Complete HTML Notes

□ **HTML (HyperText Markup Language)**

HTML is the standard markup language for creating Web pages.

□ **What is HTML?**

- **HTML** stands for **Hyper Text Markup Language**
- HTML is the standard markup language for creating **Web pages**
- HTML **describes the structure** of a Web page
- HTML elements tell the browser **how to display the content**

□ **A Simple HTML Document**

```html
<!DOCTYPE html>
<html>
<head>
    <title>Page Title</title>
</head>
<body>
    <h1>My First Heading</h1>
    <p>My first paragraph.</p>
</body>
</html>
```

□ **Example Explained**

- **`<!DOCTYPE html>`** → Tells the browser "This is an HTML5 page"
  - The `<!DOCTYPE>` declaration represents the document type
  - Helps browsers to display web pages correctly
  - Must only appear once, at the top of the page

- **`<html>`** → The root element of an HTML page

- **`<head>`** → Hidden part (title, links, metadata)

- **`<title>`** → Specifies a title for the HTML page (shown in browser's title bar)

- **`<body>`** → Visible part (what users actually see)

- **`<h1>`** → Defines a large heading

- **`<p>`** → Defines a paragraph

🔵 **HTML Headings**

HTML headings are defined with the `<h1>` to `<h6>` tags:

```html
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>
```

- `<h1>` defines the **most important** heading
- `<h6>` defines the **least important** heading

🔵 **HTML Paragraphs**

HTML paragraphs are defined with the `<p>` tag:

```html
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>
```

🔵 **HTML Links**

The `<a>` tag is used to create links (anchors) in HTML:

```html
<a href="https://www.example.com">This is a link</a>
<a href="https://www.google.com">Google</a>
<a href="about.html">About Us</a>
```

- **`<a>`** → Anchor tag
- **`href`** → Hypertext Reference attribute (specifies the link destination)

🔵 **HTML Images**

The `<img>` tag is used to embed images in an HTML page:

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

- **`src`** → Source file path
- **`alt`** → Alternative text
- **`width`** & **`height`** → Size attributes

🔖 **HTML Attributes**

All HTML elements can have attributes:

- **`href`** attribute of `<a>` → Specifies the URL
- **`src`** attribute of `<img>` → Specifies the image path
- **`width`** & **`height`** attributes of `<img>` → Provide size information
- **`alt`** attribute of `<img>` → Provides alternate text
- **`style`** attribute → Used to add styles to an element

📋 **Types of Lists in HTML**

1. **Unordered List** - uses bullets (•)
```html
<h2>My Shopping List</h2>
<ul>
    <li>Milk</li>
    <li>Bread</li>
    <li>Eggs</li>
    <li>Fruits</li>
</ul>
```

Types: `disc` (default), `circle`, `square`
```html
<ul type="square">
```

2. **Ordered List** - uses numbers (1, 2, 3)
```html
<h2>My Morning Routine</h2>
<ol>
    <li>Wake up</li>
    <li>Brush my teeth</li>
    <li>Eat breakfast</li>
    <li>Go for a walk</li>
</ol>
```

Types:
- `1` → numbers (default)
- `A` → uppercase letters
- `a` → lowercase letters

- `I` → Roman numerals
- `i` → small Roman numerals

```html
<ol type="A">
```

3. **Description List** - used for definitions
```html
<h2>HTML Terms</h2>
<dl>
    <dt>HTML</dt>
    <dd>HyperText Markup Language - used to structure web pages.</dd>

    <dt>CSS</dt>
    <dd>Cascading Style Sheets - used to style web pages.</dd>
</dl>
```

□ **Memory Trick**
Type	Tag	Use	Symbol
Unordered	`<ul>`	Bullets list	•
Ordered	`<ol>`	Numbered list	1,2,3
Description	`<dl>`	Term + meaning	□

□ **Common HTML Tags**

Text Formatting
```html
<b>Bold text</b>
<strong>Important bold text</strong>
<i>Italic text</i>
<u>Underlined text</u>
<mark>Highlighted text</mark>
<small>Smaller text</small>
<del>Deleted text</del>
<br> <!-- Line Break -->
<hr> <!-- Horizontal Line -->
```

□ **Division & Span**

`<div>` - Block Element
```html
<div style="background-color: lightblue; padding: 10px; margin: 10px;">
    <h2>Welcome to My Website</h2>
    <p>This section has a blue background!</p>
```

```
</div>
```

`<span>` - Inline Element
```html
<p>Hello, my name is <span style="color: red;">Bala</span> and I love.</p>
```

Difference between `<div>` and `<span>`
Feature	`<div>`	`<span>`
Type	Block-level	Inline
Use	Group big sections	Style small parts of text
Line Break	Starts on new line	Stays in same line

□ Easy Memory Tip:
- `<div>` → "Divide the page into boxes"
- `<span>` → "Span a few words only"

□ **HTML Tables**

Basic Table Structure
```html
<table border="1">
    <tr>
        <th>Name</th>
        <th>Age</th>
        <th>City</th>
    </tr>
    <tr>
        <td>Bala</td>
        <td>21</td>
        <td>Chennai</td>
    </tr>
    <tr>
        <td>Kiran</td>
        <td>22</td>
        <td>Madurai</td>
    </tr>
</table>
```

Table Tags
Tag	Meaning	Description
`<table>`	Table	Main container
`<tr>`	Table Row	Creates a row
`<th>`	Table Header	Creates heading cells
`<td>`	Table Data	Creates normal data cells

Table Attributes
```html
<table border="1" cellpadding="10" cellspacing="5" align="center" width="60%">
```

Attribute	Meaning	Example
`border`	Adds border around cells	`border="1"`
`cellpadding`	Space inside each cell	`cellpadding="10"`
`cellspacing`	Space between cells	`cellspacing="5"`
`align`	Centers the table	`align="center"`
`width`	Makes table wider/narrower	`width="60%"`

Advanced Table Structure
```html
<table border="1" cellpadding="8" width="70%">
   <thead>
      <tr>
         <th>Subject</th>
         <th>Marks</th>
      </tr>
   </thead>
   <tbody>
      <tr>
         <td>Math</td>
         <td>95</td>
      </tr>
      <tr>
         <td>Science</td>
         <td>88</td>
      </tr>
   </tbody>
   <tfoot>
      <tr>
         <th>Total</th>
         <th>183</th>
      </tr>
   </tfoot>
</table>
```

□ Think of:
- `<thead>` → Table Head (top)
- `<tbody>` → Table Body (middle)
- `<tfoot>` → Table Foot (bottom)

□ **HTML Forms**

Simple Login Form
```html
```

```
<form>
    <label>Username:</label>
    <input type="text"><br><br>

    <label>Password:</label>
    <input type="password"><br><br>

    <button type="submit">Login</button>
</form>
```

Registration Form
```html
<form>
    <h2>Registration Form</h2>

    <label>Full Name:</label>
    <input type="text" placeholder="Enter your full name"><br><br>

    <label>Email:</label>
    <input type="email" placeholder="Enter your email"><br><br>

    <label>Password:</label>
    <input type="password" placeholder="Enter password"><br><br>

    <label>Gender:</label>
    <input type="radio" value="male"> Male
    <input type="radio" value="female"> Female<br><br>

    <label>Choose your city:</label>
    <select name="city">
        <option>Chennai</option>
        <option>Madurai</option>
        <option>Coimbatore</option>
    </select><br><br>

    <label>Comments:</label><br>
    <textarea placeholder="Enter your comments here"></textarea><br><br>

    <input type="checkbox" name="agree"> I agree to terms & conditions<br><br>

    <button type="submit">Register</button>
    <button type="reset">Clear</button>
</form>
```

Common Form Elements
Tag	Purpose	Example
`<form>`	Main container	`<form>...</form>`
`<label>`	Label for input	`<label>Name:</label>`
`<input>`	User input	`<input type="text">`

`<textarea>`	Longer text	`<textarea></textarea>`
`<select>`	Dropdown list	`<select><option>...</option></select>`
`<button>`	Submit/reset	`<button>Submit</button>`

Common Input Types
```html
<!-- Text Input -->
<label>Name:</label>
<input type="text" placeholder="Enter your name">

<!-- Password Input -->
<label>Password:</label>
<input type="password" placeholder="Enter your password">

<!-- Email Input -->
<label>Email:</label>
<input type="email" placeholder="Enter your email">

<!-- Number Input -->
<label>Age:</label>
<input type="number" min="1" max="100">

<!-- Date Input -->
<label>Birthday:</label>
<input type="date">

<!-- Radio Buttons -->
<label>Gender:</label><br>
<input type="radio" name="gender" value="male"> Male
<input type="radio" name="gender" value="female"> Female

<!-- Checkboxes -->
<label>Hobbies:</label><br>
<input type="checkbox" value="reading"> Reading
<input type="checkbox" value="music"> Music

<!-- File Input -->
<label>Upload your photo:</label>
<input type="file">

<!-- Color Picker -->
<label>Pick your favorite color:</label>
<input type="color">

<!-- Range Slider -->
<label>Volume:</label>
<input type="range" min="0" max="100">
```

```html
<!-- Submit Button -->
<input type="submit" value="Submit Form">

<!-- Reset Button -->
<input type="reset" value="Clear All">
```

Input Attributes
```html
<form>
    <label>Name:</label>
    <input type="text" placeholder="Enter your name"><br><br>

    <label>Username:</label>
    <input type="text" value="Bala"><br><br>

    <label>Email:</label>
    <input type="email" placeholder="Enter your email" required><br><br>

    <label>Country:</label>
    <input type="text" value="India" readonly><br><br>

    <label>Phone:</label>
    <input type="text" value="9876543210" disabled><br><br>

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

Attribute	Meaning	Example
`placeholder`	Shows hint text	`placeholder="Enter name"`
`value`	Sets default value	`value="Bala"`
`required`	Makes field mandatory	`required`
`readonly`	Can't edit, only view	`readonly`
`disabled`	Makes input inactive	`disabled`

□ **Media Tags**

Video Tag
```html
<video width="400" controls>
    <source src="movie.mp4" type="video/mp4">
    Your browser does not support the video tag.
</video>
```

Video Attributes:
Attribute	Meaning	Example

`controls`	Adds play/pause buttons	`<video controls>`
`autoplay`	Starts automatically	`<video autoplay>`
`loop`	Repeats forever	`<video loop>`
`muted`	Starts with no sound	`<video muted>`
`poster`	Shows image before video	`poster="thumbnail.jpg"`

Audio Tag
```html
<audio controls>
    <source src="music.mp3" type="audio/mpeg">
    Your browser does not support the audio element.
</audio>
```

Iframe Tag
```html
<iframe src="https://www.youtube.com/embed/VIDEO_ID" width="560" height="315"></iframe>
<iframe src="https://www.google.com/maps/embed?pb=..." width="600" height="450"></iframe>
```

☐ **HTML Semantic Tags**

Semantic vs Non-semantic
Example	Tag	Meaning
☐ Non-semantic	`<div>`, `<span>`	Doesn't tell content purpose
☐ Semantic	`<header>`, `<footer>`, `<article>`	Tells content purpose

Common Semantic Tags
Tag	Meaning	Real-Life Example
`<header>`	Top section (logo, nav)	Newspaper name at top
`<nav>`	Navigation links	Menu bar
`<main>`	Main content area	Main news articles
`<section>`	Section of page	Sports section
`<article>`	Independent content	One news article
`<aside>`	Side info	Ads or related links
`<footer>`	Bottom part	Contact, copyright info

Complete Semantic Example
```html
<!DOCTYPE html>
<html>
<head>
    <title>Semantic HTML Example</title>
</head>
<body>

    <header>
        <h1>☐ Bala News</h1>
```

```
    <nav>
        <a href="#">Home</a> |
        <a href="#">Sports</a> |
        <a href="#">Tech</a>
    </nav>
  </header>

  <main>
    <section>
        <h2>Sports News</h2>
        <article>
            <h3>□ India Wins Cricket Match!</h3>
            <p>India beats Australia by 5 wickets in exciting final.</p>
        </article>
    </section>

    <section>
        <h2>Technology News</h2>
        <article>
            <h3>□ New AI Breakthrough</h3>
            <p>Scientists create AI that explains code like a teacher!</p>
        </article>
    </section>
  </main>

  <aside>
    <h4>Advertisement</h4>
    <p>Buy your cricket gear here!</p>
  </aside>

  <footer>
    <p>© 2025 Bala News | Contact: info@bala-news.com</p>
  </footer>

</body>
</html>
```

□ Why Use Semantic Tags?
- □ **Easier to understand** your HTML
- □ **Helps SEO** (search engines understand content better)
- □ **Improves Accessibility** (for screen readers)
- □ **Makes code clean and organized**

□ **Conclusion**

These comprehensive HTML notes cover all fundamental concepts from basic structure to advanced semantic elements. Practice each concept with examples to build strong HTML foundation!