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☰ XML

XML Elements

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An XML document contains XML Elements.

What is an XML Element?

An XML element is everything from (including) the element's start tag to (including) the element's end tag.

```
<price>29.99</price>
```

An element can contain:

- text
- attributes
- other elements
- or a mix of the above

```
<bookstore>
  <book category="children">
    <title>Harry Potter</title>
    <author>J K. Rowling</author>
    <year>2005</year>
    <price>29.99</price>
  </book>
  <book category="web">
    <title>Learning XML</title>
    <author>Erik T. Ray</author>
    <year>2003</year>
    <price>39.95</price>
  </book>
</bookstore>
```

In the example above:

<title>, <author>, <year>, and <price> have **text content** because they contain text (like 29.99).

<bookstore> and <book> have **element contents**, because they contain elements.

<book> has an **attribute** (category="children").

Empty XML Elements

An element with no content is said to be empty.

In XML, you can indicate an empty element like this:

```
<element></element>
```

You can also use a so called self-closing tag:

```
<element />
```

The two forms produce identical results in XML software (Readers, Parsers, Browsers).

> Empty elements can have attributes.

XML Naming Rules

XML elements must follow these naming rules:

- Element names are case-sensitive
- Element names must start with a letter or underscore
- Element names cannot start with the letters xml (or XML, or Xml, etc)
- Element names can contain letters, digits, hyphens, underscores, and periods
- Element names cannot contain spaces

Any name can be used, no words are reserved (except xml).

Best Naming Practices

Create descriptive names, like this: <person>, <firstname>, <lastname>.

Create short and simple names, like this: <book_title> not like this: <the_title_of_the_book>.

Avoid "-". If you name something "first-name", some software may think you want to subtract "name" from "first".

Avoid ".". If you name something "first.name", some software may think that "name" is a property of the object "first".

Avoid ":". Colons are reserved for namespaces (more later).

Non-English letters like éòá are perfectly legal in XML, but watch out for problems if your software doesn't support them.

Naming Styles

There are no naming styles defined for XML elements. But here are some commonly used:

Style	**Example**	**Description**
Lower case	<firstname>	All letters lower case
Upper case	<FIRSTNAME>	All letters upper case

Underscore	<first_name>	Underscore separates words
Pascal case	<FirstName>	Uppercase first letter in each word
Camel case	<firstName>	Uppercase first letter in each word except the first

If you choose a naming style, it is good to be consistent!

XML documents often have a corresponding database. A common practice is to use the naming rules of the database for the XML elements.

> Camel case is a common naming rule in JavaScripts.

XML Elements are Extensible

XML elements can be extended to carry more information.

Look at the following XML example:

```
<note>
  <to>Tove</to>
  <from>Jani</from>
  <body>Don't forget me this weekend!</body>
</note>
```

Let's imagine that we created an application that extracted the <to>, <from>, and <body> elements from the XML document to produce this output:

MESSAGE

To: Tove
From: Jani

Don't forget me this weekend!

Imagine that the author of the XML document added some extra information to it:

```
<note>
  <date>2008-01-10</date>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

Should the application break or crash?

No. The application should still be able to find the <to>, <from>, and <body> elements in the XML document and produce the same output.

This is one of the beauties of XML. It can be extended without breaking applications.

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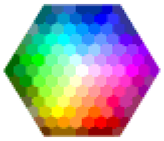

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