

Computer Science Study Material

HTML BASICS

HyperText Markup Language

Designed for Class 8
Beginner's Guide to Web Development

1. Introduction to HTML

Welcome to the world of web development! Every time you visit a website like Google, YouTube, or Wikipedia, you are interacting with pages built using **HTML**.

What is HTML?

HTML stands for **HyperText Markup Language**. It is not a programming language like Java or Python; instead, it is a **markup language** used to describe the structure of web pages.

- **HyperText:** Refers to the "links" that connect web pages to one another.
- **Markup:** Refers to the special "tags" used to annotate text, images, and other content so that web browsers know how to display them.

Importance of HTML

HTML is the backbone of the Internet. Without HTML, we wouldn't have a way to display text or images in an organized way on the web. It's the first step for anyone who wants to become a web designer or developer.

2. Basics of Web Pages

What is a Website?

A website is a collection of related web pages linked together under a single domain name (like `www.myschool.com`). Each page is essentially an HTML document stored on a powerful computer called a **Web Server**.

How Web Pages Work

1. You type a URL into your **Web Browser** (Chrome, Firefox, Edge).
2. The browser sends a request to the web server.
3. The server sends back an HTML file.

4. The browser reads the HTML code and "renders" (draws) the page for you to see.

3. Structure of an HTML Document

Every HTML document follows a standard "skeleton" or structure. Even the most complex websites start with these basic tags:

```
<!DOCTYPE html>
<html>
  <head>
    <title>My First Web Page</title>
  </head>
  <body>
    Hello, World! This is my first page.
  </body>
</html>
```

Key Tags Explained:

- `<!DOCTYPE html>`: Tells the browser that this is an HTML5 document.
- `<html>`: The root element that wraps all the content on the page.
- `<head>`: Contains meta-information (data about the page) like the title, which appears in the browser tab.
- `<title>`: Sets the name of the page in the browser tab.
- `<body>`: The most important part! Everything you see on the screen (text, images, videos) goes here.

4. HTML Tags and Elements

An HTML **element** is defined by a start tag, some content, and an end tag.

Opening and Closing Tags

Most tags come in pairs:

- **Opening Tag:** `<tagname>` (e.g., `<p>`)
- **Closing Tag:** `</tagname>` (e.g., `</p>`) — Notice the forward slash `/`!

Empty Tags

Some tags don't have a closing tag because they don't wrap any content. These are called **Empty Tags**. Examples include `
` (line break) and `<hr>` (horizontal rule).

Exam Tip: Remember that HTML tags are **not case-sensitive**. `<BODY>` is the same as `<body>`. However, the World Wide Web Consortium (W3C) recommends using lowercase.

5. Text Formatting Tags

Formatting tags help us make the text look pretty and organized.

Headings (h1 to h6)

HTML has six levels of headings. `<h1>` is the largest/most important, and `<h6>` is the smallest.

```
<h1>Main Heading</h1>
<h2>Sub-heading</h2>
<h3>Minor Heading</h3>
```

Basic Formatting

Tag	Description	Example
<code><p></code>	Paragraph	Starts a new block of text.
<code></code>	Bold	Makes text thicker.
<code><i></code>	Italic	<i>Makes text slanted.</i>
<code><u></code>	Underline	<u>Draws a line under text.</u>
<code>
</code>	Line Break	Forces a new line.
<code><hr></code>	Horizontal Rule	Creates a horizontal divider line.

6. Lists in HTML

Lists are used to group related items together.

Unordered Lists (Bullet Points)

Used for items where order doesn't matter.

```
<ul>
  <li>Milk</li>
  <li>Eggs</li>
  <li>Bread</li>
</ul>
```

Ordered Lists (Numbered)

Used for steps or rankings.

```
<ol>
  <li>Wake up</li>
  <li>Brush teeth</li>
  <li>Get ready</li>
</ol>
```

7. Links in HTML

The "Hypertext" part of HTML comes from links. We use the **anchor tag** (`<a>`) to create them.

```
<a href="https://www.wikipedia.org">Visit Wikipedia</a>
```

- **href:** Stands for "hypertext reference". It specifies the destination address.
- The text between the tags ("Visit Wikipedia") is what the user clicks on.

8. Images in HTML

To add pictures, we use the `` tag. This is an empty tag (no closing tag needed).

```

```

Common Attributes:

- **src:** "Source" — Path to the image file.
- **alt:** "Alternative text" — Shows if the image fails to load (good for accessibility).
- **width / height:** Sets the size of the image in pixels.

9. Tables in HTML

Tables are great for displaying data in rows and columns.

```
<table border="1">
  <tr>
    <th>Student Name</th>
    <th>Grade</th>
  </tr>
  <tr>
    <td>Rahul</td>
    <td>A</td>
  </tr>
  <tr>
    <td>Sana</td>
    <td>B</td>
  </tr>
</table>
```

Tags inside a Table:

- `<table>`: Main container.
- `<tr>`: Table Row.
- `<th>`: Table Header (bold and centered by default).
- `<td>`: Table Data (regular cell content).

10. Forms in HTML (Introduction)

Forms are used to collect information from users (like a login page or sign-up sheet).

```
<form>
  Name: <input type="text"> <br>
  Password: <input type="password"> <br>
  <button type="submit">Login</button>
</form>
```

Basic Elements:

- `<form>`: Defines the form area.
- `<input type="text">`: Creates a one-line text box.
- `<input type="password">`: Hides characters as they are typed.
- `<button>`: A clickable button to submit the data.

11. Attributes in HTML

Attributes provide extra information about an element. They are always specified in the **opening tag**.

- **id**: A unique name for an element.
- **class**: A name used to group multiple elements (often for styling).
- **style**: Used to add CSS directly to a tag (e.g., `style="color:red;"`).
- **href** and **src**: As discussed earlier, they define links and image paths.

12. Basic HTML Page Example

Here is a complete piece of code that combines many things we've learned. Try typing this into Notepad or TextEdit and save it as `index.html`.

```
<!DOCTYPE html>
<html>
<head>
  <title>Class 8 Profile</title>
</head>
<body>
  <h1>Welcome to My Profile</h1>
  <hr>
  <p>My name is <b>Alex</b> and I am learning HTML.</p>

  <h2>My Hobbies</h2>
  <ul>
    <li>Coding</li>
    <li>Football</li>
    <li>Reading</li>
  </ul>

  <h2>Favorite Website</h2>
  <p>I really like <a href="https://code.org">Code.org</a>!</p>

  <h2>Contact Me</h2>
  <form>
    Message: <input type="text">
    <button>Send</button>
  </form>
</body>
</html>
```

13. Common Mistakes and Tips

1. **Missing Tags:** Always make sure you close your tags. If you open a `` but don't close it with ``, your whole page might turn bold!
2. **Wrong Nesting:** Close the inner tag before the outer tag.
Correct: `<i>Text</i>`
Wrong: `<i>Text</i>`
3. **Saving Files:** You must save your files with the `.html` or `.htm` extension. If you save as `.txt`, the browser won't run it.

14. Practical Exercises

Task 1: Creating Your First Page

Create an HTML file that includes a Main Heading, a Sub-heading, and a descriptive paragraph about your favorite sport.

Task 2: Adding Media

Add an image of a computer and create a clickable link underneath it that leads to a news website.

Task 3: Making a Schedule

Create a simple table with 2 columns: "Day" and "Subject". List your school subjects for Monday through Wednesday.

15. Summary and Revision Notes

- **HTML** is used to structure content for the web.
- Tags are the building blocks; they usually come in **pairs**.
- The `<body>` is where the **visible** content lives.
- `<h1>` to `<h6>` are for headings.
- `<a>` is for **links** and `` is for **images**.
- `` and `` create **lists**.

- Attributes like **src**, **href**, and **alt** provide extra details.

Final Message: Don't be afraid to experiment! The best way to learn HTML is to try writing pieces of code, saving them, and checking them in your browser. Happy coding!