



**BCA**



Semester - 5th



# **Web Technology (HTML, Java Script, CSS)**

## **Notes - 1**

### **Contents**

*Fundamentals: WWW, Internet, Web Browsers, Web Servers, URLs, MIME, HTTP.*

**Website - [prepfolio.co.in](http://prepfolio.co.in)**

## **WWW (World Wide Web)**

### **Meaning:**

The World Wide Web (WWW) is a collection of information (web pages) that can be accessed through the Internet using a web browser.

It is not the same as the Internet – the Internet is the network, while the WWW is one of the services that runs on it (like email or file transfer).

### **Full Form:**

WWW stands for World Wide Web.

### **How WWW Works:**

- A user enters a website address (URL) in the browser.
- The browser sends a request using HTTP (HyperText Transfer Protocol) to the web server.
- The web server processes the request and sends back the required HTML page.
- The browser displays the webpage to the user.

### **Main Components of WWW:**

- Web Pages: Documents written in HTML that can include text, images, videos, and links.
- Web Browser: Software used to view web pages (e.g., Chrome, Firefox, Edge).
- Web Server: Computer that stores and delivers web pages to users.
- URL (Uniform Resource Locator): Address of a web page (e.g., <https://www.wikipedia.org>).
- HTTP/HTTPS: Protocols used to transfer web data.

## **Features of WWW:**

- Hyperlinked documents for easy navigation
- Multimedia content (text, images, video, sound)
- Global access through browsers
- Interactive and user-friendly
- Supports communication and e-commerce

# **Internet**

## **Meaning:**

The Internet is a global network of computers that are connected together to share information, resources, and communication.

It allows users to send data, access websites, send emails, watch videos, shop online, and much more.

## **Full Form:**

Internet stands for Interconnected Network.

## **How it works:**

Every computer on the internet has a unique IP Address (like a digital home address).

When you open a website (like [www.google.com](http://www.google.com)), your browser sends a request to a server where that website is stored.

The server sends back the webpage data to your computer, and your browser displays it.

## **Main Components of the Internet:**

Clients: Devices like computers, smartphones, or tablets that request information.

Servers: Powerful computers that store websites, files, and data.

Routers and Switches: Devices that direct data between computers on the network.

Communication Media: The physical means (like cables, optical fibers, satellites) used to transfer data.

Protocols: Rules that define how data is sent and received (like HTTP, TCP/IP, FTP, etc.).

## **Uses of the Internet:**

Email communication

Online shopping

Social media and entertainment

Education and e-learning

Online banking and digital payments

Cloud storage and data sharing

## **Advantages of the Internet:**

Easy and fast communication

Access to global information

Online services and convenience

Business growth and remote work opportunities

## **Disadvantages:**

Privacy and security issues

Cybercrimes and hacking

Addiction and misinformation

<b>Basis</b>	<b>Internet</b>	<b>WWW (World Wide Web)</b>
<b>Definition</b>	Global network of connected computers	Collection of web pages and
<b>Nature</b>	Hardware-based network	Information-based service
<b>Developed by</b>	Advanced Research Projects Agency	Tim Berners-Lee (in 1989)
<b>Use</b>	Used for communication, file	Used for browsing and accessing
<b>Protocols Used</b>	TCP/IP, FTP, SMTP, etc.	HTTP, HTTPS
<b>Example</b>	Sending email via Gmail	Browsing <a href="http://www.google.com">www.google.com</a>

### **In Short Summary (for revision):**

Internet = Network of computers that connects the world.

WWW = System of web pages accessed through the Internet.

Internet is the base, and WWW runs on it.

WWW uses HTTP and browsers to display content.

# Web Browser

## Meaning:

A web browser is a software application used to access and view websites on the World Wide Web (WWW).

It retrieves web pages from web servers using HTTP or HTTPS protocols and displays them on your device screen.

👉 In simple words:

A browser is a program that helps you open and view websites (like Google Chrome, Firefox, Edge, etc.).

## Examples of Web Browsers:

Google Chrome

Mozilla Firefox

Microsoft Edge

Safari

Opera

## Functions of a Web Browser:

Access Websites: It sends requests to web servers and fetches web pages.

Display Content: It interprets HTML, CSS, and JavaScript to show text, images, videos, etc.

Navigation: Allows moving from one webpage to another through hyperlinks, back/forward buttons.

Bookmarking: Saves favorite websites for quick access.

Security: Uses HTTPS and warns against unsafe websites.

History Management: Keeps a record of visited pages.

Download and Upload: Allows file transfer between user and server.

### **Main Components of a Web Browser:**

User Interface (UI): Visible part (address bar, back button, search bar, etc.)

Browser Engine: Manages actions between UI and rendering engine.

Rendering Engine: Displays webpage content (HTML, CSS, JavaScript).

Networking Component: Handles network communication using protocols like HTTP/HTTPS.

JavaScript Engine: Executes scripts on the webpage.

Data Storage: Saves cookies, cache, and browsing history locally.

### **Working of a Web Browser:**

User types a URL (like <https://www.wikipedia.org>).

Browser sends a request to the web server using HTTP/HTTPS.

Web server sends back the HTML, CSS, JS files.

Browser's rendering engine processes the files and displays the final webpage.

## **Example:**

If you type www.youtube.com in Chrome –

Chrome contacts the YouTube web server → gets the webpage → displays it with videos, images, etc.

## **Web Server**

### **Meaning:**

A Web Server is a computer system or software that stores, manages, and delivers web pages to users when they are requested through a browser.

👉 In simple words:

A web server is like a “host” where all websites are stored and from where they are sent to browsers when someone visits them.

### **Examples of Web Servers:**

Apache HTTP Server

Nginx

Microsoft IIS (Internet Information Services)

LiteSpeed

Node.js (used as a backend web server)

### **Functions of a Web Server:**

Store Website Files: HTML, CSS, JS, images, and other files.

Process Client Requests: When a browser requests a webpage, the server finds and sends it.

Communication Using HTTP: It uses the HTTP/HTTPS protocol to interact with browsers.

Run Server-side Scripts: Executes programs written in PHP, Node.js, Python, etc.

Security and Authentication: Protects data using SSL certificates and access controls.

Logging and Monitoring: Keeps records of website visitors and errors.

### **Working of a Web Server:**

The browser (client) sends a request to the web server (for example, asking for index.html).

The web server receives the request through HTTP protocol.

The server finds the requested file or runs server-side code if needed.

It sends back the webpage as a response to the browser.

The browser renders (displays) the webpage for the user.

### **Example:**

If you visit [www.preffolio.com](http://www.preffolio.com):

Your browser sends a request to Preffolio's web server.

The server finds the website files and sends them to your browser.

The browser displays the Preffolio website on your screen.

<b>Basis</b>	<b>Web Browser</b>	<b>Web Server</b>
<b>Definition</b>	Software that displays web pages	Computer or software that stores and
<b>Work</b>	Sends requests and shows content.	Receives requests and provides content.
<b>Type</b>	Client-side software.	Server-side software.
<b>Protocols Used</b>	HTTP/HTTPS	HTTP/HTTPS
<b>Examples</b>	Chrome, Firefox, Edge	Apache, Nginx, IIS
<b>Role in Communication</b>	Acts as a client	Acts as a host/server

### **In Short Summary (for revision):**

Web Browser: Tool for users to view websites.

Web Server: System that stores and sends websites to browsers.

Browser = Requester (Client)

Server = Responder (Provider)

# URL (Uniform Resource Locator)

## Meaning:

A URL is the address of a resource (webpage, image, video, file, etc.) on the World Wide Web (WWW).

It tells the browser where a resource is located and how to access it.

👉 In simple words:

A URL is like a home address for a website – it helps the browser find and open the correct page on the Internet.

## Full Form:

URL → Uniform Resource Locator

## Example:

`https://www.example.com:80/folder/page.html?name=md#ab1`

## Parts of a URL:

Part	Example	Meaning
1. Protocol	<code>https://</code>	Tells the browser
2. Domain Name /	<code>www.example.com</code>	The name of the
3. Port Number	<code>:80</code>	Used by the browser
4. Path	<code>/folder/page.html</code>	The exact location of
5. Query String	<code>?name=md</code>	Used to send
6. Fragment	<code>#ab1</code>	Refers to a specific

## **Example Breakdown:**

👉 In the URL

<https://www.wikipedia.org/wiki/India>

Protocol: https

Domain Name: www.wikipedia.org

Path: /wiki/India

## **Uses of URL:**

Helps browsers locate and open web resources.

Used to link webpages together via hyperlinks.

Used in APIs for sending and receiving data.

## **MIME (Multipurpose Internet Mail Extensions)**

### **Meaning:**

MIME defines how different types of files (text, images, audio, video, etc.) are sent and received over the Internet.

Originally created for email attachments, MIME is now also used in the HTTP protocol to tell browsers what type of file is being sent by the server.

👉 In simple words:

MIME tells the browser “What kind of file is this?” – so it knows how to display or handle it.

### **Full Form:**

MIME → Multipurpose Internet Mail Extensions

## **Example of MIME Types:**

Type	Description	Example
text/html	HTML document	Web pages
text/css	CSS stylesheets	Web styling files
text/javascript	JavaScript files	Scripts
image/png	PNG images	Pictures
image/jpeg	JPEG images	Photos
audio/mpeg	MP3 audio files	Songs
video/mp4	MP4 video files	Videos
application/json	JSON data	APIs and web apps
application/pdf	PDF documents	Downloadable files

## **Purpose of MIME:**

Helps browsers understand the type of content they are receiving.

Ensures correct handling (e.g., display image, play audio, render HTML).

Enables email attachments and multimedia communication over Internet.

### **Example in HTTP Header:**

When a web server sends a webpage, it includes a MIME type in the header:

Content-Type: text/html

It tells the browser: “The file I’m sending is an HTML document.”

## **HTTP (HyperText Transfer Protocol)**

### **Meaning:**

HTTP is the communication protocol used between a web browser (client) and a web server to transfer data over the World Wide Web.

👉 In simple words:

HTTP defines how messages are sent and received between your browser and the website’s server.

### **Full Form:**

HTTP → HyperText Transfer Protocol

### **How HTTP Works:**

The browser (client) sends an HTTP Request to the web server.

The server processes the request and sends an HTTP Response back.

The browser displays the content received (like HTML, images, etc.).

## **Example:**

You type www.google.com in Chrome →  
Chrome sends an HTTP request to Google's server.  
Server responds with an HTML page.  
Chrome displays the webpage to you.

## **HTTP Request Methods:**

<b>Method</b>	<b>Purpose</b>
<b>GET</b>	Request data from the
<b>POST</b>	Send data to the server
<b>PUT</b>	Update existing data.
<b>DELETE</b>	Delete data on the server.
<b>HEAD</b>	Similar to GET but only

## **HTTP Response Codes (Status Codes):**

<b>Code</b>	<b>Meaning</b>	<b>Example</b>
<b>200</b>	OK – Request	Page loaded
<b>301</b>	Moved Permanently	URL changed
<b>404</b>	Not Found	Page doesn't exist
<b>500</b>	Internal Server Error	Server crashed
<b>403</b>	Forbidden	Access not allowed

## **Difference between HTTP and HTTPS:**

<b>Basis</b>	<b>HTTP</b>	<b>HTTPS</b>
<b>Full Form</b>	HyperText Transfer	HyperText Transfer
<b>Security</b>	Data is not encrypted	Data is encrypted
<b>Port Number</b>	80	443
<b>Used For</b>	Normal websites	Secure websites

## **In Short Summary (for revision):**

<b>Concept</b>	<b>Full Form</b>	<b>Main Use</b>
<b>URL</b>	Uniform Resource	Address of a web
<b>MIME</b>	Multipurpose Internet	Identifies type of
<b>HTTP</b>	HyperText Transfer	Transfers data

## Practice Questions

1. What is the Internet? Explain its main components and uses.
2. Define the World Wide Web (WWW). How does it work?
3. Differentiate between the Internet and the World Wide Web.
4. What is a Web Browser? Explain its functions and components.
5. What is a Web Server? Describe its functions and working process.
6. Differentiate between a Web Browser and a Web Server with examples.
7. What is a URL? Explain the different parts of a URL with an example.
8. What is MIME? Mention its purpose and give examples of common MIME types.
9. What is HTTP? Explain its working and different request methods.
10. Differentiate between HTTP and HTTPS with suitable examples.

Check the answer in the Practice Questions section on our website.



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