
<!DOCTYPE library [  
  <!-- Root Element -->  
  <!ELEMENT library (categories+, authors)>  
  
  <!-- Categories -->  
  <!ELEMENT categories (name, books)>  
  <!ATTLIST categories id ID #REQUIRED>  
  
  <!-- Category Name -->  
  <!ELEMENT name (#PCDATA)>  
  
  <!-- Books -->  
  <!ELEMENT books (book+)>  
  
  <!-- Book -->  
  <!ELEMENT book (title, bookAuthor, publication, price)>  
  <!ATTLIST book id ID #REQUIRED>  
  
  <!-- Book Title -->  
  <!ELEMENT title (#PCDATA)>  
  
  <!-- Book Author (used inside book) -->  
  <!ELEMENT bookAuthor (#PCDATA)>  
  <!ATTLIST bookAuthor id IDREF #REQUIRED>  
  
  <!-- Publication -->  
  <!ELEMENT publication EMPTY>
```

```
<!-- ATTLIST publication year CDATA #REQUIRED -->

<!-- Price -->
<!-- ELEMENT price (#PCDATA) -->
<!-- ATTLIST price currency CDATA #REQUIRED -->

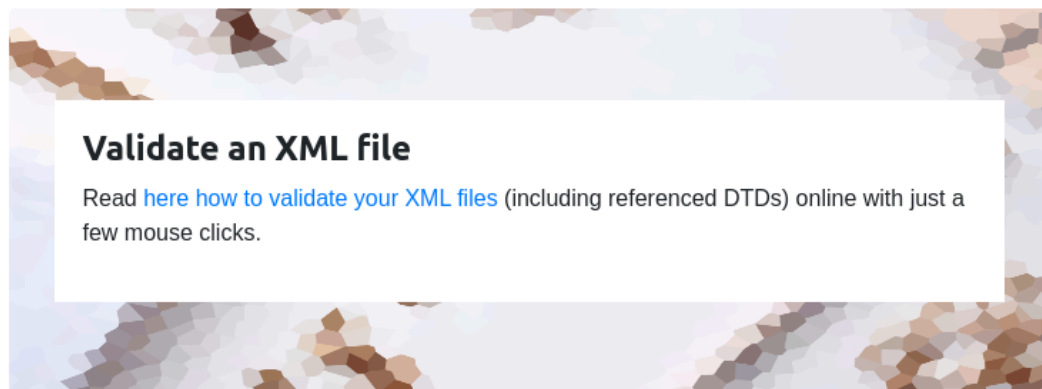
<!-- Authors Section -->
<!-- ELEMENT authors (author+) -->

<!-- Individual Author -->
<!-- ELEMENT author (authorName, nationality) -->
<!-- ATTLIST author id ID #REQUIRED -->

<!-- Author Name -->
<!-- ELEMENT authorName (#PCDATA) -->

<!-- Author Nationality -->
<!-- ELEMENT nationality (#PCDATA) -->
]>
```

## 5. Validating xml



No errors were found