

What are the differences between elements and attributes and what are their different uses?

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As defined in the XML standard, a well-formed XML document must contain one or more elements; an element is has the form `S`Tag content `E`Tag - it consists of content, enclosed between a start tag and an end tag. An XML document will not be valid if the name of the start tag does not match, case-sensitively, the end tag.

To ensure validity of the document, all contained elements must be valid - it must respect XML syntax, and the DTD or XML Schema, if it has one. If the element is defined empty, then it must not have any content, not even comments or whitespace. Elements are used for the semantic markup of the XML document.

An element can have zero, one or more attributes, which are declared inside an attribute-list declaration and are used to describe various properties of the element they are attached to. Attribute-list declarations can also be used to provide default values for attributes. To ensure well-formedness, an attribute must not appear more than one time in the same tag. Another well-formedness constraint is that attribute values must not contain the `'<'` character, and that values must be enclosed in quotes.

The exact meaning of an attribute, and how to interpret it's value, depends on the particular XML implementation. For example, XHTML supports the `"id"` attribute - which is meant to have as a value a document-wide unique id, to be used for styling or layout. Other types of XML documents might also declare `"id"` attribute, but it might have a different meaning, and therefore no assumptions should be made.