

3.1 Introduction to Web Technology

Web technology refers to the collection of tools, programming languages, and techniques used to build and run websites and web applications on the Internet.

It allows users to access information through web browsers and interact with web pages.

Main Components of Web Technology

1. HTML (HyperText Markup Language)

- a. Used to create the **structure** of web pages
- b. Defines elements like headings, paragraphs, images, links, tables, forms

Example:

```
<!DOCTYPE html>

<html>

<head>

  <title>My Web Page</title>

</head>

<body>

  <h1>Welcome</h1>

  <p>This is a paragraph.</p>

</body>

</html>
```

2. CSS (Cascading Style Sheets)

- Used for **design and layout**
- Controls colors, fonts, spacing, positioning

CSS is used to control the **appearance and layout** of web pages.

It styles HTML elements by adding colors, fonts, spacing, positioning, and responsiveness.

Without CSS → pages look plain.

With CSS → pages look attractive and organized.

There are **3 types of CSS**:

1. Inline CSS

- 2. Internal CSS
- 3. External CSS

1. Inline CSS

CSS is written **inside the HTML element** using the style attribute.

Example Program

```
<!DOCTYPE html>
<html>
<head>
  <title>Inline CSS Example</title>
</head>
<body>

  <h1 style="color: blue; text-align: center;">Welcome</h1>
  <p style="color: red; font-size: 18px;">This is inline CSS.</p>

</body>
</html>
```

Internal CSS

CSS is written inside <style> tag in the <head> section.

Example Program

```
<!DOCTYPE html>
<html>
```

```
<head>
  <title>Internal CSS Example</title>

  <style>
    body {
      background-color: lightyellow;
    }

    h1 {
      color: green;
      text-align: center;
    }

    p {
      color: blue;
      font-size: 18px;
    }
  </style>

</head>
<body>

  <h1>Welcome</h1>
  <p>This page uses internal CSS.</p>

</body>
</html>
```

3 External CSS (Best Method)

CSS is written in a **separate .css file** and linked to HTML.

Step 1: HTML File

```
<!DOCTYPE html>
<html>
<head>
  <title>External CSS Example</title>
  <link rel="stylesheet" href="style.css">
</head>
```

```
<body>

    <h1>Welcome</h1>
    <p>This page uses external CSS.</p>

</body>
</html>
```

Step 2: CSS File (style.css)

```
body {
    background-color: lightblue;
}

h1 {
    color: darkred;
    text-align: center;
}

p {
    color: purple;
    font-size: 18px;
}
```

3. JavaScript

- Adds **interactivity** to web pages
- Used for form validation, animations, dynamic content
- Runs in the browser

JavaScript can be added in **3 ways**:

1 Inline JavaScript

```
<!DOCTYPE html>
<html>
<head>
    <title>Inline JS</title>
</head>
```

```
<body>
<h1>Inline JavaScript Example</h1>
<p>
  <script>
    document.write("Inline JavaScript");
  </script>
</p>
</body>
</html>
```

✅ Output:

Inline JavaScrip

2 Internal JavaScript

```
<!DOCTYPE html>
<html>
<head>
  <title>Internal JS</title>

  <script>
    document.write("Internal JavaScript");
  </script>
</head>
<body>
<h1>Internal JavaScript Example</h1>
</body>
</html>
```

✅ Output:

Internal JavaScript

3 External JavaScript

Step 1: HTML File (external.html)

```
<!DOCTYPE html>
<html>
<head>
  <title>External JS</title>
  <script src="script.js"></script>
</head>
<body>

<h1>External JavaScript Example</h1>

</body>
</html>
```

Step 2: External JS File (script.js)

```
document.write("External JavaScript");
```

✓ Output:

External JavaScript

4. Web Server

- Stores and delivers web pages to users
- Examples: Apache, Nginx, IIS
- Communicates using HTTP/HTTPS

5. Web Browser

- Software used to access websites
- Examples: Chrome, Firefox, Edge
- Interprets HTML, CSS, and JavaScript

3.2 Server-Side vs Client-Side Scripting

Web applications use scripts that run either on the user's computer (client) or on the server.

Client-Side Scripting	Server-Side Scripting
Runs in the browser	Runs on the web server
Language: JavaScript	Languages: PHP, Python, Java, ASP.NET
Reduces server load	Handles business logic
Faster user interaction	More secure
Cannot access database directly	Can access database
Used for UI effects & validation	Used for data processing

Example:

- Form validation in JS → Client-side
- Saving form data to database using PHP → Server-side

3.3 Introduction to Internet Technology

The **Internet** is a worldwide system of interconnected computer networks that communicate using standard protocols.

- 1. IP Address (Internet Protocol Address)**
 - a. Unique number assigned to each device
 - b. Example: 192.168.1.1
- 2. DNS (Domain Name System)**
 - a. Converts domain names into IP addresses
 - b. Example: google.com → IP address
- 3. HTTP (HyperText Transfer Protocol)**
 - a. Protocol used for transferring web pages
 - b. HTTPS is secure (encrypted)
- 4. URL (Uniform Resource Locator)**
 - a. Address of a web resource
 - b. Example:

<https://www.example.com/index.html>