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1. Introduction to WWW

World Wide Web, which is also known as a Web, is a collection of websites or web pages stored in web servers and connected to local computers through the internet. These websites contain text pages, digital images, audios, videos, etc.



1.1 What is WWW?

- WWW stands for **W**orld **W**ide **W**eb.
- A technical definition of the WWW is – All the resources and users on the Internet that are using HTTP.
- HTTP stands for **H**ypertext **T**ransfer **P**rotocol.
- This is the protocol being used to transfer hypertext documents that makes the World Wide Web possible.

1.2 How the Web Works?

- World Wide Web (WWW) use classical client / server architecture
- **H**yper **T**ext **T**ransfer **P**rotocol is text-based request-response protocol

**Client running a
Web Browser**

**Server running Web
Server Software
(IIS, Apache, etc.)**



HTTP

Page request

HTTP

Server response



1.3 What is Internet?

- The Internet is a massive **network of networks**, a networking infrastructure.
- It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet.
- Information that travels over the Internet uses many different set of rules which are known as **protocols**.

1.4 Web Browser

- A web browser or Internet browser is a **software application** for **retrieving**, **presenting**, and **traversing** information resources on the **World Wide Web**.
- Example :



Mozilla Firefox



Google Chrome



Opera



Internet Explorer

- An *information resource* is identified by a Uniform Resource Identifier (**URI**) and may be a web page, image, video, or other piece of content.
- Hyperlinks present in resources enable users to easily navigate their browsers to related resources

1.5 Web Server

- WEB Servers: To view and browse pages on the Web, all you need is a web browser.
- To publish pages on the Web, you need a web server. A web server is the program that runs on a computer and is responsible for replying to web browser requests for files.
- You need a web server to publish documents on the Web.
- Example:



1.6 Protocols

- Protocol is a set of rules or procedures for transmitting data between electronic devices, such as computers.
- In order for computers to exchange information, there must be a preexisting agreement as to how the information will be structured and how each side will send and receive it.
- Examples: HTTP, HTTPS, TCP, IP, SMTP

1. **Transmission Control Protocol (TCP):** TCP is a popular communication protocol which is used for communicating over a network. It divides any message into series of packets that are sent from source to destination and there it gets reassembled at the destination.
2. **Internet Protocol (IP):** IP is designed explicitly as addressing protocol. It is mostly used with TCP. The IP addresses in packets help in routing them through different nodes in a network until it reaches the destination system. TCP/IP is the most popular protocol connecting the networks.
3. **User Datagram Protocol (UDP):** UDP is a substitute communication protocol to Transmission Control Protocol implemented primarily for creating loss-tolerating and low-latency linking between different applications.

4. **Post office Protocol (POP):** POP3 is designed for receiving incoming E-mails.

5. **Simple mail transport Protocol (SMTP):** SMTP is designed to send and distribute outgoing E-Mail.

6. **File Transfer Protocol (FTP):** FTP allows users to transfer files from one machine to another. Types of files may include program files, multimedia files, text files, and documents, etc.

7. Hyper Text Transfer Protocol (HTTP): HTTP is designed for transferring a hypertext among two or more systems. HTML tags are used for creating links. These links may be in any form like text or images. HTTP is designed on Client-server principles which allow a client system for establishing a connection with the server machine for making a request. The server acknowledges the request initiated by the client and responds accordingly.

8. Hyper Text Transfer Protocol Secure (HTTPS): HTTPS is abbreviated as Hyper Text Transfer Protocol Secure is a standard protocol to secure the communication among two computers one using the browser and other fetching data from web server.

1.7 Web Development Tools



2. Web Design

- Web design refers to the design of websites that are displayed on the internet. It usually refers to the user experience aspects of website development rather than software development.
- A web designer works on the appearance, layout, and, in some cases, content of a website. Appearance, for instance, relates to the colors, font, and images used. Layout refers to how information is structured and categorized.

2.1 Principles of Web Designing

- 1) **Simple is the Best:** Clean and fresh design of your website not only makes the website appealing, but also help user to navigate from one page to another seamlessly. Over-designed website may not work.
- 2) **Consistency:** It can be understood that your fonts, sizes, headings, sub-headings, and button styles must be the same throughout the website. Plan everything in advance.
- 3) **Typography & Readability:** Text rules the website. You should keep your typography visually appealing and readable for visitors
- 4) **Mobile compatibility:** Keeping in mind the ever-growing usage of smartphones, tablets and phablets, web design must be effective for various screens.

5) Colour palette and imagery: 3 or 4 tones for the whole websites are ample to give appealing and clear design. Same is the case with images. Don't use multiple vibrant images.

6) Easy loading : compress HTML, JavaScript and CSS for enhanced loading speed.

7) Easy Navigation: You should follow the “three-click-rule” so that visitors can get the required information within three clicks.

8)Communication: Tricks that may work to establish effortless communication with the visitors are – organizing information by making good use of headlines and sub-headlines, bullet points, etc

2.2 Planning the website development

1. **Determine the Goals:** Whether one is trying to increase membership, convert more visitors into leads, or provide investors with valuable information, they need to establish these goals at the beginning so they know what the developer is aiming for
2. **Define the Target Audience**
3. **Search Engine Optimisation (SEO):** impacts your online performance and success. Presently must have a mobile-friendly or responsive website as Google ranks them higher than those that are not.
4. **Plan for Content:** Educational and engaging to the audience and optimized for search engines.
5. **Develop Use Cases, Sitemap:** Different users will behave on site.

2.3 Navigation

Structural: Connects one page to another based on the hierarchy of the site; on any page you'd expect to be able to move to the page above it and pages below it.

Associative: Connects pages with similar topics and content, regardless of their location in the site; links tend to cross structural boundaries.

Utility: Connects pages and features that help people use the site itself; these may lie outside the main hierarchy of the site, and their only relationship to one another is their function.

