XML
&
Allied Technologies

XML Fundamentals

XML Elements

- **XML documents consist of one or more elements.**

1. Elements consist of a pair of tags and (optionally) **enclosed text**.
   <TITLE>The XML Companion</TITLE>

2. Elements may have **attributes** with their values in single or double quotes.
   <TITLE type="book">The XML Companion</TITLE>

3. **Empty elements** may be self closing.
   <PICTURE src="mypic.jpg"> </PICTURE>
   <PICTURE src="mypic.jpg" />

4. **XML trees (nesting):** Elements may contain other elements.
   <REFERENCE>
   <TITLE type="book">The XMLCompanion</TITLE>
   </REFERENCE>

5. XML mixed content:

<TITLE>The XML Companion

<auther>name</auther>

</TITLE>

6. XML grammar : Data can be represented as **PCDATA** or as **attribute values**:

- <book>
  <title>The Forty−nine Steps</title>
  </book>
- <book title="The Forty−nine Steps">
  ...
  </book>

XML Rules

✓ **All elements** *must* **be closed.**

✓ **Elements cannot overlap.**
<B>bold <I>bold italic</B> italic</I> **this is illegal !**

✓ **XML is case sensitive**
<b> and <B> **are** *different* **tags**

✓ **Attributes** *must* **be enclosed in inverted commas**
<PICTURE src="mypic.jpg" />

✓ **An element must not have 2 attributes with the same name.**

✓ **There is only one root element per XML doc.**

XML Prolog

- **XML declaration:**
  `<?xml version="1.0" encoding="UTF-8" standalone="yes"?>`

- **XML comments:**
  `<!-- this is a comment-- >`

- **Processing Instructions (PI):**
  `<?xml-stylesheet type="text/css" href="cd_catalog.css"?>`

- **Attribute & Element naming:**

  - ✓ **% , $, / ,'** and **spaces** are forbidden within the name.

  - ✓ Name can't start by a **digit**, **"."** nor **"-"**.

  - ✓ Name can include **A-Z,a-z,0-9, "_","-","."**

- **Entity references**: > , < , & , " , '

XML Document

```
<?xml version="1.0" encoding="ISO-8859-1"?>
```

XML Prolog

```
<booklist title="Some XML Books">

</booklist>
```

Root element (one per document)

Adding Content

```xml
<booklist title="Some XML Books">
        <book>
                <author>
                        <name>St. Laurent</name>
                        <initial>S</initial>
                </author>
                <date>1998</date>
                <title edition="Second">XML: A Primer</title>
                <publisher>MIS Press</publisher>
                <website href="http://www.simonstl.com" />
                <rating stars="4"/>
        </book>
</booklist>
```

Parsing XML Documents

- **What is meant by parsing?.**

- **Types of parsers:**

  - ✓ Validating parser :
    - Valid XML document.

  - ✓ Non validating parser :
    - Well formed XML document.

Tools for Working with XML

- **Simple Text Editors (ex : Notepad, NotePad++)**

- **Microsoft Visual Studio Code.**

- **Altova XMLSpy.**

XML Break ......

- **True OR False:**

  - ✓ **Two tags can be overlaped.**

  - ✓ **An XML document can have more than one root element.**

  - ✓ **XML element can hold both elements & data.**

  - ✓ **XML element can have 2 attributes with the same name.**