



Making a Simple DTD

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The Exercise

In this exercise, you will learn how to create a Document Type Definition for a simple XML document.

You will also learn how to check your file/DTD for correctness, well-formedness and validity using Microsoft's *Validate.htm* web page, which your instructor will give to you.

Setting Up

Make a new directory for this exercise. Call this directory *Computer*. For example:

```
C:\> mkdir Computer
C:\> cd Computer
```

All the files that you subsequently create as you do this exercise should be contained in this directory.

Create the Simple XML File

Here is the file (called *Computer.xml*) for which you need to create the DTD:

```
<?xml version="1.0"?>
<!DOCTYPE COMPUTER [
  <!-- fill in here -->
]>
<COMPUTER SERIALNUMBER="ZZ64176417">
  <PRODUCTNAME>eMachine 4000</PRODUCTNAME>
  <INSTALLEDRAM>
    <BANK>
      <NUMBER>0</NUMBER>
      <CAPACITY>128</CAPACITY>
    </BANK>
    <BANK>
      <NUMBER>1</NUMBER>
      <CAPACITY>64</CAPACITY>
    </BANK>
  </INSTALLEDRAM>
  <INSTALLEDDISKSTORAGE>
    <DISK ID="0" CAPACITY="13.6"/>
    <DISK ID="1" CAPACITY="6.4"/>
    <DISK ID="2" CAPACITY="8.2"/>
  </INSTALLEDDISKSTORAGE>
  <SCREEN SIZE="21" KIND="Colour"/>
  <MODEM TYPE="Internal"/>
</COMPUTER>
```

Check the File

Before proceeding, ensure that you have typed in the file correctly. You can do this using the *Validate.html* file that your instructor has given you.

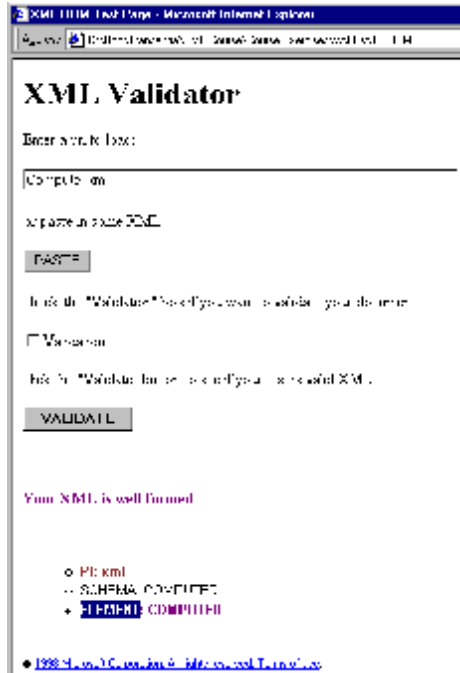
Double-click on the *Validate.html* file and enter the name of your XML file (should be *Computer.xml*, of course!) in the input text box.

Note that since this file does not yet contain a valid DTD, you must deselect the 'validation' checkbox.

Press the 'Validate' button and you should see the following result:



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You should try double-clicking on the PI, SCHEMA and ELEMENT bullets. This will allow you to see more of the structure of your document.

You might like to take a look at the contents of the *Validate.html* file but be warned, it contains quite a lot of JavaScript code.

Develop and Add your DTD

Your DTD should replace the comment element.

As you create your DTD, you should ask yourself whether it is 'strong' enough...for instance, are you using a CDATA attribute where an enumeration is 'stronger'? You should also ask yourself whether a completely closed model is appropriate or whether you should be leaving the model open (via #PCDATA alternatives, for instance) for future alteration... Is your DTD model ambiguous? What default attribute values can/should your DTD have? Should the attributes be #REQUIRED or #FIXED?

As you can see, even for a simple piece of data, making a correct and complete DTD is not always straightforward...

Check the File and its DTD

Once you have added your DTD and saved the file, you can reopen it with the *Validate.html* file, but this time check the 'Validation' checkbox to allow IE5 to check the correspondence between the data as it is marked up and the DTD that you have created to describe (and prescribe) the structure of that data.

You will probably need to go through several attempts before you get a suitable DTD.