

Document Type Definition:

Linking in the DTD document to XML document:

<!DOCTYPE root element SYSTEM "filename.dtd">

Building blocks of XML:

	Description	Examples in HTML	Examples in XML
Elements	main building blocks	<i>body,table</i>	<i>note, from</i>
Tags	used to markup elements	<code><body></body></code>	<code><from></from></code>
Attributes	provide extra information about elements	<code></code>	<code><note att="abc.xml" /></code>
Entities	variables used to define common text	<code>&nbsp; &amp; &quot; &apos;</code>	
PCDATA	PCDATA means parsed character data. PCDATA is text that will be parsed by a parser. Tags inside the text will be treated as markup and entities will be expanded.		
CDATA	CDATA means character data. CDATA is text that will NOT be parsed by a parser. Tags inside the text will NOT be treated as markup and entities will not be expanded.		

Declaring Elements in DTD:

<!ELEMENT element-name (element-content)>

Empty elements:

<!ELEMENT element-name (EMPTY)>

Elements with data:

<!ELEMENT element-name (#CDATA)>

<!ELEMENT element-name (#PCDATA)>

<!ELEMENT element-name (ANY)>

Elements with children (sequences):

<!ELEMENT note (to,from,text)>

<!ELEMENT to (#CDATA)>

<!ELEMENT from (#CDATA)>

<!ELEMENT text (#CDATA)>

Declaring zero or more occurrences of the same element:

<!ELEMENT element-name (child-name*)>

Declaring minimum one occurrence of the same element:

<!ELEMENT element-name (child-name+)>

Declaring mixed content:

<!ELEMENT note (to+,from,message*,#PCDATA)>

The example above declares that the element *note* must contain at least one *to* child element, exactly one *header*, zero or more *message*, and some other parsed character data.

Declaring Attributes in DTD:

<!ATTLIST element-name attribute-name attribute-type default-value>

	Value	Explanation
attribute-type	CDATA	character data
	(eval eval ..)	enumerated value
	ID	unique id
	NMTOKEN	valid XML name
default-value	#DEFAULT value	default value
	#REQUIRED	must be included in the element
	#IMPLIED	does not have to be included
	#FIXED value	value is fixed

computerparts.xml

```
<?xml version="1.0"?>
<!DOCTYPE COMPUTERPARTS SYSTEM " computerparts.dtd">
<COMPUTERPARTS>
  <TITLE>Computer Parts</TITLE>
  <PART>
    <ITEM>Motherboard</ITEM>
    <MANUFACTURER>ASUS</MANUFACTURER>
    <MODEL>P3B-F</MODEL>
    <COST> 123.00</COST>
  </PART>
  <PART>
    <ITEM>Video Card</ITEM>
    <MANUFACTURER>ATI</MANUFACTURER>
    <MODEL>All-in-Wonder Pro</MODEL>
    <COST> 160.00</COST>
  </PART>
  <PART>
    <ITEM>Sound Card</ITEM>
    <MANUFACTURER>Creative Labs</MANUFACTURER>
    <MODEL>Sound Blaster Live</MODEL>
    <COST> 80.00</COST>
  </PART>
  <PART>
    <ITEM> inch Monitor</ITEM>
    <MANUFACTURER>LG Electronics</MANUFACTURER>
    <MODEL> 995E</MODEL>
    <COST> 290.00</COST>
  </PART>
</COMPUTERPARTS>
```

computerparts.dtd

```
<!ELEMENT COMPUTERPARTS (TITLE?, PART*)>
<!ELEMENT TITLE (#PCDATA)>
<!ELEMENT PART (ITEM, MANUFACTURER, MODEL, COST)+>
<!ATTLIST PART   type (computer|auto|airplane) #IMPLIED>
<!ELEMENT ITEM (#PCDATA)>
<!ELEMENT MANUFACTURER (#PCDATA)>
<!ELEMENT MODEL (#PCDATA)>
<!ELEMENT COST (#PCDATA)>
```

DTD Explanation:

The root element is COMPUTERPARTS. The root element may contain no TITLE element or one TITLE element along with any number of PART elements. The PART element must contain one each of items ITEM, MANUFACTURER, MODEL, and COST in order. The PART element may contain an attribute called "type" which may have a value of "computer", "auto", or "airplane". The elements TITLE, ITEM, MANUFACTURER, MODEL, and COST all contain PCDATA which is parsed character data.