

## **UNIT I: Introduction of Web**

- 1.1 History of WWW.
- 1.2 Role of Web browser and web Server.
- 1.3 Client side Programming
- 1.4 IDE applications of HTML.
- 1.5 Web Protocols HTTP, FTP

## **1.1 History of WWW.**

The World Wide Web is a global information medium that users can access via computers connected to the Internet.

It was created to help people share and find information easily, using links that connect different pages together.

The Web allows us to browse websites, watch videos, shop online, and connect with others around the world through our computers and phones.

The World Wide Web was created in 1989 by Tim Berners-Lee and his team at CERN in Geneva, Switzerland.

They made a standard way for computers to communicate, called HyperText Transfer Protocol (HTTP). Their text-based Web browser was released in January 1992.

The Web became popular quickly with the creation of a browser called Mosaic. Developed by Marc Andreessen and his team at the University of Illinois, Mosaic was released in September 1993.

Andreessen co-founded Netscape Communications Corporation and released Netscape Navigator in December 1994, which became the top browser.

By the mid-1990s, millions of people were using the Web. Microsoft entered the scene with Internet Explorer (IE) in 1995

Apple launched Safari in 2003 as the default browser for Macintosh computers, and later for iPhones (2007) and iPads (2010).

Safari 2.0 in 2005 introduced Private Browsing, which did not save website history, downloaded files, or personal information.

Mozilla Firefox came out in 2004 by the Mozilla Foundation,

Followed by Google Chrome in 2008, by the Google Company.

In 2015, Microsoft replaced Internet Explorer with Microsoft Edge.

There are 3 components of the World Wide Web:

**Uniform Resource Locator (URL):** URL serves as a system for resources on the web.

**Hyper Text Transfer Protocol (HTTP):** HTTP specifies communication of browser and server.

**Hyper Text Markup Language (HTML):** HTML defines the structure, organization and content of a web page.

## 1.2 Role of Web browser and web Server.

### Web browser

A web browser is an application software that can process and display a web page on the internet.

It acts an interface between the server and the client.

### Web server

A web server is a dedicated computer that sends web based documents to the client's computer when request through the web browser.

A web server accepts HTTP request from the client's browser, processes it to find the required document, and then sends a suitable response to client machine.

Sr. No.	Parameters	Web Browser	Web Server
1.	<b>Function</b>	The Web browser <b>requests</b> the server for the web documents and services.	Web server sees and approves those requests made by web browsers and sends the document in <b>response</b>
2.	<b>Responsibility</b>	Web browser is responsible to request for a website or webpage located on the internet.	Web server is responsible for hosting websites, processing web requests, and sending the demanded document to the client.

<b>Sr. No.</b>	<b>Parameters</b>	<b>Web Browser</b>	<b>Web Server</b>
3.	<b>Process</b>	The web browser sends an HTTP request and gets an HTTP response.	The web server gets HTTP requests and sends HTTP responses.
4.	<b>Data Storage</b>	Web browsers stores user data in cookies in local machine.	Web servers provide an area to store the website.
5.	<b>Installation</b>	Web Browser is installed on user's machine.	Web servers can be installed anywhere but it need to be on a network or on local computer.
6.	<b>Examples</b>	Mozilla Firefox, Google Chrome, and Internet Explorer.	Apache Server.

### 1.3 Client side Programming

Client-side development (front end) of programs run on the client's or user's device.

Client-side developers work on the parts of a website with which the user can interact.

Front-end development aims to produce visually appealing websites that are visually appealing and catch the interest of consumers.

These scripts are typically embedded into HTML text.

Client-side developers are in charge of a variety of tasks

Designing website layouts

Creating user interfaces

Form validation is being added.

Including visual aspects such as colours and typefaces

Developers on the client-side are often fluent in the following programming languages.

**HTML** – Hypertext Markup Language, or HTML, is a markup language that is the de facto standard for creating websites. HTML creates the framework of a website and renders it in a browser.

**CSS** – Developers can add visual design components to an HTML-coded website using CSS, often called Cascading Style Sheets. To make their websites appear visually appealing on customers' devices, developers can employ CSS.

**JavaScript** – JavaScript is a scripting language that programmers can use for various tasks, including creating websites and web apps. Developers can use JavaScript to create dynamic, interactive web pages.

## **Features of Client-side Scripting**

It is intended to execute code on which a web browser runs, and the results of the inputs are delivered to an accessible user.

Client-side scripting enables greater involvement with clients via the browser and is used to validate programs and functionality based on the request.

The client does not include any contact with the server in client-side scripting; the only interaction is receiving the requested data.

The client-side script may effectively minimize the load on the server.

## **1.4 IDE applications of HTML.**

An HTML editor is a software application that creates and modifies HTML code. HTML is the standard markup language for creating web pages and applications.

These editors are essential tools for web developers and designers as they provide a convenient way to build and edit web page layouts and content.

### **Following are some IDE Applications of HTML**

#### **1. VS Code**

Visual Studio Code (VS Code) is a powerful, open-source code editor developed by Microsoft.

Highly customizable interface with support for themes, keyboard shortcuts

#### **2. Sublime Text**

Sublime Text is a text editor known for its speed, ease of use, and flexibility, widely favored by developers for code, markup, and prose. Renowned for its sleek interface and powerful features, it stands out as a top choice for HTML editing.

#### **3. Atom**

Atom is a free, open-source, and highly customizable text editor created by GitHub, tailored for ease of use, extensibility, and collaborative coding. It's a tool favoured by developers for its modern interface and rich feature set, particularly suitable for web development and HTML editing.

#### **4. Notepad++**

Notepad++ is a free, lightweight, and versatile text editor widely famous for its simplicity and efficiency. It's a favorite among developers for coding, scripting, and HTML editing due to its user-friendly interface and powerful features.



## **5. Bluefish**

Bluefish is a powerful editor targeted towards programmers and web developers, known for its speed and efficiency in handling large projects.

## **6. Komodo Edit**

Komodo Edit is a free, open-source text editor for dynamic programming languages. It is part of the Komodo IDE, known for its robust features and support for various languages.

## **7. CodePen**

CodePen is a social development environment and an online community for front-end designers and developers. It's particularly popular for testing and showcasing user-created HTML, CSS, and JavaScript code snippets, known as 'pens.'

## **8. Brackets**

Brackets is a modern, open-source text editor designed specifically for web designers and front-end developers, offering a blend of visual tools and coding experience.

## **9. CodeSandbox**

CodeSandbox is an online code editor tailored for web development, enabling developers to create and share code snippets and applications.

## **10. Replit**

Replit is an online coding platform that offers an instant IDE to code in many programming languages without any setup. It's widely used for its simplicity and versatility in collaborative coding and education.

## **1.5 Web Protocols HTTP, FTP**

**“A protocol is a set of rules for formatting and processing data.”**

### **HTTP**

HTTP stands for HyperText Transfer Protocol.

It is a protocol used to access the data on the World Wide Web (www).

The HTTP protocol can be used to transfer the data in the form of plain text, hypertext, audio, video, and so on.

This protocol is known as HyperText Transfer Protocol because of its efficiency that allows us to use in a hypertext environment where there are rapid jumps from one document to another document.

### **Features of HTTP:**

#### **Connectionless protocol:**

HTTP is a connectionless protocol.

HTTP client initiates a request and waits for a response from the server.

When the server receives the request, the server processes the request and sends back the response to the HTTP client after which the client disconnects the connection.

The connection between client and server exist only during the current request and response time only.

#### **Media independent:**

HTTP protocol is a media independent as data can be sent as long as both the client and server know how to handle the data content.

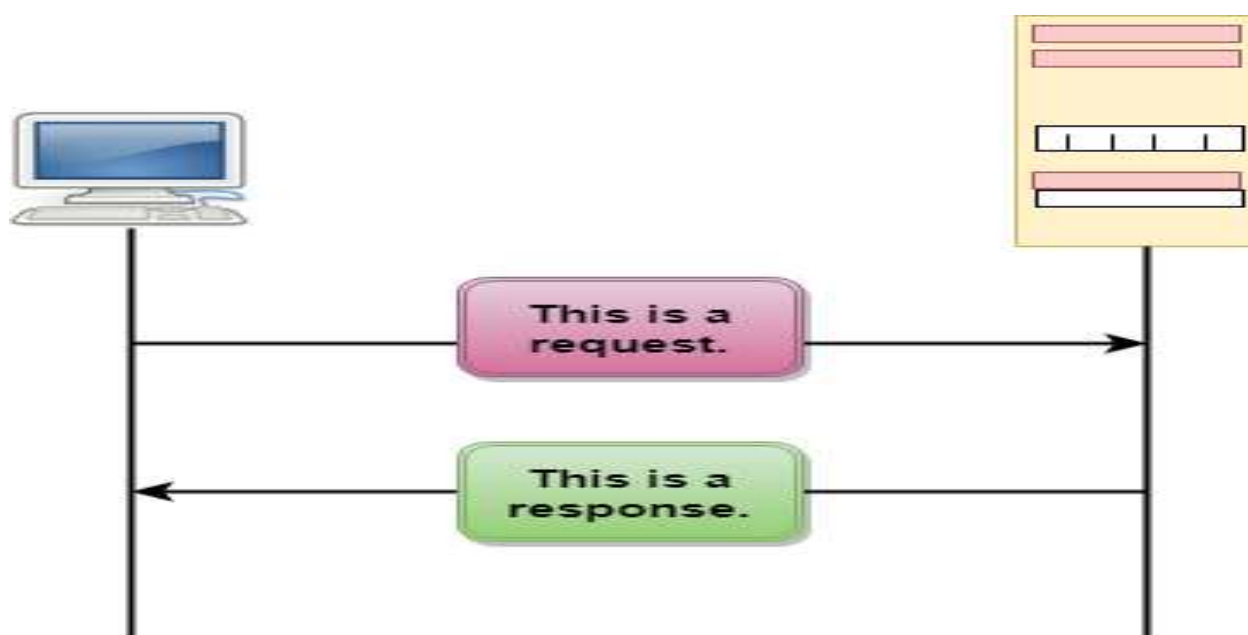
It is required for both the client and server to specify the content type in MIME-type header.

## Stateless:

HTTP is a stateless protocol as both the client and server know each other only during the current request.

Due to this nature of the protocol, both the client and server do not retain the information between various requests of the web pages.

## HTTP Transactions



## Messages

HTTP messages are of two types:

**Request Message:** The request message is sent by the client that consists of a request line, headers, and sometimes a body.

**Response Message:** The response message is sent by the server to the client that consists of a status line, headers, and sometimes a body.

## Uniform Resource Locator (URL)

A client that wants to access the document in an internet needs an address and to facilitate the access of documents, the HTTP uses the concept of Uniform Resource Locator (URL).

The URL defines four parts:

**Method:** The method is the protocol used to retrieve the document from a server. For example, HTTP.

**Host:** The host is the computer where the information is stored, and the computer is given an alias name. Web pages are mainly stored in the computers and the computers are given an alias name that begins with the characters "www". This field is not mandatory.

**Port:** The URL can also contain the port number of the server, but it's an optional field. If the port number is included, then it must come between the host and path and it should be separated from the host by a colon.

**Path:** Path is the pathname of the file where the information is stored. The path itself contain slashes that separate the directories from the subdirectories and files.



## FTP

FTP stands for File transfer protocol.

FTP is a standard internet protocol provided by TCP/IP used for transmitting the files from one host to another.

It is mainly used for transferring the web page files from their creator to the computer that acts as a server for other computers on the internet.

It is also used for downloading the files to computer from other servers.

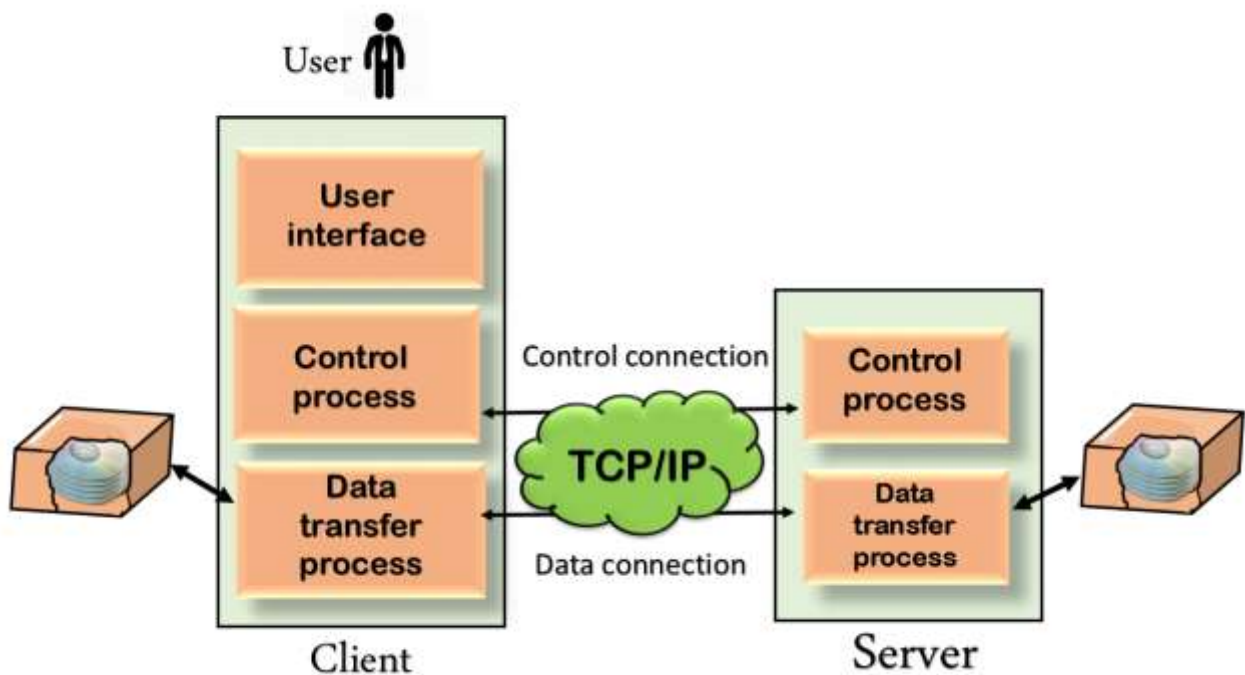
### Objectives of FTP

It provides the sharing of files.

It is used to encourage the use of remote computers.

It transfers the data more reliably and efficiently.

### Mechanism of FTP



There are two types of connections in FTP:

**Control Connection:**

The control connection uses very simple rules for communication.

Through control connection, we can transfer a line of command or line of response at a time.

The control connection is made between the control processes. The control connection remains connected during the entire interactive FTP session.

**Data Connection:** The Data Connection uses very complex rules as data types may vary. The data connection is made between data transfer processes.

The data connection opens when a command comes for transferring the files and closes when the file is transferred.

**Advantages of FTP:**

**Speed:** One of the biggest advantages of FTP is speed. The FTP is one of the fastest way to transfer the files from one computer to another computer.

**Efficient:** It is more efficient as we do not need to complete all the operations to get the entire file.

**Security:** To access the FTP server, we need to login with the username and password. Therefore, we can say that FTP is more secure.

# Thank You