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Prepared by: lect. Ahmed Mahmood   Department of Computer Engineering
2- HTML5

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HTML5

What is HTML?

HTML is the standard markup language for creating Web pages.

- HTML stands for **Hyper Text Markup Language**.

- HTML describes the structure of Web pages using markup.

- HTML elements are the building blocks of HTML pages.

- HTML elements are represented by tags.

  - Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers.

  - Now, HTML is being widely used to format web pages with the help of different tags available in HTML language.

- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on.

- Browsers do not display the HTML tags, but use them to render the content of the page.

A Simple HTML Document

Example:

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

Example Explained

- The <!DOCTYPE html> declaration defines this document to be HTML5.
- The <html> element is the root element of an HTML page.
- The <head> element contains meta information about the document.
- The <title> element specifies a title for the document.
- The <body> element contains the visible page content.
- The <h1> element defines a large heading.
- The <p> element defines a paragraph.

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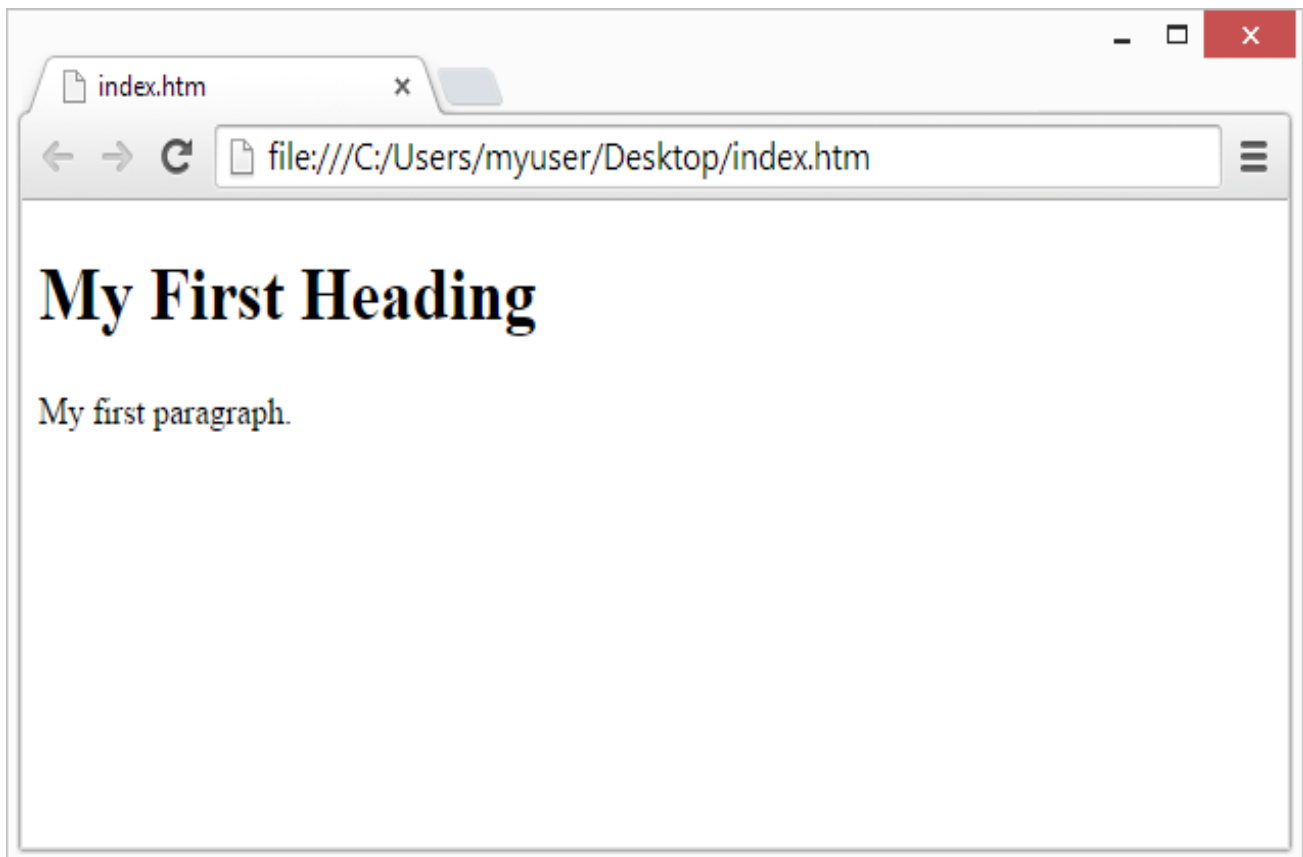**HTML Tags**

HTML tags are elements names surrounded by angle brackets:

```
<tagname>content goes here...</tagname>
```

- HTML tags normally come in pairs like <p> and </p>.
- The first tag in a pair is **the start tag**, the second tag **is the end tag.**
- The end tag is written like the start tag, but with a forward slash inserted before the tag name.
- The start tag is also called **the opening tag**, and the end tag **the closing tag.**
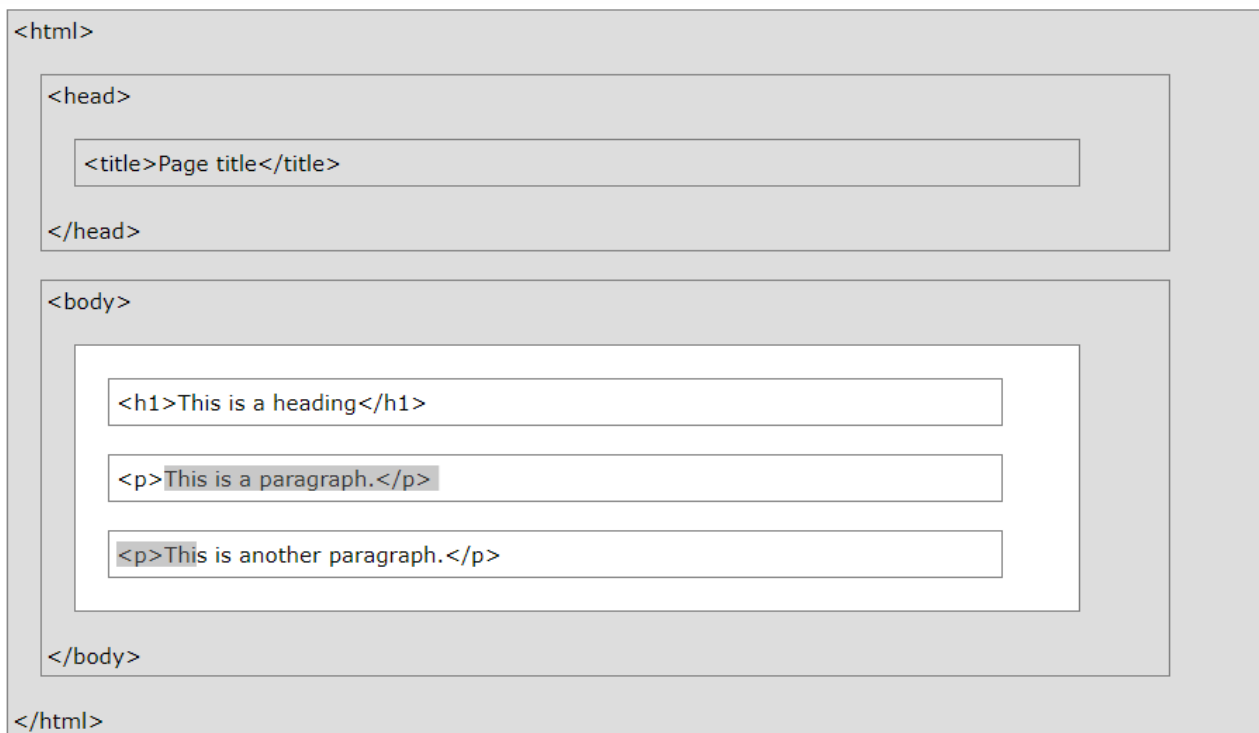
Web Browsers

- The purpose of a web browser (Chrome, IE, Firefox, Safari) is to read HTML documents and display them.
- The browser does not display the HTML tags, but uses them to determine how to display the document

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HTML Page Structure

Below is a visualization of an HTML page structure:

```
<html>
    <head>
        <title>Page title</title>
    </head>
    <body>

        <h1>This is a heading</h1>

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

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

    </body>
</html>
```

Note: Only the content inside the <body> section (the white area above) is displayed in a browser.

The <!DOCTYPE> Declaration

- The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.
- It must only appear once, at the top of the page (before any HTML tags).
- The <!DOCTYPE> declaration is not case sensitive.
- The <!DOCTYPE> declaration for HTML5 is:

```
<!DOCTYPE html>
```

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HTML Versions

Since the early days of the web, there have been many versions of HTML:

Version	Year
HTML	1991
HTML 2.0	1995
HTML 3.2	1997
HTML 4.01	1999
XHTML	2000
HTML5	2014

HTML Editors

- Write HTML Using any text editor like (Notepad, Komodo Edit, Brackets and Sublime Text);

- Web pages can be created and modified by using professional HTML editors.

- We believe using a simple text editor is a good way to learn HTML.

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HTML Elements

- HTML elements are the building blocks of HTML pages.

- An HTML element usually consists of a **start tag** and **end tag**, with the content inserted in between:

<tagname>Content goes here...</tagname>

- The HTML element is everything from the start tag to the end tag:

<p>My first paragraph.</p>

Start tag	Element content	End tag
<h1>	My First Heading	</h1>
<p>	My first paragraph.	</p>

- HTML elements with no content are called **empty elements**.

- Empty elements do not have an end tag, such as the <br> element (**which indicates a line break**).

Nested HTML Elements

- HTML elements can be nested (elements can contain elements).

- All HTML documents consist of nested HTML elements.

This example contains four HTML elements:

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

- The <html> element defines the whole document.

- It has a start tag <html> and an end tag </html>.

- The element content is another HTML element (the <body> element).

- The <body> element defines the document body.

- It has a start tag <body> and an end tag </body>.

- The element content is two other HTML elements (<h1> and <p>).

- The <h1> element defines a heading.

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- It has a start tag <h1> and an end tag </h1>.

- The element content is: My First Heading.

- The <p> element defines a paragraph.

- It has a start tag <p> and an end tag </p>.

- The element content is: My first paragraph.

Notes:

1- Do Not Forget the End Tag

- Some HTML elements will display correctly, even if you forget the end tag.

Example:

```
<html>
  <body>
    <p>This is a paragraph
    <p>This is a paragraph
  </body>
</html>
```

- The example above works in all browsers, because the closing tag is considered optional.

- Never rely on this. It might produce unexpected results and/or errors if you forget the end tag.

2- Use Lowercase Tags

- HTML tags are not case sensitive: <P> means the same as <p>.

- The HTML5 standard does not require lowercase tags, but recommended lowercase in HTML.

3- Empty HTML Elements

- HTML elements with no content are called empty elements.

-
 is an empty element without a closing tag (the <br> tag defines a line break).

- Empty elements can be "closed" in the opening tag like this: <br />.

- HTML5 does not require empty elements to be closed. But if you want stricter validation, or if you need to make your document readable by XML parsers, you must close all HTML elements properly.

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HTML Attributes

- Attributes provide additional information about HTML elements.

- All HTML elements can have attributes.

- Attributes provide additional information about an element.

- Attributes are always specified in the start tag.

- Attributes usually come in name/value pairs like: **name**="**value**".

The href Attribute

- HTML links are defined with the <a> tag. The link address is specified in the href attribute.

HTML Script	Result

``html
<!DOCTYPE html>
<html>
  <body>
     The href Attribute
    Google
  </body>
</html>
``
	The href Attribute
	
	Google

The src Attribute

- HTML images are defined with the <img> tag.

- The filename of the image source is specified in the src attribute.

The width and height Attributes

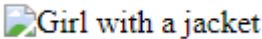- Images in HTML have a set of size attributes, which specifies the width and height of the image.

The alt Attribute

- The alt attribute specifies an alternative text to be used, when an image cannot be displayed.

- The value of the attribute can be read by screen readers. This way, someone ″listening″ to the webpage, e.g. a blind person, can ″hear″ the element.

HTML Script	```html
	<!DOCTYPE html>
	<html>
	<body>
	<img src="https://www.google.com/chrome/static/images/chrome-logo.svg" alt="Google Chrome" width="104" height="142">
	</body>
	</html>
	``

Result	

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- The alt attribute is also useful if the image does not exist

HTML Script	Result

`<!DOCTYPE html>`
`<html>`
 `<body>`
  `<img src="img_typo.jpg" alt="Girl with a jacket">`
 `</body>`
`</html>`
	🖼️Girl with a jacket

The style Attribute

- The style attribute is used to specify the styling of an element, like color, font, size etc.

HTML Script	Result

`<!DOCTYPE html>`
`<html>`
 `<body>`
  `<h2>The style Attribute</h2>`
  `<p style="color:red">I am a paragraph.</p>`
 `</body>`
`</html>`
	The style Attribute
	
	I am a paragraph.

The title Attribute

- Here, a title attribute is added to the `<p>` element. The value of the title attribute will be displayed as a tooltip when you mouse over the paragraph:

HTML Script	Result

`<!DOCTYPE html>`
`<html>`
 `<body>`
  `<h title="I'm a header">The title Attribute</h2>`
 `</body>`
`</html>`
	The title Attribute
	I'm a header

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Notes:

1- Use Lowercase Attributes

– The HTML5 standard does not require lowercase attribute names.

– The title attribute can be written with uppercase or lowercase like title or TITLE.

– Recommended lowercase in HTML, and demands lowercase for stricter document types like XHTML.

2- Quote Attribute Values

– The HTML5 standard does not require quotes around attribute values.

– The href attribute, demonstrated above, can be written without quotes:

BAD	GOOD
`<a href=https://www.Google.com>`	`<a href="https://www.Google.com">`

– Sometimes it is necessary to use quotes. This example will not display the title attribute correctly, because it contains a space:

`<p title=About HTML>` → ×	`<p title="About HTML">` → ✓

3- Single or Double Quotes?

– Double quotes around attribute values are the most common in HTML, but single quotes can also be used.

– In some situations, when the attribute value itself contains double quotes, it is necessary to use single quotes:

`<p title='John "ShotGun" Nelson'>` or `<p title="John 'ShotGun' Nelson">`

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Examples:

1- Add a tooltip to the paragraph below with the text "About HTML":

```
<!DOCTYPE html>
<html>
  <body>
    <p>This is a web developer's site.</p>
  </body>
</html>
```

Solution:

```
<!DOCTYPE html>
<html>
  <body>
    <p title="About HTML">This is a web developer's site.</p>
  </body>
</html>
```

2- Change the size of the image to 250 pixels wide and 400 pixels tall.

```
<!DOCTYPE html>
<html>
  <body>
    <img src="Steve.jpg" >
  </body>
</html>
```

Solution:

```
<!DOCTYPE html>
<html>
  <body>
    <img src="Steve.jpg" width="250" height="400" >
  </body>
</html>
```

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3- Transform the text below into a link that goes to "https://www.fecebook.com".

```
<!DOCTYPE html>
<html>
 <body>
   This is a link
  </body>
</html>
```

Solution:

```
<!DOCTYPE html>
<html>
 <body>
   <a href="https://www.facebook.com">This is a link</a>
  </body>
</html>
```

4- The image below does not exist. Specify the alternate text "The image is not exist" for the image.

```
<!DOCTYPE html>
<html>
  <body>
   <img src="image.jpg" width="135" height="50">
  </body>
</html>
```

Solution:

```
<!DOCTYPE html>
<html>
  <body>
   <img src="image.jpg" alt= "The image is not exist" width="135" height="50">
  </body>
</html>
```