# **HTML & CSS Theory Exercise**

**Introduction to HTML & CSS.**

1. **What Is HTML?**

* HTML stands For Hyper Text Markup Language.
* It is the standard language used to create the structure of web pages.

**HTML PURPOSE:**

* HTML defines what content appears on a webpages.

- Headings

- Paragraphs

- Images

- Links

- Tables

- Forms

**2. Explain Basic Structure Of An HTML Document.**

**-> Basic Structure of HTML:-**

<!DOCTYPE html>

<html>

<head>

<title>My First Webpage</title>

</head>

<body>

<h1>Welcome to My Website</h1>

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

</body>

</html>

* Explanation:-

<html> → Root element of the page

<head> → Contains page information (title, metadata, CSS links)

<body> → Contains all visible content

<h1> → Heading

<p> → Paragraph

1. **HTML Documents.**

* All Html documents must starts with a documents type declaration : <! DOCTYPE html>.
* The Html Document it self begins with <html> and ends with </html>.

The visible part of the HTML document is between <body> and </body>.

* Example:
* <!DOCTYPE html>  
  <html>  
  <body>  
    
  <h1>My First Heading</h1>  
  <p>My first paragraph.</p>  
    
  </body>  
  </html>

**HTML headings:**

* HTML headings are defined with the <h1>to <h6> tags.
* <h1> defines the most important heading. <h6> defines the least important heading:

**HTML Links:**

* HTML links are defined with the <a> tag.

Example:  
<a href="https://www.amazon.com">This is a link</a>

**HTML Imaes:**

* HTML images are defined with the <img> tag.
* The source file (src), alternative text (alt), width, and height are provided as attributes:

Example:

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

**HTML Elements:**

1. **Html Elements:**

* Html documents are text file made up of HTML elements are defined using HTML Tags.
* HTML tags Are surrounded by two characters < and >.
* Html tags are not sensitive .

1. **HTML Attributes:**

* HTML attributes provides additional information about HTML element. they are written within the opening tag of an element.
* **1. Herf:** Specifies the url for a link in an anchor tag. <a>.
* **2. src:** defines the source of an image in an <img> tag.
* **3. alt**: Provides alternative text for images if they cant be displayed.
* **4. Class:** Assigns One Or More Class Names to an element used for styling or scripting .
* **5.** **ID:** provides a unique identifier for an element often used for styling or Java Script targeting.
* **6.** **Style**: Allows inline css to style an element.

**HTML META Tags**:

1. **Introduction To Meta Tags.**

* Meta tags are HTML elements that provide metadata (information about the webpage) to browsers and search engines.  
  They are placed inside the <head> section of an HTML document and are not visible on the actual webpage.

1. <meta charset=”UTF-8”>

|  |
| --- |
| * Defines the **character encoding** for the webpage (UTF-8 supports all languages). |

|  |
| --- |
|  |

2. <meta name="description" content="This page explains HTML meta tags.">

|  |
| --- |
|  |

* Provides a **short description** of the webpage. Used by search engines.

|  |
| --- |
|  |

3.<meta name=”keywords” content=”HTML, CSS web design, meta tags”>

|  |
| --- |
|  |
| * Gives **keywords** related to the webpage for search engines. | |

|  |
| --- |
|  |

4.<meta name=”viewport” content=”width=device-width, initial-scale=1.0”>

|  |
| --- |
| * Helps make the website **responsive** on mobile and tablet screens.   5. <meta http-equiv="refresh" content=”10"> |

|  |
| --- |
|  |
| * Automatically **refreshes** the webpage every few seconds. | |

|  |
| --- |
|  |

6.<meta name =”author” content=” Chirag Bhure ”>

-> Specifies **Author’s Name**  On The webpage.

**HTML Lists:**

## **Unordered List:**

* An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.
* Example:

<ul>  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>

## **Ordered List:**

* An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.
* Example:

<ol>  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

## **HTML Description Lists:**

* description list is a list of terms, with a description of each term.
* The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term:
* Example:

<dl>  
  <dt>Coffee</dt>  
  <dd>- black hot drink</dd>  
  <dt>Milk</dt>  
  <dd>- white cold drink</dd>  
</dl>

|  |
| --- |
|  |

|  |
| --- |
|  |

**HTML Table**

1. **Introduction To HTML Table.**

* In HTML, a table is used to display data in rows and columns. It organizes information neatly, making it easy to read and compare. Tables are often used for showing data like marksheets, timetables, price lists, or any structured information.

1. **Basic Structure of an HTML Table**

* The <table> tag is used to create a table.  
  A table is divided into rows (<tr>), and each row is divided into cells (<td> for data cells, <th> for header cells).
* **Syntax:**

<table>

<tr>

<th>Header 1</th>

<th>Header 2</th>

</tr>

<tr>

<td>Data 1</td>

<td>Data 2</td>

</tr>

</table>

1. **HTML Table Tags and Their Uses**

| **Tag** | **Description** |
| --- | --- |
| <table> | Defines the start and end of a table. |
| <tr> | Defines a table row. |
| <th> | Defines a table header cell (bold and centered by default). |
| <td> | Defines a table data cell. |
| <caption> | Adds a title or caption to the table. |
| <thead> | Groups header content in a table. |
| <tbody> | Groups the body content in a table. |
| <tfoot> | Groups footer content in a table. |
| <colgroup> | Specifies a group of columns for formatting. |
| <col> | Defines attributes for individual columns. |

1. **Attributes In HTML Tables.**

| **Attribute** | **Description** |
| --- | --- |
| border | Defines the border around the table cells. |
| cellpadding | Adds space inside each cell between the cell border and content. |
| cellspacing | Adds space between individual cells. |
| width | Sets the width of the table or cell. |
| align | Aligns the table on the page (left, right, center). |
| bgcolor | Sets background color of the table or cell. |

**Example:**

<table border="2" cellpadding="5" cellspacing="5">

<caption>Student Marks</caption>

<tr>

<th>Roll No</th>

<th>Name</th>

<th>Marks</th>

</tr>

<tr>

<td>1</td>

<td>Chirag</td>

<td>89</td>

</tr>

<tr>

<td>2</td>

<td>Raj</td>

<td>85</td>

</tr>

</table>

1. **Advantages of HTML Tables**
2. Organizes data neatly in rows and columns.
3. Easy to compare related data.
4. Supports styling using CSS.
5. Can include captions, headers, and colors for better presentation.

**CSS – Cascading Style Sheets**

**Introduction CSS (Cascading Style Sheets) :**

* CSS is a style sheet language used to control the appearance and layout of web pages.
* It allows web designers to apply colors, fonts, spacing, and layouts to HTML documents in a simple and consistent way.
* Full Form CSS stands for Cascading Style Sheets.
* Purpose of CSS To separate content (HTML) from presentation (style), make web pages attractive, and apply consistent styles across multiple pages.

**Advantages of CSS:**

1. Saves time – one CSS file can style multiple pages.

2. Improves page speed – reduces repeated styling in HTML.

3. Easier maintenance – changes reflect everywhere.

4. Better design and accessibility.

**Types of CSS:**

1. **Inline CSS:**

* **Definition**:  
  Inline CSS is written directly inside an HTML tag using the style attribute.  
  It affects only that specific element.
* **Syntax:**

<tagname style="property: value;">

* **Advantages:**
* Easy and quick for single element styling.
* Useful for testing or small changes.
* **Disadvantages:**
* Difficult to manage for large websites.
* Styles cannot be reused.

1. **Internal CSS:**

**-> Definition:**  
Internal CSS is written inside the <style> tag in the <head> section of an HTML page.  
It is used to style a single web page.

**-> Syntax:**

<head>

<style>

selector {

property: value;

}

</style>

</head>

* **Advantages:**
* Easy to manage for one page.
* No need for an external file.
* **Disadvantages:**
* Not reusable across multiple pages.
* Increases page size slightly.

1. **External CSS**

**--Definition**:  
External CSS is written in a separate .css file and linked to the HTML document using the <link> tag.  
It is used when you want to apply the same style to multiple web pages.

**--Syntax:**

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

**--Advantages:**

* Styles can be reused across many pages.
* Reduces HTML code and improves loading speed.
* Makes website design consistent.

**--Disadvantages:**

* Requires an extra file to be loaded.
* If the CSS file is missing, the page will appear unstyled.

**Introduction SQL**

-> Structured Query Language is a standard language used to store, manage, and manipulate data in a relational database.

-> SQL is the backbone of database systems. It organizes, secures, and manages data efficiently, making it essential for modern applications

-> It allows users to create databases, insert data, update records, delete data, and retrieve information efficiently. Full Form SQL stands for Structured Query Language.

**Purpose of SQL**

--To create and manage database structures, insert, update, delete, and retrieve data, control access, and maintain relationships between tables.

**Advantages of SQL**

1. Easy to learn and use.

2. Handles large data efficiently.

3. Supports data integrity and consistency.

4. Provides a standardized method.

5. Works with many database systems like MySQL, Oracle, etc.

**Features of SQL**

SQL Includes Data Definition Language (DDL), Data Manipulation Language (DML), Data Control Language (DCL), and Transaction Control Language (TCL).

**DDL – Data Definition Language**

**--DDL**  Defines database structure.

Example: CREATE TABLE Students (RollNo INT, Name VARCHAR(50), Marks INT).

**DML – Data Manipulation Language**

**--DML** Manages data inside tables.

Example: INSERT INTO Students VALUES (1, 'Chirag', 89); UPDATE Students SET Marks = 90 WHERE RollNo = 1; DELETE FROM Students WHERE RollNo = 1;

**DQL – Data Query Language**

**--DQL** Retrieves data from tables.

Example: SELECT \* FROM Students; SELECT Name, Marks FROM Students WHERE Marks > 80;

**DCL – Data Control Language**

**--DCL** Controls access to data.

Example: GRANT SELECT ON Students TO user1; REVOKE SELECT ON Students FROM user1;

**TCL – Transaction Control Language**

**--TCL** Manages transactions.

Example: COMMIT; ROLLBACK; SAVEPOINT A;

**SQL Clauses**

--WHERE, ORDER BY, GROUP BY, HAVING – used for filtering, sorting, grouping, and conditional selection of data.

**SQL Constraints**

--Rules applied to columns for data accuracy. NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, CHECK, DEFAULT.

**SQL Operators**

--Arithmetic (+, -, \*, /), Comparison (=, , <=, >=, <>), Logical (AND, OR, NOT).

**SQL Functions**

--Aggregate (COUNT, SUM, AVG, MIN, MAX), String (UPPER, LOWER, LENGTH), Date (NOW, CURDATE). Exercises 1. Create table Students (RollNo, Name, Marks)