

# **Internet Technology and Web Design (BIT122/BS)**

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## **WEEK 2**

### **Objectives:**

- Understand the basic structure of an HTML document.
- Learn about essential HTML tags and elements.
- Practice creating a simple web page using HTML.
- Get familiar with HTML5 features.

### **Materials Needed:**

- ☐ Computer with a text editor (e.g., Notepad++, VS Code) and a web browser.

### **Outline:**

#### ☐ **Introduction to HTML**

##### ☐ **Definition and Purpose**

##### ☐ What is HTML?

It's the standard language for creating web pages. It provides the structure and content of a webpage.

##### ☐ The role of HTML in web development.

HTML is used to define headings, paragraphs, links, images, and other elements on a web page.

#### ☐ **HTML Document Structure**

##### ☐ Basic syntax and structure of an HTML document.

- ★ Every HTML document starts with the `<!DOCTYPE html>` declaration to specify the document type and version of HTML (HTML5).
- ★ `<html>` is the root element that contains the entire HTML document.
- ★ `<head>` contains meta-information about the document (title, character set, links to stylesheets).
- ★ `<title>` specifies a title for the HTML page
- ★ `<body>` contains the actual content that is displayed on the web page.

☐ Overview of `<!DOCTYPE>`, `<html>`, `<head>`, and `<body>` tags.

```
<!DOCTYPE html>

<html>

<head>

    <title>My First Web Page</title>

</head>

<body>

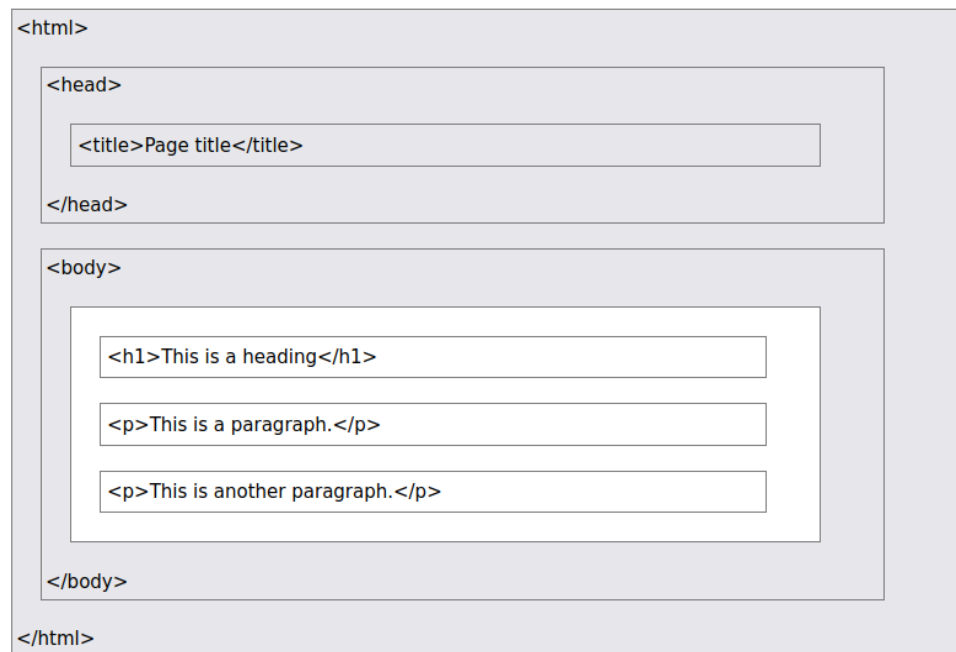
    <h1>Welcome to My Web Page</h1>

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

</body>

</html>
```

## HTML Page Structure



### ☐ Basic HTML Tags

#### ☐ Headings and Paragraphs

- ☐ `<h1>` to `<h6>` for headings. `<h1>` is the largest and `<h6>` is the smallest.
- ☐ `<p>` for paragraphs. It separates text into distinct blocks.

#### ☐ Text Formatting

- ☐ Bold (`<b>`, `<strong>`), Italic (`<i>`, `<em>`), Underline (`<u>`). Implies importance

```
<b>This is bold text.</b>  
  
<strong>This is strong text.</strong>
```

```
<p>You <em>have</em> to hurry up!</p>

<p>We <i>cannot</i> keep it!</p>

<u>Undelined Text</u>
```

## ☐ HTML Comments

```
<!--This is a comment-->
```

## ☐ Lists

- ☐ Ordered lists (<ol>) and unordered lists (<ul>).

```
<ol>

  <li>First item</li>

  <li>Second item</li>

</ol>
```

- ☐ List items (<li>).

```
<ul>

  <li>First item</li>

  <li>Second item</li>

</ul>
```

## ☐ Links and Images

### ☐ Creating Links

- ☐ <a> anchor tag for creating hyperlinks.
- ☐ href attribute for specifying URL links.

```
<a href="https://www.cavendish.ac.ug">Visit us</a>
```

☐ **Adding Images**

- ☐ `<img>` tag used.
- ☐ `src` attribute for image source.
- ☐ `alt` attribute for alternative text.

```

```

- ☐ **HTML Forms** (used to collect user input. The user input is most often sent to a server for processing).

Example of Form:

## HTML FORMS

First Name:

Last Name:

☐ **Form Elements**

- ☐ `<form>` tag.
- ☐ Input types: text, password, checkbox, radio, and submit.

☐ **Form Attributes**

- ☐ `action` and `method` attributes.

☐ **Getting Started with the Form**

```
<!DOCTYPE html>

<html>

  <head>

    <title>my Web</title>

  </head>
```

```
<body>

    <form action="/submit" method="post">

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

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

    </form>

</body>

</html>
```

## □ Basic Form Example

```
<!DOCTYPE html>

<html>

    <head>

        <title>my Web</title>

    </head>

    <body>

        <h2>HTML FORMS</h2>

        <form action="/submit" method="post">

            <label for="fname">First Name:</label><br>

            <input type="text" id="fname" name="fname"
value="Jake"><br>

            <label for="lname">Last Name:</label><br>

            <input type="text" id="lname" name="lname"
value="Hedges"><br><br>
```

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

</form>

</body>

</html>
```

## □ HTML5 Features

### □ New Semantic Elements

HTML5 introduced several semantic elements that give meaning to the structure of the web content. They are designed to make HTML more readable, both for developers and browsers or assistant technologies (such as screen readers). They help define different parts of a webpage, allowing search engines and other tools to better understand and categorize the content.

#### □ `<header>`, `<footer>`, `<article>`, `<section>`, `<nav>`.

`<header>`Header content`</header>`

`<nav>`Navigation links`</nav>`

`<article>`Article content`</article>`

`<section>`Section content`</section>`

`<footer>`Footer content`</footer>`

### Why Use Semantic Elements?

- **Improved Accessibility:** Assistive technologies (like screen readers) can interpret the content more effectively, providing better navigation for users with disabilities.
- **SEO Benefits:** Search engines like Google can better understand the content of a webpage, leading to better indexing and potentially higher rankings.

- **Clarity in Code:** Using semantic tags makes the code more meaningful. For example, it's clear what is the header, the navigation, and the main content, as opposed to using non-semantic tags like `<div>` or `<span>`.
- **Responsive and Modular Design:** With semantic elements, web pages are easier to design and style, especially for responsive layouts. You can target specific elements like `<header>` or `<article>` in CSS or JavaScript, improving code modularity.

## Usage of the Key Semantic Elements in HTML5

### `<header>`

- ☐ Represents the introductory content or a group of navigation links at the top of a webpage or section.
- ☐ It typically contains headings, logo, or navigational elements.

### Snippet

```
<header>

  <h1>Welcome to My Website</h1>

  <nav>

    <a href="#home">Home</a>

    <a href="#about">About</a>

    <a href="#contact">Contact</a>

  </nav>

</header>
```



## <nav>

- ☐ Defines a section of the webpage intended for navigation, typically containing links to other parts of the site.

### Snippet

```
<nav>

  <ul>

    <li><a href="#home">Home</a></li>

                                <li><a
href="#services">Services</a></li>

                                <li><a
href="#contact">Contact</a></li>

    </ul>

</nav>
```

## <article>

- ☐ Represents a standalone piece of content that could be distributed independently, such as a blog post, news article, or forum post.

### Snippet

```
<article>

  <h2>How to Learn HTML5</h2>

  <p>HTML5 is the latest version of HTML,
and it brings new semantic elements...</p>

</article>
```

## <section>

- ❑ Defines a section of a document, typically with a thematic grouping of content. It is often used to break up larger pieces of content into smaller, meaningful parts.

### Snippet

```
<section>

  <h2>About Us</h2>

  <p>We are a company dedicated to providing
quality web development services.</p>

</section>
```

## <footer>

- ❑ Represents the footer of a webpage or section. It typically contains information like copyright details, contact information, or links to terms of service.

### Snippet

```
<footer>

  <p>&copy; 2024 MyWebsite. All rights
reserved.</p>

  <p>Contact us: info@cavendish.ac.ug</p>

</footer>
```

## <aside>

- ❑ Represents content that is indirectly related to the main content. This is often used for sidebars or additional information like quotes or links.

### Snippet

```
<aside>

  <h3>More Articles</h3>

  <ul>

    <li><a href="#article1">Javascript vs
Python</a></li>

    <li><a href="#article2">What is new in
HTML5</a></li>

  </ul>

</aside>
```

### <main>

- ❑ Specifies the main content of the webpage that is unique and relevant to the document. It should only appear once in a page.

### Snippet

```
<main>

  <h1>Welcome to My Blog</h1>
```

```
<p>This is where the main content of the  
blog is displayed.</p>  
  
</main>
```

## <figure> and <figcaption>

- ❑ <figure> is used to group media content such as images, diagrams, or code listings, and <figcaption> provides a caption for that content.

### Snippet

```
<figure>  
  
      
  
    <figcaption>Figure 1: A beautiful  
sunset.</figcaption>  
  
</figure>
```

## ❑ Non-Semantic vs. Semantic Elements

Before HTML5, many web developers used generic elements like <div> and <span> to structure their content. While these elements are still valid, they don't provide any semantic meaning.

### Non-Semantic Snippet

```
<div class="header">Header content</div>  
  
<div class="nav">Navigation links</div>  
  
<div class="article">Main article</div>
```

## Semantic Snippet

```
<header>Header content</header>

<nav>Navigation links</nav>

<article>Main article</article>
```

### ☐ Multimedia Elements

- ☐ `<audio>` and `<video>` tags.

These tags enable us embed multimedia files.

*Snippet Example:*

```
<h2>Multimedia Elements</h2>

    <audio controls>

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

        Your Browser doesn't support the audio element.

    </audio>

    <br><br>

    <video width="320" height="240" controls>

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

        Your browser does not support the video tag.

    </video>
```

### ☐ HTML5 Forms

- ☐ New input types: email, date, number, etc.
- ☐ Validation attributes.

```
<input type="email" name="email" placeholder="Enter your email">

<input type="date" name="birthdate">

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

## ☐ Summary

- ☐ HTML document structure, basic tags, links, images, forms, and HTML5 features.

## ☐ Materials Needed:

- ☐ Computer with a text editor (e.g., Notepad++, VS Code) and a web browser.

## Assignment 1:

- **Task:** Create a personal web page that demonstrates your understanding of basic HTML structure, including the use of semantic elements. Your page should include the following components:
  - A heading with your full name. (Hint: `<h1>Your Name</h1>`)
  - A paragraph introducing yourself. Mention your interests, hobbies, or any other relevant information. (Hint: `<p>About yourself.</p>`)
  - An image (e.g., a picture of your favorite place). (Hint: ``)
  - A link to your favorite website, introducing yourself. Mention your interests, hobbies, or any other relevant information. (Hint: `<a href="https://www.cavendish.ac.ug">Link to college site </a>`)
  - A Simple Contact Form: Create a basic contact form using the `<form>` element. This form should collect a visitor's first name, last name, and email address. Ensure each field has a descriptive label. Use the required property (Hint: `<input type="text" id="lastname" name="lastname" required>`)
  - Ensure your web page follows the principles of **semantic HTML**, using appropriate elements for sections, such as `<header>`, `<footer>`, `<section>`, and `<main>`.

### **Submission Guidelines:**

- Save your HTML file with the name `index.htm`.
- Ensure the images are properly linked.
- Submit the files as a `.zip` or upload the project to a hosting platform like GitHub Pages and share the link.