🧩 Unit 1: Introduction to Web

1. 🌐 Introduction to Internet

- The **Internet** is a global network of interconnected computers that communicate using **TCP/IP protocols**.

- It allows sharing of information, files, and resources across the world.

Key services of Internet:

- **Email (Electronic Mail)** – for sending and receiving messages.

- **WWW (World Wide Web)** – for browsing web pages.

- **FTP (File Transfer Protocol)** – for file sharing.

- **Chat and Video Conferencing** – for communication.

- **Online Shopping, Banking, Education** etc.

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2. 💻 World Wide Web (WWW)

- The **World Wide Web** is a collection of **interlinked documents (web pages)** accessible via the Internet.

- It was developed by **Tim Berners-Lee** in **1991**.

- Each web page is written in **HTML (HyperText Markup Language)**.

Components of WWW:

1. **Web Browser** – displays web pages.

2. **Web Server** – stores and delivers web pages.

3. **HTTP Protocol** – transfers web data.

4. **URL (Uniform Resource Locator)** – address of a web page.

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3. 🔁 HyperText Transfer Protocol (HTTP)

- **HTTP** is a communication protocol used between **web browsers** and **web servers**.

- It defines how messages are formatted and transmitted.

- It uses **port 80** by default.

Types:

- **HTTP:** Data is sent in plain text.

- **HTTPS:** Secure version of HTTP using **SSL/TLS** encryption.

Example:

https://www.google.com

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4. 🔗 Universal Resource Locator (URL)

- A **URL** is the address of a resource (web page, image, file, etc.) on the Internet.

Structure of a URL:

https://www.example.com:80/folder/page.html

|____| |_____| | |_____|

Protocol Domain Name Port Path

Parts of a URL:

1. **Protocol:** (e.g., http, https, ftp)

2. **Domain Name:** Name of website (e.g., example.com)

3. **Port Number:** Optional (default for HTTP is 80)

4. **Path:** Location of specific page or file

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5. 🖥️ Web Browser

- A **web browser** is an application used to access and view web pages on the Internet.

Examples: Google Chrome, Mozilla Firefox, Microsoft Edge, Safari.

Functions:

- Sends HTTP requests to web servers.

- Displays web pages using rendering engines.

- Provides navigation, bookmarking, history, and downloads.

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6. 🗂️ Web Server

- A **web server** is a software or hardware that stores, processes, and delivers web pages to users.

Examples: Apache, Nginx, Microsoft IIS, LiteSpeed.

Functions:

- Accepts HTTP requests from browsers.

- Responds with web pages (HTML, CSS, JS, etc.).

- Handles multiple users simultaneously.

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7. 📄 Introduction to Web Page

- A **web page** is a single document on the web, written in **HTML**, and viewed in a browser.

Types of Web Pages:

1. **Static Web Page:**

   o Content remains fixed.

   o Created using **HTML & CSS** only.

   o Example: Company profile page.

2. **Dynamic Web Page:**

   o Content changes according to user interaction.

   o Uses **server-side scripting** (PHP, ASP.NET, etc.) and **databases (MySQL)**.

   o Example: Login pages, shopping sites.

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8. 🧱 Introduction to HTML (HyperText Markup Language)

- **HTML** stands for **HyperText Markup Language**.

- It is used to create and structure web pages.

- HTML uses **tags** to define elements like headings, paragraphs, links, images, etc.

Example:

<!DOCTYPE html>

<html>

<head>

 <title>My First Web Page</title>

```
</head>

<body>

 <h1>Welcome to My Website</h1>

 <p>This is a sample HTML page.</p>

</body>

</html>
```

📝 **Summary Table**

Topic	Description	Example
Internet	Global computer network	Email, Web
WWW	Collection of interlinked web pages	Websites
HTTP	Communication protocol	http://example.com
URL	Address of a web resource	https://google.com
Web Browser	Displays web pages	Chrome, Firefox
Web Server	Stores and serves web pages	Apache, IIS
Web Page	HTML document on web	index.html
HTML	Markup language for web pages	<html>…</html>

🧩 Unit 2: Fundamentals of HTML

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1. 🧱 Basic Structure of an HTML Document

Every HTML document has a specific structure that defines how content is organized.

Structure:

<!DOCTYPE html>

<html>

<head>

 <title>My First Web Page</title>

</head>

<body>

 <h1>Welcome!</h1>

 <p>This is my first HTML page.</p>

</body>

</html>

Explanation:

Tag	Description
<!DOCTYPE html>	Defines the HTML version (HTML5).
<html>	Root element of an HTML document.
<head>	Contains meta information, title, CSS, etc.
<title>	Displays title in browser tab.
<body>	Contains the visible content of the web page.

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2. ✍️ Formatting Text

HTML provides various tags to **format and style** text.

Tag	Description	Example
	Bold text	Bold Text
<i>	Italic text	<i>Italic Text</i>
<u>	Underlined text	<u>Underlined</u>
	Important text (bold by default)	Important
	Emphasized text (italic by default)	Emphasis
<mark>	Highlight text	<mark>Highlighted</mark>
<sup>	Superscript	2nd → 2nd
<sub>	Subscript	H₂O → H_2O
 	Line break	Breaks line
<hr>	Horizontal line	Divides content

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3. 🔤 Font Tag and Attributes (HTML4 — deprecated but still used in basics)

Syntax:

Sample Text

Attributes:

Attribute	Description	Example
face	Font style	Arial, Verdana
size	Text size (1–7)	size="5"
color	Font color	color="red" or color="#ff0000"

(Note: In modern HTML5, CSS is used instead of <font>.)

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4. 🌼 Heading Tags

Used to define headings of different sizes.

Tags: <h1> to <h6>

<h1>Main Heading</h1>

<h2>Sub Heading</h2>

<h3>Small Heading</h3>

Output:
<h1> is largest → <h6> is smallest.

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5. 🖼️ Image Tag and Attributes

Used to display images on a web page.

Syntax:

<img src="image.jpg" alt="Description" width="300" height="200">

Attributes:

Attribute Description

Attribute	Description
src	Path of the image file
alt	Alternate text if image not loaded
width	Image width
height	Image height
border	Adds border around image

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6. 🎨 Background Color and Background Image

Set background color:

<body bgcolor="lightblue">

Set background image:

<body background="bg.jpg">

Using CSS (modern way):

<body style="background-color: lightgreen;">

<body style="background-image: url('bg.jpg');">

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7. 🔊 Inserting Audio and Video Files

Audio Tag:

<audio controls>

 <source src="song.mp3" type="audio/mpeg">

</audio>

Video Tag:

<video width="400" height="300" controls>

 <source src="movie.mp4" type="video/mp4">

</video>

Attributes:

Attribute Description

controls	Adds play/pause buttons
autoplay	Starts automatically
loop	Repeats media
muted	Starts without sound

---

8. 🌀 Marquee Tag and Attributes

Used to create **scrolling text or images** (deprecated but often taught in basics).

Syntax:

<marquee behavior="scroll" direction="left" scrollamount="5">Welcome to My Page!</marquee>

Attributes:

Attribute	Description	Example
behavior	scroll, slide, alternate	behavior="alternate"
direction	left, right, up, down	direction="up"
scrollamount	Speed of scroll	scrollamount="10"
bgcolor	Background color	bgcolor="yellow"

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9. 📃 List Tags – Types of Lists

HTML provides three types of lists:

(a) Ordered List (<ol>)

Numbered list

```
<ol type="1">
 <li>HTML</li>
 <li>CSS</li>
</ol>
```

Types: 1, A, a, I, i

(b) Unordered List (<ul>)

Bulleted list

```
<ul type="circle">
 <li>Apple</li>
 <li>Banana</li>
</ul>
```

Types: disc, circle, square

(c) Definition List (<dl>)

For terms and definitions

```
<dl>
 <dt>HTML</dt>
 <dd>HyperText Markup Language</dd>
</dl>
```

---

10. 🔗 Introduction to Hyperlink

Used to link one web page to another.

Syntax:

```
<a href="https://www.google.com">Visit Google</a>
```

Attributes:

Attribute Description

href   Target URL or file path

target   Opens link (_blank, _self)

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11. 🌍 Types of Hyperlinks

(a) Internal Link

Links to a section within the same page.

\<a href="#section2"\>Go to Section 2\</a\>

…

\<h2 id="section2"\>Section 2 Content\</h2\>

(b) External Link

Links to another website or web page.

\<a href="https://www.wikipedia.org" target="_blank"\>Open Wikipedia\</a\>

📝 Summary Table

Topic	Description	Example
HTML Structure	Defines layout of page	\<html\>...\</html\>
Formatting	Bold, Italic, Underline	\<b\>Bold\</b\>
Font Tag	Sets color, size, face	\<font color="red"\>
Headings	Title levels	\<h1\> to \<h6\>
Image	Displays pictures	\<img src="img.jpg"\>
Background	Color or image	\<body bgcolor="pink"\>
Audio/Video	Media files	\<audio\>, \<video\>
Marquee	Scrolling text	\<marquee\>
Lists	Ordered/Unordered/Definition	\<ol\>, \<ul\>, \<dl\>

Topic	Description	Example
Hyperlinks	Link to pages	<a href="">

🧩 Unit 3: Form Designing Tags and Attributes

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1. 📋 Table Tags & Attributes

Tables are used to display data in **rows and columns**.

Basic Structure:

```
<table border="1">
 <tr>
  <th>Name</th>
  <th>Age</th>
 </tr>
 <tr>
  <td>Sandip</td>
  <td>21</td>
 </tr>
</table>
```

Explanation:

Tag	Description
<table>	Creates a table
<tr>	Table row
<th>	Table header cell (bold and centered)
<td>	Table data cell

Common Table Attributes:

Attribute	Description	Example
border	Sets border thickness	border="2"
cellpadding	Space *inside* cell	cellpadding="5"
cellspacing	Space *between* cells	cellspacing="5"
width	Table width	width="80%"
bgcolor	Background color	bgcolor="lightblue"
align	Alignment of table	align="center"
colspan	Merge columns	<td colspan="2">
rowspan	Merge rows	<td rowspan="2">

Example with Attributes:

<table border="1" cellpadding="5" cellspacing="5" bgcolor="lightyellow" align="center">

 <tr>

  <th colspan="2">Student Info</th>

 </tr>

 <tr>

  <td>Name</td>

  <td>Sandip</td>

 </tr>

</table>

---

2. 🔲 Frame and Frameset

Frames divide the web browser window into **multiple sections**, where each section can load a different web page.

⚠️ Note: Frames and Frameset are deprecated in HTML5 but important for basic theory.

Example:

<frameset cols="50%,50%">

```
  <frame src="menu.html">

  <frame src="content.html">

</frameset>
```

Explanation:

- <frameset> → defines a set of frames (instead of <body>).

- <frame> → displays a separate HTML document.

- **cols** → divides page vertically (columns).

- **rows** → divides page horizontally (rows).

---

3. 🎯 Creating Framesets

Horizontal Frames:

```
<frameset rows="40%,60%">

  <frame src="top.html">

  <frame src="bottom.html">

</frameset>
```

Nested Frames:

```
<frameset cols="30%,70%">

  <frame src="menu.html">

  <frameset rows="50%,50%">

    <frame src="top.html">

    <frame src="bottom.html">

  </frameset>

</frameset>
```

---

4. 🎆 Target Frameset

Used to **open links** in a specific frame.

Example:

```
<!-- main.html -->
```

```
<frameset cols="30%,70%">

 <frame src="menu.html" name="left">

 <frame src="content.html" name="right">

</frameset>
```

```
<!-- menu.html -->

<a href="about.html" target="right">About Us</a>

<a href="contact.html" target="right">Contact</a>
```

Explanation:

- The target attribute of <a> specifies in which frame the link will open.

- target="right" opens the linked page in the frame named "right".

---

5. 📃 Form Tag and Attributes

Forms are used to **collect user input** on a web page.

Syntax:

```
<form action="submit.php" method="post">

 …

</form>
```

Attributes:

Attribute	Description	Example
action	Page or file to handle form data	action="register.php"
method	How data is sent (GET / POST)	method="post"
name	Name of the form	name="studentForm"
target	Where to display response	_blank, _self, etc.
enctype	Encoding type (for file uploads)	multipart/form-data

Methods Difference:

Method	Description	Use
GET	Data visible in URL	For simple searches
POST	Data hidden from URL	For sensitive data

---

6. 🔢 Form Elements

Forms include different **input elements** to collect various types of user data.

(a) Text Box

Used to enter a single line of text.

<input type="text" name="username" placeholder="Enter Name">

Attributes:
type, name, value, placeholder, maxlength

(b) Text Area

Used for multi-line text input.

<textarea name="address" rows="4" cols="30">Enter Address</textarea>

(c) List Box (Select Dropdown)

Used to select one or more options from a list.

<select name="course">

 <option value="html">HTML</option>

 <option value="css">CSS</option>

 <option value="js">JavaScript</option>

</select>

Attributes: name, multiple, size

(d) Radio Button

Used to select **only one option**.

```
<input type="radio" name="gender" value="male"> Male
```

```
<input type="radio" name="gender" value="female"> Female
```

All radio buttons must have the **same name**.

(e) Checkbox

Used to select **multiple options**.

```
<input type="checkbox" name="hobby" value="reading"> Reading
```

```
<input type="checkbox" name="hobby" value="sports"> Sports
```

(f) Submit Button

Used to submit the form data.

```
<input type="submit" value="Submit">
```

(g) Reset Button

Used to clear all entered data.

```
<input type="reset" value="Reset">
```

(h) Password Field

Hides entered text with dots.

```
<input type="password" name="password">
```

(i) Button

Creates a clickable button.

```
<button type="button">Click Me</button>
```

---

7. 🧠 Example: Complete Form

```
<form action="submit.php" method="post">
  <h3>Student Registration Form</h3>
```

Name: <input type="text" name="name">

Password: <input type="password" name="pass">

Gender:

<input type="radio" name="gender" value="male">Male

<input type="radio" name="gender" value="female">Female

Hobbies:

<input type="checkbox" name="hobby" value="sports">Sports

<input type="checkbox" name="hobby" value="music">Music

Course:

<select name="course">

 <option value="html">HTML</option>

 <option value="css">CSS</option>

</select>

Address:

<textarea name="address" rows="3" cols="25"></textarea>

<input type="submit" value="Submit">

<input type="reset" value="Reset">

</form>

📝 **Summary Table**

Topic	Description	Example
Table	Organizes data in rows/columns	<table>
Frameset	Divides window into frames	<frameset cols="50%,50%">
Target Frame	Opens link in specific frame	target="right"
Form	Collects user input	<form>
Textbox	Single-line input	<input type="text">
Textarea	Multi-line input	<textarea>

Topic	Description	Example
Listbox	Dropdown list	<select><option></option></select>
Radio Button	One option	<input type="radio">
Checkbox	Multiple options	<input type="checkbox">
Submit/Reset	Sends or clears data	<input type="submit">

🧩 Unit 4: CSS in HTML

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1. 🎨 Basics of CSS

CSS stands for **Cascading Style Sheets**.
It is used to **style and format** the layout of web pages written in HTML.

Definition:
CSS describes *how HTML elements are to be displayed* on screen, paper, or in other media.

Example:

<p style="color: blue; font-size: 20px;">Hello, CSS!</p>

---

2. 💎 Advantages of CSS

Advantage	Description
Separation of Design & Content	HTML handles structure, CSS handles design.
Consistency	Uniform look across multiple web pages.
Code Reusability	One CSS file can be used by many pages.
Easier Maintenance	Change in one CSS file updates the entire website.
Faster Page Loading	Reduces duplication of style code.
Better Control	More control over layout, fonts, colors, spacing, etc.

---

3. 🌐 Role of CSS in Web Designing

CSS is responsible for the **visual presentation** of web pages — color, layout, fonts, background, and responsiveness.

Role includes:

- Enhancing visual appearance

- Creating responsive (mobile-friendly) designs

- Controlling page layout

- Making web pages attractive and professional

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4. 🧱 CSS Structure and Syntax

Structure:

selector {

  property: value;

}

Example:

h1 {

  color: red;

  font-size: 30px;

}

Explanation:

- **Selector:** HTML element to style (h1)

- **Property:** Style attribute (color)

- **Value:** Setting for the property (red)

- Each declaration ends with a **semicolon (;)**

---

5. 🧩 Types of CSS

There are **three main types** of CSS used in HTML pages:

(a) Inline CSS

Applied directly within an HTML tag using the style attribute.

<p style="color:green; font-size:18px;">This is Inline CSS</p>

Used for: Small, single-element styling.
Disadvantage: Not reusable.

(b) Internal CSS

Defined inside the <style> tag within the <head> section of an HTML document.

<html>

<head>

 <style>

  body { background-color: lightyellow; }

  h1 { color: blue; }

 </style>

</head>

<body>

 <h1>Internal CSS Example</h1>

</body>

</html>

Used for: Styling single-page websites.

(c) External CSS

Defined in a separate .css file and linked to the HTML document.

Example:

<link rel="stylesheet" href="style.css">

style.css

body {

 background-color: lightblue;

```
}
h2 {
  color: darkgreen;
}
```

Used for: Styling multiple web pages with one CSS file.
Best Practice: Preferred for professional websites.

---

6. 🔤 Font Properties in CSS

Used to control the style, size, and appearance of text.

Property	Description	Example
font-family	Sets font style	font-family: Arial, Verdana;
font-size	Sets text size	font-size: 16px;
font-style	Italic or normal	font-style: italic;
font-weight	Boldness	font-weight: bold;
color	Text color	color: red;
text-align	Aligns text	text-align: center;
text-decoration	Underline or none	text-decoration: underline;

Example:

```
p {
  font-family: "Times New Roman";
  font-size: 18px;
  color: purple;
  text-align: justify;
}
```

---

7. 🧭 Introduction to CSS Selectors

Selectors are used to **target HTML elements** for applying styles.

Syntax:

selector { property: value; }

---

8. 🧩 Types of Selectors

(a) Universal Selector (*)

Applies styles to **all elements** in the document.

```
* {
  margin: 0;
  padding: 0;
}
```

(b) Element Selector

Applies style to a specific HTML tag.

```
p {
  color: blue;
}
```

(c) Class Selector (.)

Targets elements with a specific **class** attribute.

```
.highlight {
  background-color: yellow;
}
```

HTML:

```
<p class="highlight">This is highlighted text.</p>
```

(d) ID Selector (#)

Targets an element with a specific **id** attribute.

```
#header {
```

```
  background-color: lightgray;

}
```

HTML:

```
<div id="header">Welcome to My Site</div>
```

(e) Group Selector

Applies same style to multiple elements together.

```
h1, h2, h3 {

  color: navy;

  font-family: Arial;

}
```

📝 Summary Table

Type	Example	Description
Inline CSS	<p style="color:red">	Inside a tag
Internal CSS	<style>p{color:blue}</style>	In head section
External CSS	<link href="style.css">	Linked file
Universal Selector	* {margin:0}	For all elements
Class Selector	.red {color:red}	For specific class
ID Selector	#title {font-size:30px}	For specific ID
Group Selector	h1,h2 {color:blue}	Multiple elements
Font Properties	font-size, font-family, etc.	Controls text style

---

🧠 Example: Combining All CSS Types

```
<!DOCTYPE html>

<html>

<head>
```

```html
<link rel="stylesheet" href="style.css">

<style>

  p { color: green; }

</style>

</head>

<body style="background-color: lightgray;">

  <h1 class="title">Welcome</h1>

  <p>This is Internal CSS Example.</p>

</body>

</html>
```