


Unit -1

Introducing Web Technology


6/24/2021

Ravi Shrestha

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Introducing Web Technology




Web Technology
Chapter – 1 : HTML and CSS

- **Introduction**
 - Refers to the means by which computers communicate with each other using markup languages and multimedia packages.
 - Incorporates tools and technique for web development
- **Web Design**
 - Board team used to encompass the way that content is delivered to an end user through the World Wide Web, using a web browser or other web-enabled software.
 - The intent of web design is to create a website—a collection of online content including documents and applications that reside on a web servers.

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- **Basic aspects of Web Design**
 - **Content**
Relevant information, target concerned public
 - **Usability**
User friendly, simple and reliable interface
 - **Appearance**
Use of single style showing consistency, should be professional, appealing and relevant
 - **Structure**
Structure of the whole website

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- **Internet**
 - Global system of interconnected computer networks
 - Uses the Internet protocol suite (TCP/IP) to communicate between networks and devices
 - It is a network of networks
 - US Department of Defense started it in 1960 to enable time sharing of computers. Later in 1980s Internet officially started using TCP/IP.
 - operates without a central governing body
 - All technical and policy aspects of the underlying core infrastructure and the principal name spaces are administered by the Internet Corporation for Assigned Names and Numbers (ICANN).

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- World Wide Web (www)
 - WWW is a system of hypertext documents interlinked by URL and accessed via the Internet
 - Is an information-sharing model that is built on top of the Internet
 - The resources of the Web are transferred via the Hypertext Transfer Protocol (HTTP), may be accessed by users by a software application called a web browser, and are published by a software application called a web server.

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- Hypertext / Hypermedia
 - Hypertext is text which contains links to other texts.
 - By selecting a link, you are able to jump immediately to another part of the document or even to a different document.
 - Links can go not only from one document to another, but from one server to another.
 - Hypermedia is a term used for hypertext which is not constrained to be text and can include graphics, video and sound, etc.

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- World Wide Consortium
 - World Wide Web Consortium (W3C) is the main international standards organization for the World Wide Web
 - Founded in 1994 and currently led by Tim Berners-Lee
 - Created to ensure compatibility and agreement among industry members in the adoption of new standards

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- Web Page
 - A web page is a hypertext document provided by a website and displayed to a user in a web browser
 - Usually in HTML or XHTML format, and may provide navigation to other web pages via hypertext links
 - Frequently include other resources such as style sheets, scripts and images into their final presentation

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- Web Site**
 - Collection of related web pages containing images, videos or other digital assets.
 - Identified by common domain name and published in at least one web server.
 - Cascading Style Sheets (css) used to control appearance
 - Static Website** : A static website is one that has web pages stored on the server in the format that is sent to a client web browser. It is primarily coded in Hypertext Markup Language, HTML.
 - Dynamic Website** : A dynamic website is one that changes or customizes itself frequently and automatically. Server-side dynamic pages are generated "on the fly" by computer code that produces the HTML.

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- Domain Names, DNS, and URLs**

http://www.example.org:56789/a/b/c.txt?t=win&s=chess#para5

host (FQDN)
↓
authority

port
↓
Request-URI

path
↓
Request-URI


query
↓
Request-URI

fragment
↓
Request-URI


 - IP addresses are not convenient for users to remember easily. So an IP address can be represented by a natural language convention called a domain name
 - Domain name system (DNS) translates domain names into IP addresses. DNS is the “phone book” for the Internet, it maps between host names and IP addresses.
 - A uniform resource locator (URL), which is the address used by a Web browser to identify the location of content on the Web, also uses a domain name as part of the URL.

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- HTTP
 - Based on the request-response communication model:
 - Client sends a request
 - Server sends a response
 - HTTP is a stateless protocol: where the protocol does not require the server to remember anything about the client between requests.
 - Normally implemented over a TCP connection (80 is standard port number for HTTP)
 - The following is the typical browser-server interaction using HTTP:
 - User enters Web address in browser
 - Browser uses DNS to locate IP address
 - Browser opens TCP connection to server
 - Browser sends HTTP request over connection
 - Server sends HTTP response to browser over connection
 - Browser displays body of response in the client area of the browser window

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- Client/Server Computing
 - A model of computing in which powerful personal computers are connected in a network together with one or more servers
 - Web is based on client/server technology
 - The client/ server architecture reduces network traffic by providing a query response to the user rather than transferring total files.
 - Client** : Powerful personal computer that is part of a network; service requester
 - Server** : Networked computer dedicated to common functions that the client computers on the network need; service provider

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- Web Clients**
 - Typically refers to the Web browser in the user's machine
 - Used to create a HTTP request message and for processing the HTTP response message
 - Also refer to extensions and helper applications that enhance the browser to support special services from the site
- Web Browsers**
 - Software programs that allow you to search and view the many different kinds of information that's available on the World Wide Web
 - When a user requests a web page from a particular website, the web browser retrieves the necessary content from a web server and then displays the page on the user's device.

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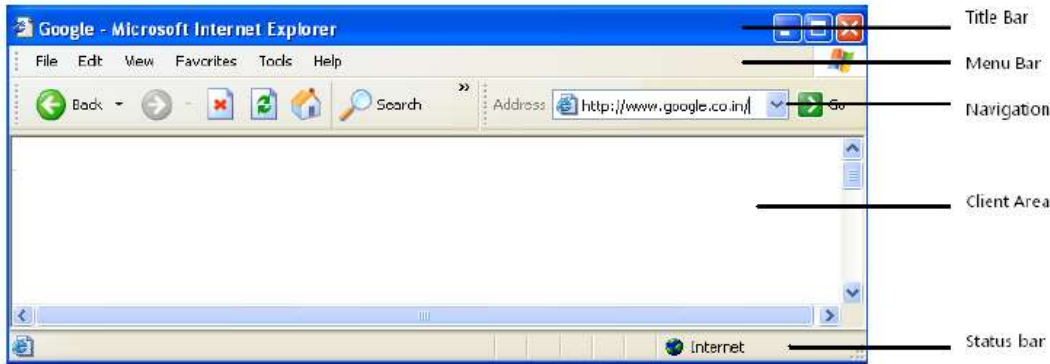


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- Web Browsers**



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- Web Servers**
 - It receives HTTP request via TCP
 - It maps Host header to specific virtual host (one of many host names sharing an IP address)
 - It maps Request-URI to specific resource associated with the virtual host
 - File: Return file in HTTP response
 - Program: Run program and return output in HTTP response
 - It maps type of resource to appropriate MIME type and use to set Content-Type header in HTTP response
 - It Logs information about the request and response
 - All e-commerce site require basic Web server software to answer requests from customers like
 - Apache
 - Leading Web server software
 - Works with UNIX, Linux , Windows OSs
 - Microsoft's Internet Information Server (IIS)
 - Second major Web server software
 - Windows-based
 - NginX
 - Light-weight resource utilization and its ability to scale easily on minimal hardware.
 - Nginx excels at serving static content quickly and is designed to pass dynamic requests off to other software that is better suited for those purposes

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- Client-Side Scripting**
 - Client-side scripting generally refers to writing the class of computer programs (scripts) on the web that are executed at client-side, by the user's web browser, instead of server-side (on the web server). Usually scripts are embedded in the HTML page itself.
 - JavaScript , VBScript, Jscript, Java Applets etc. are the examples of client side scripting technologies. JavaScript is probably the most widely used client-side scripting language.
 - Client-side scripts have greater access to the information and functions available on the user's browser, whereas server-side scripts have greater access to the information and functions available on the server. Upon request, the necessary files are sent to the user's computer by the web server (or servers) on which they reside. The user's web browser executes the script, then displays the document, including any visible output from the script.
 - Client-side scripts may also contain instructions for the browser to follow in response to certain user actions, (e.g., clicking a button). Often, these instructions can be followed without further communication with the server.

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	<h1>Introducing Web Technology</h1>	
Web Technology Chapter – 1 : HTML and CSS	<ul style="list-style-type: none"> • Server-Side Scripting <ul style="list-style-type: none"> • Includes writing the applications executed by the server at run-time to process client input or generate document in response to client request. So server side script consists the directives embedded in Web page for server to process before passing page to requestor. • It is usually used to provide interactive web sites that interface to databases or other data stores. • This is different from client-side scripting where scripts are run by the viewing web browser, usually in JavaScript. The primary advantage to server-side scripting is the ability to highly customize the response based on the user's requirements, access rights, or queries into data stores. • PHP, JSP, ASP, GoLang, etc, are the server side scripting technologies. 	
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	<h1>Introducing Web Technology</h1>	
Web Technology Chapter – 1 : HTML and CSS	<ul style="list-style-type: none"> • Web 2.0 <ul style="list-style-type: none"> • The term Web 2.0 is associated with web applications that facilitate participatory information sharing, interoperability, user-centered design, and collaboration on the World Wide Web. • A Web 2.0 site allows users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in contrast to websites where users are limited to the passive viewing of content that was created for them. • Examples of Web 2.0 include social networking sites, blogs, wikis, video sharing sites, hosted services, web applications. • SMTP <ul style="list-style-type: none"> • Simple Mail Transfer Protocol (SMTP) is an Internet standard for electronic mail (e-mail) transmission across Internet Protocol (IP) networks. • POP <ul style="list-style-type: none"> • In computing, the Post Office Protocol (POP) is an application-layer Internet standard protocol used by local e-mail clients to retrieve e-mail from a remote server over a TCP/IP connection. 	
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