

World Wide Web:

WWW is maintained & developed by World Wide Web Consortium (W3C) and standardized by Internet Engineering Task Force (IETF). The W3C has listed the following goals for the WWW:

- Universal access of web resources (by everyone everywhere).
- Effectiveness of navigating available information.
- Responsible use of posted material.

1) History of the WWW:

- 1960: Charles Goldfarb et al. developed the Generalized Markup Language (GML) for IBM. □
- 1986: The ISO released a final version of the Standard Generalized Markup Language (SGML). □
- 1990: Tim Berners-Lee invented the Hyper Text Markup Language (HTML) & Hyper Text Transfer Protocol (HTTP). □
- 1993: NCSA released an alpha version of Mosaic based on the version by Marc Andreessen for □

X-Windows the first popular browser.

- 1994: Marc Andreessen et al. formed Mosaic Communications Corporation later named as Netscape Communications Corporation. □
- 1998: The W3C accepted XML version 1.0 specifications as a Recommendation. It is the main focus of W3C and supersedes HTML. □

2) HTTP (Hyper Text Transfer Protocol):

HTTP is a protocol that was originally designed for transmitting hypermedia, but can also support the transmission of any file type. HTTP is a stateless request/response protocol: no information carried over for the next request. The basic request format:

Method URI Version

Additional-Headers

Message-body

The URI (Uniform Resource Identifier): an identifier for the resource accessed, e.g. the host name, always preceded by the token “*http://*”. URL could be Universal Resource Locator, if URI is included with Query strings. Method is a way of exchanging information or performing task on URI. Two popular methods:

□ GET method that the information requested is in the request string itself

□ POST method specifies that the resource pointed to URI should consider Message body Additional header specifies additional parameters about the client. The basic response format: □

Version Status-Code Status-Phrase Additional-Headers Message-body □

Status code is number that identifies response type, Status Phrase is textual description of it. Two commonly seen status codes: 200 OK - the request was processed successfully, 404 Not Found - the URI does not exist.

HTML (Hyper Text Markup Language):

HTML is a language for publishing Hypermedia on the World Wide Web - defined using SGML. HTML uses ASCII, it is portable to all different computer hardware.

The current version of HTML is version

4.01 in 1999. The next generation of HTML is XHTML - a reformulation of HTML using XML. HTML uses tags to describe document elements:

<token params> - defining a starting point,

</token> - the ending point of the element.

Some elements have no ending tags. A very simple HTML page is as follows:

<HTML>

<HEAD>

<TITLE> A sample web page. </TITLE>

<META NAME = "Author" CONTENT = "Cranky Professor">

</HEAD>

<BODY>

<P>We can put any text we like here, since this is a paragraph element. </P>

</BODY>

</HTML>

Naturally, HTML has more complex structures and can be mixed in with other standards. It allow integration with script languages, dynamic manipulation, modular customization with Cascading Style Sheets (CSS)

XML (Extensible Markup Language):

XML is a markup language for the WWW in which there is modularity of data, structure and view so that user or application can be able to define the tags (structure).

Example of using XML to retrieve stock information from a database according to a user query:

- First use a global Document Type Definition (DTD) that is already defined.
- The server side script will abide by the DTD rules to generate an XML document according to the query using data from the database.
- Finally send user the XML Style Sheet (XSL) depending on the type of device used to display the information.

The current XML version is XML 1.0, approved by the W3C in Feb. 1998. XML syntax looks like

HTML syntax, although it is much more strict:

- All tags are in lower case, and a tag that has only inline data has to terminate itself, i.e. `<token params/>` □

□ Uses Name spaces so that multiple DTDs declaring different elements but with similar tag names can have their elements distinguished.

□ DTDs can be imported from URIs as well. An example of an XML document structure - the definition for a small XHTML document:

```
<?xml version="1.0" encoding="iso-8859-1"?> □  
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1  
transition.dtd"> □
```

```
<html xmlns="http://www.w3.org/1999/xhtml"> [html  
that follows the above mentioned XML rules] </html> □
```

□ The following XML related specifications are also standardized:

- XML Protocol: used to exchange XML information between processes.

- XML Schema: a more structured and powerful language for defining XML data types (tags). ○

p XSL: basically CSS for XML. it has three parts:

XSLT, XPath, XSL Formatting Objects

o SMIL: synchronized Multimedia Integration

Language, pronounced "smile"-a particular application of XML (globally predefined DTD) that allows for specification of interaction among any media types and user input, in a temporally scripted manner.

SMIL (Synchronized Multimedia Integration Language):

Purpose of SMIL: it is also desirable to be able to publish multimedia presentations using a markup language. A multimedia markup language needs to enable scheduling and synchronization of different multimedia elements, and define their interactivity with the user. The W3C established a Working Group in 1997 to come up with specifications for a multimedia synchronization language. SMIL 2.0 was accepted in August 2001. SMIL 2.0 is specified in XML using a modularization approach similar to the one used in XHTML. All SMIL elements are divided into modules -

sets of XML elements, attributes and values that define one conceptual functionality.

In the interest of modularization, not all available modules need to be included for all applications. Language Profiles: specifies a particular grouping of modules, and particular modules may have integration requirements that a profile must follow. SMIL 2.0 has a main language profile that includes almost all SMIL modules. Basic elements of SMIL as shown in the following example:

```
<!DOCTYPE smil PUBLIC "-//W3C//DTD SMIL 2.0"
"http://www.w3.org/2001/SMIL20/SMIL20.dtd"> <smil
xmlns="http://www.w3.org/2001/SMIL20/Language">
<head>
<meta name="Author" content="Some Professor" />
</head>
<body>
<par id="MakingOfABook">
<seq>
<video src="authorview.mpg" />

</seq>
```


<audio src="authorview.wav" />

<text src="http://www.cs.sfu.ca/mmbook/" />

</par>

</body>

</smil>