Session 1

Introduction to Web Designing and HTML 5

Session Overview

In this session, you will be able to:

- Explain the evolution of the Internet
- Explain the history of HTML, features of HTML 5, its layout on Web page, and its different elements
- Describe CSS and its functioning
- Explain the importance of HTML 5 in mobile applications

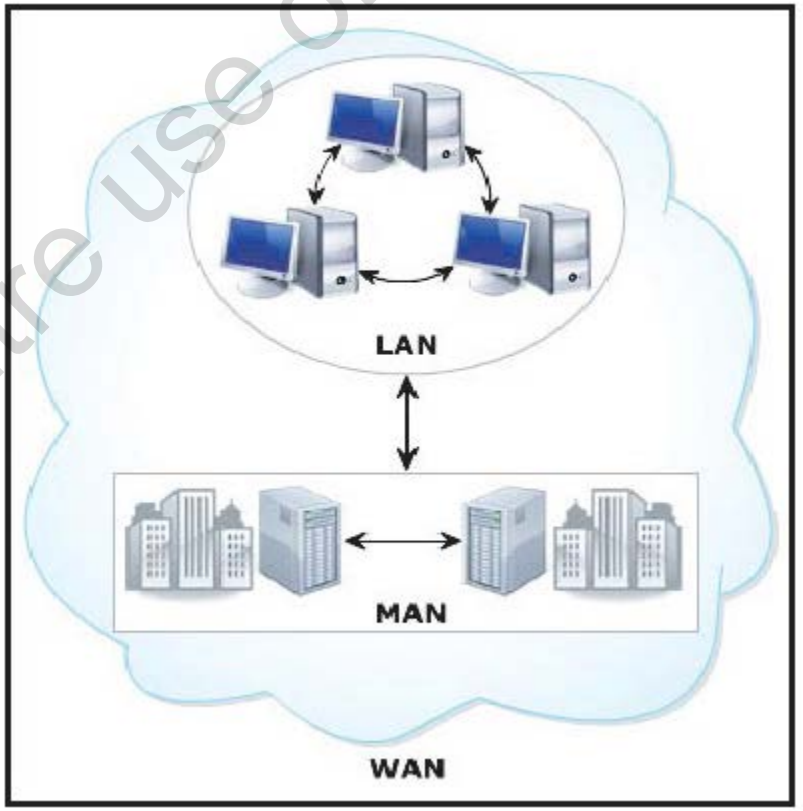
System Requirements

Windows Operating System
Intel® Pentium® 4 or AMD Athlon® 64 processor
Microsoft Windows XP with Service Pack 3 or Windows 7 with Service Pack 1
2 GB of RAM (3 GB recommended)
3.5 GB of available hard-disk
Java™ Runtime Environment 1.6
Graphics card with at least 64 MB of VRAM
QuickTime 7.6.6 software required for multimedia features
1024×768 display (1280×800 recommended)

Evolution of Computing

Initially, stand-alone computers were used for carrying out computing operations but it slowly got expanded to computer networks such as:

- LAN (Local Area Network)
- MAN (Metropolitan Area Network)
- WAN (Wide Area Network)

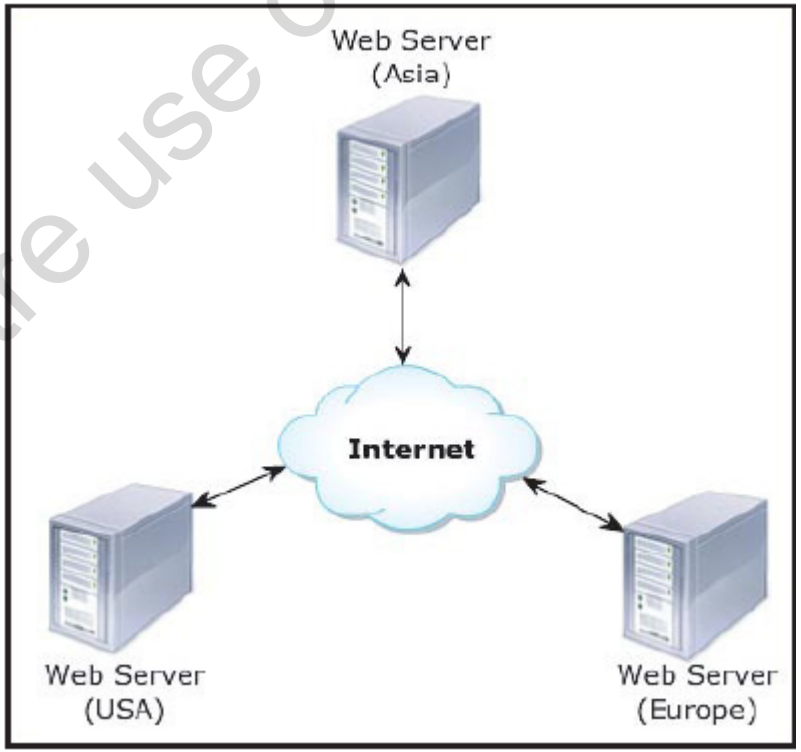


Evolution of Computing

Web and Internet

The growing popularity and usage of WAN enabled:

- Sharing of problems, solution, experiences and updates
- Evolution of the World Wide Web
- Access of information using the Internet in the form of Web pages



Web and Internet

Web Communication

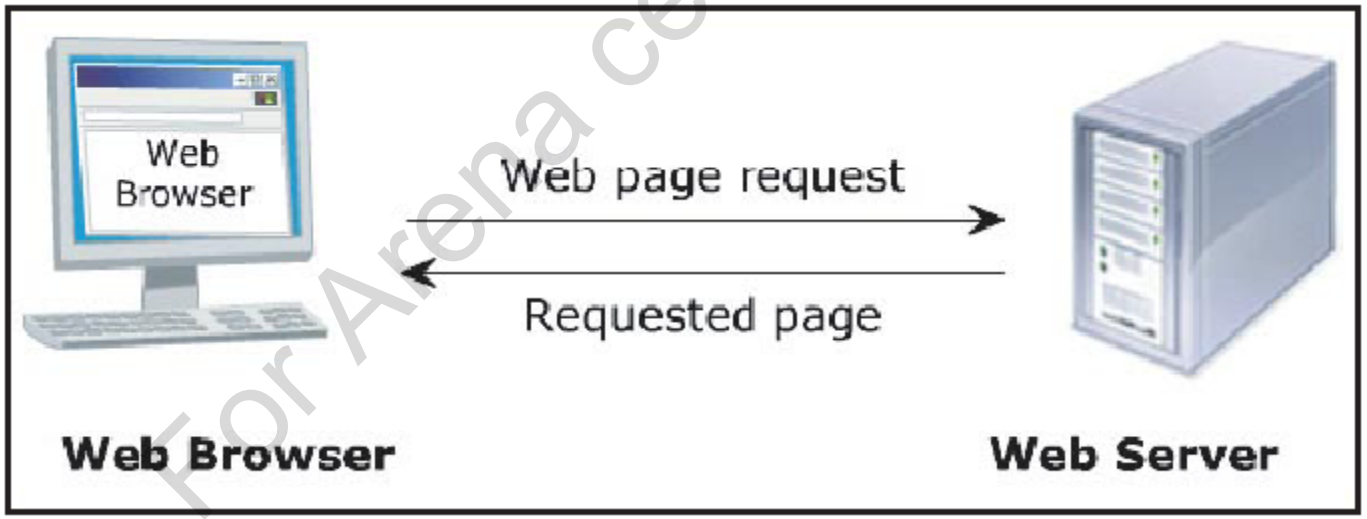
The growing popularity and the usage of WANs urged the need for sharing of data across the globe.

- Web pages contain information stored on a Web Server
- Web server is a high-speed processing system connected to the Internet
- Hypertext Transfer Protocol (HTTP) is the most popular protocol

Web Communication

Steps to view a Web page in a Web browser:

- Mention the Uniform Resource Locator (URL) of the Web page in a Web browser.
- The client browser sends this URL request to the Web server.
- In response to the URL request, the Web server sends the Web page to the browser.



Web Communication

Static Web Pages

Web designers prefer static Web pages because of the following:

- Simple to design and involves less programming efforts
- Does not involve complex instructions and tabs
- Content meant only for presentation of facts is best suited for static Web pages

Limitations of static Web pages are:

- Does not provide interactivity thus, the users' feedback cannot be gathered
- Enables only one-way flow of information

Dynamic Web Pages

Technologies for creating dynamic Web pages:

- JavaScript – Developed by Netscape, JavaScript is a scripting language that creates dynamic Web pages.
- Cascading Style Sheets (CSS) – It specifies the formatting aspect of a static as well as a dynamic Web page.
- Extensible HTML (XHTML) – It combines HTML and XML where XML defines data in a structured format.
- Dynamic HTML (DHTML) – It uses JavaScript and CSS to create dynamic Web pages.

History of HTML

The first version of HTML – HTML 1.0 was introduced in 1993. The other versions are as follows:

- HTML 3.0
- HTML 3.2
- HTML 4.0
- HTML 5

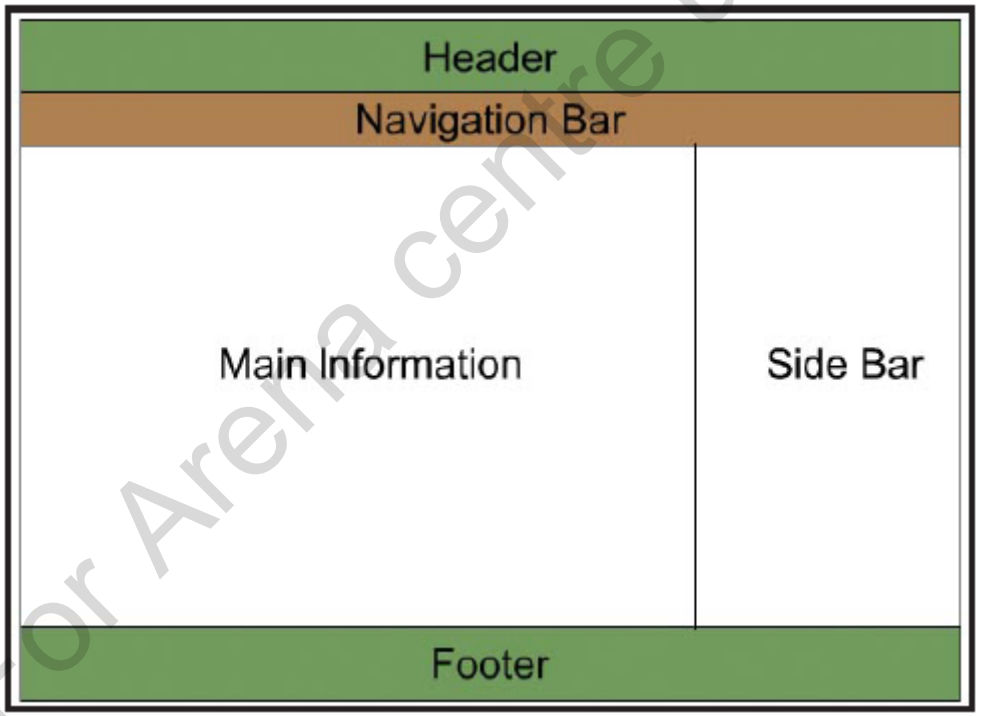
HTML 5

Rules for HTML 5 are as follows:

- Introduction of new features should be based on HTML, CSS, Document Object Model (DOM), and JavaScript
- More markups should be used to replace scripting
- HTML 5 must be device independent
- Dependence on external plug-ins, such as Flash, should be reduced
- Better error controlling capabilities
- Development process should be completely visible to the public

Layout of a Web Page in HTML

Each HTML 5 page consists of a head section containing unseen elements and links, and a body section where the visible elements of the document are present.



Layout of a Web Page in HTML 5

New Approaches of HTML 5

Some of the aspects of HTML 5 are as follows:

- For a multimedia person, HTML 5 gets rid of plug-ins, and it uses new native support for audio and video.
- For a Web designer, HTML 5 provides descriptive semantics.
- For a programmer, HTML 5 helps to create rich Internet clients.
- For a client-side programmer, Web Workers is one of the features that make JavaScript more efficient.
- For a database administrator, HTML 5 has client-side storage and caching functionality.
- For a design expert, CSS in HTML 5 has added features, such as advanced selectors, animations, and drop-
- shadows.
- For a mobile programmer, many features can be included for mobile applications.

Working of HTML

The process followed for HTML 5 are as follows:

- The browser loads the document, which includes HTML markup and CSS style.
- Creates an internal model of the document that contains all the elements of HTML markup.
- The browser also loads the JavaScript code, which executes after the page is loaded.
- The APIs give access to audio, video, 2D drawing with canvas, local storage, and other technologies that are required to build applications.

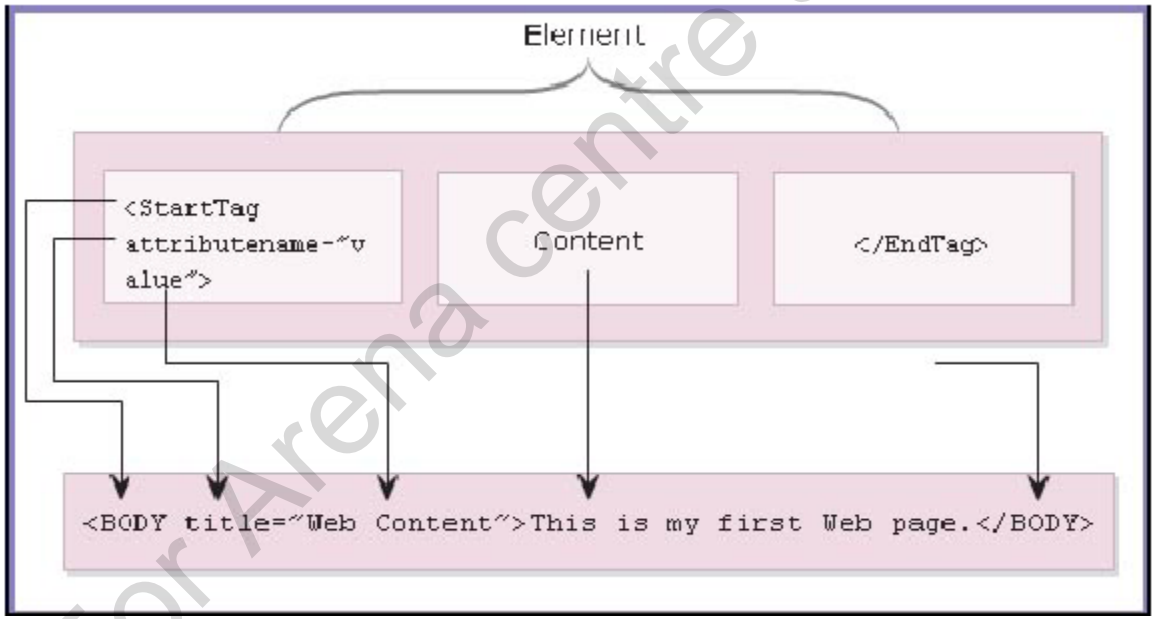
New Features of HTML

The new features of HTML are:

- The <*canvas*> element is used for 2D drawing.
- New content-specific elements such as <article>, <nav>, <header>, <footer>, and <section> helps to structure the document.
- The <*audio*> and <*video*> elements are available for media playback.
- New form controls, such as calendar, date, time, email, URL, and search are provided by HTML 5.
- Web Sockets API provides a continuous connection between the server and the client by using a specific port.
- Easier access to location specific data is made available by devices having Global Positioning System (GPS) capabilities.

Elements in the Web Page

- Elements organizes the content in a hierarchy that forms the basic HTML 5 structure.
- It consists of tags, attributes, and content.



CSS3 Logo

DOCTYPE

- DOCTYPE element informs the browser about the HTML version number of the document.
- It is the first declaration in the HTML 5 document before any other HTML code is written.
- By using a DOCTYPE, the browser is able to be more precise in the way it interprets and renders the Web pages.

Basic Tags

The basic structure of an HTML document consists of seven basic elements:

- HTML – This is the root element that marks the beginning of an HTML document. It contains <HTML> and </HTML>.
- HEAD – This provides keywords and language used that are not displayed on the Web page.
- TITLE – This allows to specify the title of the Web page under the <TITLE> and </TITLE>.
- META – This is used to display information about the data.
- LINK – This is used to define the association between a document and an external resource.
- SCRIPT – With HTML 5, JavaScript is the default and standard scripting language.
- Body – It helps to add content on the Web page.

Data Types

The basic HTML data types are:

- Text strings – It specifies textual content, which is readable by the user.
- Uniform Resource Identifiers (URIs): It specifies the location of Web pages or network files.
- Colours: It specifies the colour to be applied to the content on the Web page.
- Lengths: It specifies the spacing among the HTML elements.
- Content types: It specifies the type of content to be displayed on a Web page. Examples of content types are:
  1. 'text/html' for displaying text using HTML format
  2. 'image/gif' for displaying image of a .gif format
  3. 'video/mpg' for displaying a video file of a .mpg format

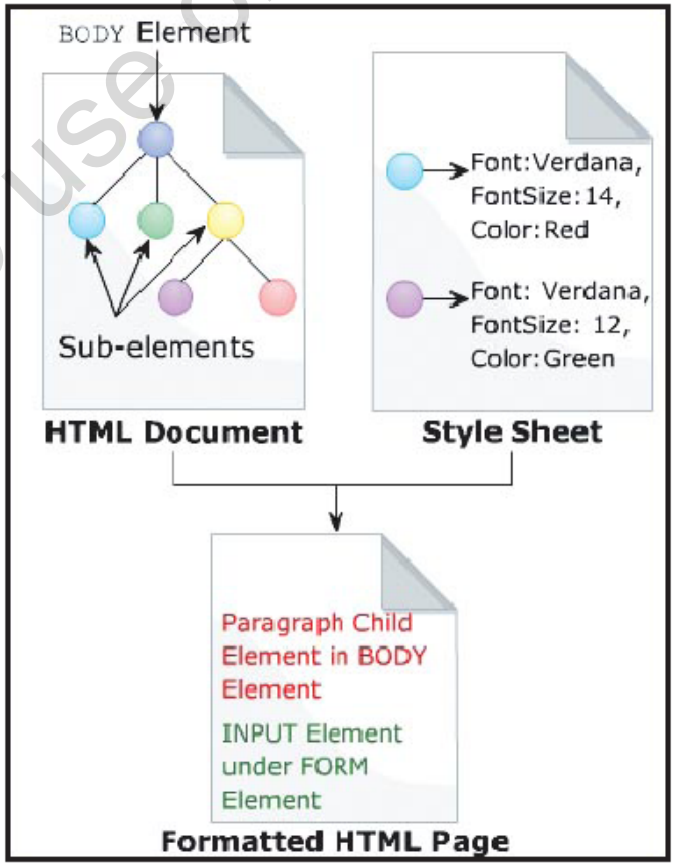
Attributes

Some of the global attributes used in HTML 5 are:

- Class: It specifies classnames for an element.
- Context menu: It specifies the context menu for an element.
- Dir: It specifies the direction of the text present for the content.
- Draggable: It specifies the draggable function of an element.
- Dropzone: It specifies whether the data when dragged is copied, moved, or linked, when dropped.
- Style: It specifies the inline CSS style for an element.
- Title: It specifies additional information about the element.

Cascading Style Sheet

- CSS works with HTML to provide visual styles to the elements of the document such as size, colour, background and borders.
- Style sheet is a collection of rules that specifies the appearance of data.



Cascading Style Sheet

Benefits of CSS

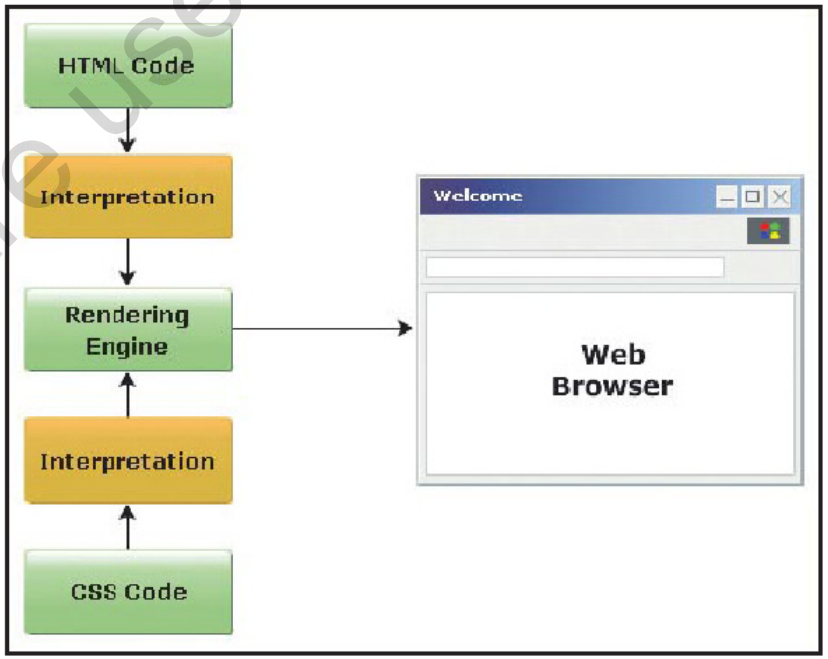
Benefits of CSS are as follows:

- Provides code re-usability
- Less HTML coding
- Device independence

Working on CSS

Steps to be followed while working with CSS are:

- The user requests for a Web page from the browser using the URL.
- The server responds with the HTML file and related files, such as image files, audio files, and external .css files.
- The browser executes the CSS code using the rendering engine and applies the styles to the HTML file.
- The Web page is then displayed in the browser.



Working on CSS

JavaScript

JavaScript helps to build dynamic Web pages by ensuring maximum user interactivity. Tasks that can be performed are:

- 2D drawable surface can be created without using plugins.
- Accesses any Web service and bring that data back to the application in real time.
- Does not need any special plugins to play videos.
- Helps the designer to create his/her own video playback controls using HTML and JavaScript.
- Helps to perform full video processing in the browser.

HTML 5 and Mobile Devices

Benefits of HTML 5 for mobile development are as follows:

- HMTL5 has included APIs, hence additional plug-ins are not required for mobile browsers.
- Mobile development is easier as knowledge of only HTML 5, CSS, and JavaScript is majorly required.
- There is a rising growth for mobile applications and due to its enhanced compatibility, HTML 5 forms the foundation for developing these mobile applications.
- HTML 5 is compatible with most operating system platforms.
- The development cost for creating applications in HTML 5 is low.
- Applications based on location and maps will have greater support in HTML 5.

Summary

- Computers carry out maximum operations in minimum duration. This resulted in the development of LAN, MAN, and WAN.
- Increased connectivity resulted in the evolution of the Web. Through Web, information can be accessed using the Internet. Thus, the Internet became the largest WAN.
- The information on the Web is available in the form of Web pages.
- Web sites contain both static as well as dynamic Web pages.
- A dynamic Web site interacts with the database to generate dynamic content using technologies, such as JavaScript, CSS, XHTML, and DHTML.
- HTML is a set of codes that specifies how the content has to be displayed in the browser.

Summary

- HTML 5 consists of markups, improved CSS with CSS3 providing added options that style the Web pages.
- There is also JavaScript and a new set of JavaScript APIs that are available in HTML 5.
- An HTML document is made up of different elements, tags, and attributes.
- CSS is a language that works along with HTML to provide visual styles to the elements of the document.
- JavaScript helps to build dynamic Web pages by ensuring maximum user interactivity.
- HTML 5 has tried to integrate all the features to deploy mobile applications that would be compatible in all the
- platforms.