



Topic 3

The Basics of Website Design

CST4013 | Website Designing





1

Describe the
concept of
Hypertext Markup
Language (HTML)

2

Demonstrate
HTML scripting on
the simple
website.

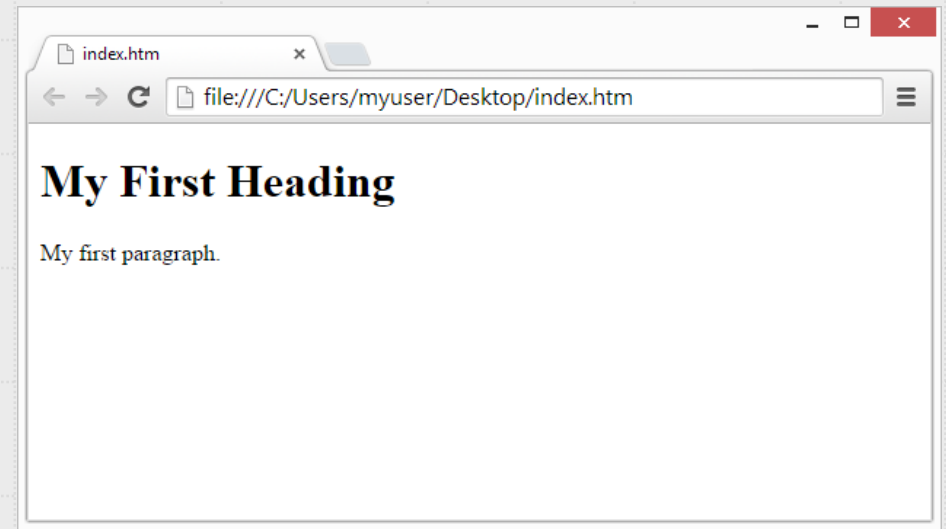
Learning Outcomes

What is HTML?

- HTML, or HyperText Markup Language, is the standard markup language used to create and structure content on the web.
- It provides the framework that tells web browsers how to display text, images, videos, and other content.
- HTML **elements** are represented by **tags**.
- Browsers do not display the HTML tags, but use them to render the content of the page.

Basic HTML Document

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





Basic HTML Document

Element	Description
<code><!DOCTYPE html></code>	Declares the document type and HTML version (HTML5)
<code><html></code>	The root element of an HTML page
<code><head></code>	Contains metadata and resources for the page.
<code><title></code>	Specifies a title for the document
<code><body></code>	Contains the visible page content
<code><h1></code>	Defines a large heading
<code><p></code>	Used for blocks of text

HTML Tags

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

- HTML tags are element names surrounded by angle bracket.
- 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.
- HTML tags are not case sensitive: `<P>` means the same as `<p>`.

***Tip:** The start tag is also called the **opening tag**, and the end tag the **closing tag**.*

HTML Page Structure

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

```
<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>
```



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>
```




HTML Versions

Version	Year
HTML 1.0	1993
HTML 2.0	1995
HTML 3.2	1997
HTML 4.01	1999
XHTML 1.0	2000
HTML5	2014

The HTML `<head>` Element



The `<head>` element is a container for metadata (data about data) and is placed between the `<html>` tag and the `<body>` tag.



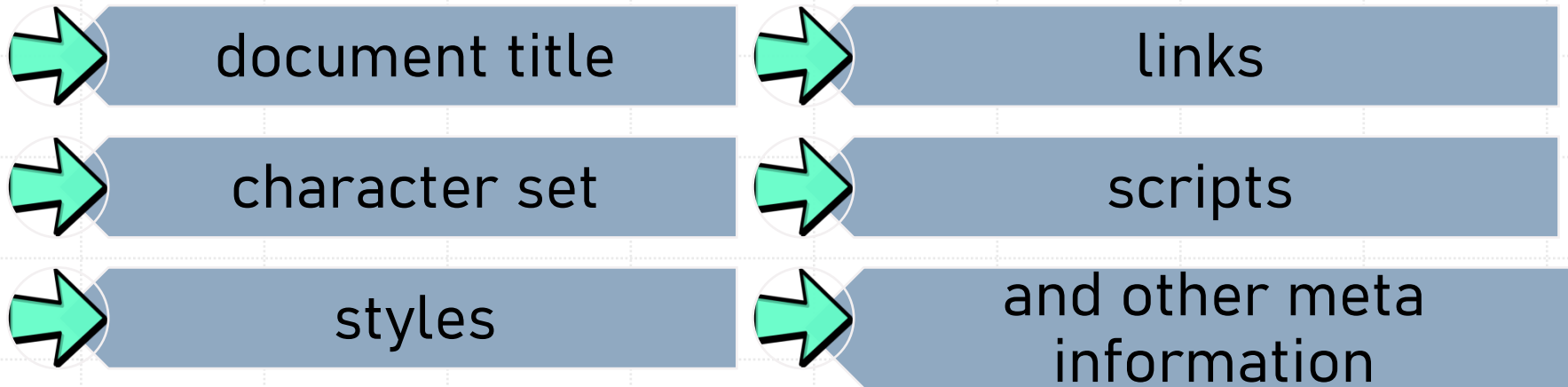
HTML metadata is data about the HTML document.



Metadata is not displayed in the page.

The HTML `<head>` Element

- Metadata typically define:



The HTML `<head>` Element

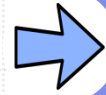
The following tags describe metadata:



`<title>`



`<style>`



`<meta>`



`<link>`



`<script>`



`<base>`

The HTML <head> Element

<title> Element

- HTML title element used to sets the title of the webpage, shown in the browser tab.
- Provides a title for the page when it is added to favourites.
- Displays a title for the page in search engine results.

```
<head>  
    <title>Page Title</title>  
</head>
```

The HTML <head> Element

<style> Element

- The <style> element is used to define internal style information for a single HTML page:

```
<style>
  body {
    background-color: lightgray;
  }
  h1 {
    color: green;
  }
</style>
```

The HTML <head> Element

<link> Element

- The <link> element is used to link to external style sheets for examples CSS and JavaScript files.
- Example:

```
<link rel="stylesheet" href="mystyle.css">  
<script src="script.js" defer></script>
```

The HTML `<head>` Element

`<meta>` Element



The `<meta>` element is used to specify which character set is used, page description, keywords, author, and other metadata.



Metadata is used by browsers (how to display content), by search engines (keywords), and other web services.

The HTML <head> Element

<meta> Element

- Charset Meta Tag: Define the character set used:

```
<meta charset="UTF-8">
```

- Description Meta Tag: Define a description of your web page:

```
<meta name="description"  
content="Free Web tutorials">
```

- Keywords Meta Tag: Define keywords for search engines:

```
<meta name="keywords" content="HTML, CSS,  
XML, JavaScript">
```

The HTML <head> Element

<meta> Element

- Author Meta Tag: Define the author of a page:

```
<meta name="author" content="John Doe">
```

- Refresh Meta Tag: Refresh document every 30 seconds:

```
<meta http-equiv="refresh" content="30">
```

The HTML <head> Element

<meta> Element

- Example of <meta> tags:

```
<meta charset="UTF-8">
```

```
<meta name="description" content="Free  
Web tutorials">
```

```
<meta name="keywords" content="HTML,CSS,X  
ML,JavaScript">
```

```
<meta name="author" content="John Doe">
```

Viewport Meta Tag: Setting The Viewport

- HTML5 introduced a method to let web designers take control over the viewport, through the `<meta>` tag.
- The viewport is the user's visible area of a web page.
- It varies with the device, and will be smaller on a mobile phone than on a computer screen.
- To include viewport element in all web pages:

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```








Viewport Meta Tag: Setting The Viewport

- A `<meta>` viewport element gives the browser instructions on how to control the page's dimensions and scaling.
- **`width=device-width`**
 - Sets the width of the page to follow the screen-width of the device (which will vary depending on the device).
- **`initial-scale=1.0`**
 - Sets the initial zoom level when the page is first loaded by the browser.

HTML `<body>` Tag

- The `<body>` tag defines the document's body.
- The `<body>` element contains all the contents of an HTML document, such as text, hyperlinks, images, tables, lists, etc.

Browser Support

Element					
<code><body></code>	Yes	Yes	Yes	Yes	Yes



HTML Elements

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

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

Example:

```
<p> My first paragraph </p>
```



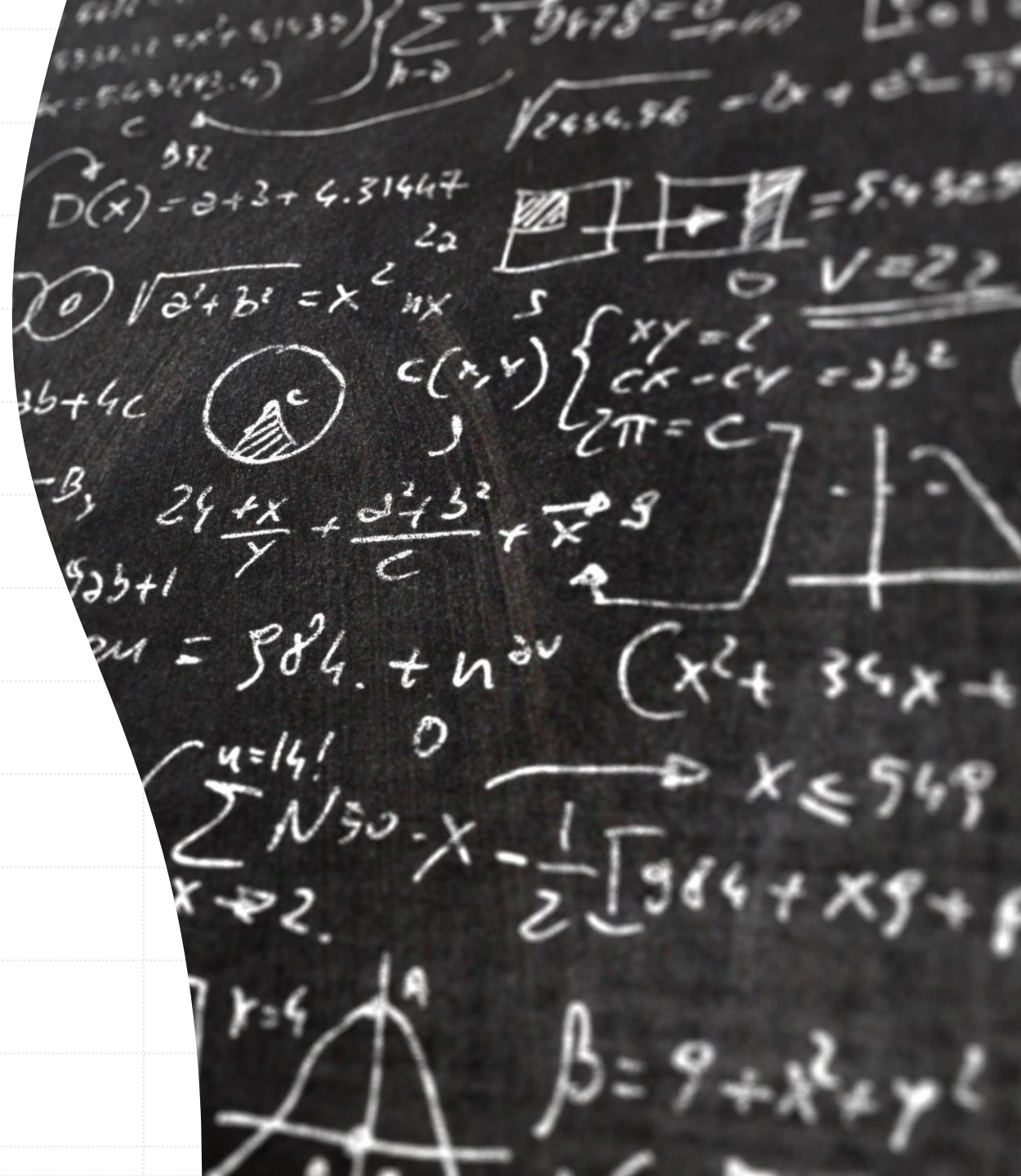
HTML Elements

- HTML elements with no content are called **empty elements**.
- Empty elements do not have an end tag, such as the `
` element (which indicates a line break).

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

Exercise

- Write HTML scripting having title, big heading and paragraph.





Nested HTML Elements

- HTML elements can be nested which is 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>
```

Nested HTML Elements

The <html> element

- Defines the **whole document**.
- It has a **start** tag <html> and an **end** tag </html>

The <body> element

- Defines the **document body**.

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

- The <h1> element

Defines a **heading**.

- 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.

HTML Elements

- HTML elements with **no content** are called **empty elements**.
- `
` is an empty element without a closing tag (the `
` tag defines a line break).

Lowercase Tags

- The World Wide Web, recommends lowercase tags in their HTML5 in developing website.

```
mirror_mod = modifier_ob.  
# Add mirror object to mirror  
mirror_mod.mirror_object =  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
# Selection at the end -add  
mirror_ob.select = 1  
modifier_ob.select = 1  
context.scene.objects.active  
("Selected" + str(modifier_ob.name))  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
  
print("please select exactly one mirror")  
  
-- OPERATOR CLASSES --  
  
types.Operator):  
on X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```



HTML Attributes

- An attribute is used to define the characteristics of an HTML element and is placed inside the element's opening tag.
- All attributes are made up of two parts: **a name and a value**
- The name is the property that want to set.
- The value is what you want the value of the property to be set and always put within quotations.

HTML Attributes



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 `href` attributes specifies the URL of the link.

```
<a href="https://www.vision.edu.my">  
This is a link </a>
```

The `src` Attribute

- HTML images are defined with the `` tag.
- The filename of the image source is specified in the `src` attribute.
- The `src` attribute specifies the image source URL.

```

```


The width and height Attributes

- Images in HTML have a set of **size** attributes, which specifies the `width` and `height` of the image:
- The image size is specified in
 - Sets the image width (in pixels or %), eg: 500 pixels
 - Sets the image height (in pixels or %), eg: 600 pixels

```

```

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.

```

```

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



The `style` Attribute

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

```
<p style="color:red">I am a paragraph</p>
```

The lang Attribute

- The language of the document can be declared in the `<html>` tag.
- The language is declared with the `lang` attribute.
- The `lang` attribute specifies the language of the element's content.

```
<!DOCTYPE html>
<html lang="en-US">
<body>
...
</body>
</html>
```

- The first two letters specify the language (en).
- If there is a dialect, use two more letters (US).



The `title` Attribute

- 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:

```
<p title="I'm a tooltip">  
    This is a paragraph.  
</p>
```



HTML Global Attributes

Attribute	Description
class	Assigns a class name for CSS styling or scripting.
id	Assigns a unique identifier to an element.
style	Specifies an inline CSS style for an element
title	Provides additional information (tooltip).
hidden	Hides the element from display.
lang	Specifies the language of the element's content
tabindex	Sets the order of focus for keyboard navigation.

HTML Links and Images Attributes

Attribute	Description
href	Specifies the URL of the link.
target	Opens the link in a specific context.
rel	Specifies the relationship between the current and linked document.

Attribute	Description
src	Specifies the image source URL.
Alt	Provides alternative text for accessibility.
width	Sets the image width (in pixels or %).
height	Sets the image height (in pixels or %)



HTML Headings

- Headings are defined with the `<h1>` to `<h6>` tags.
 - `<h1>` defines the most important heading.
 - `<h6>` defines the least important heading.
- Example:

```
<h1>Heading 1</h1>  
<h2>Heading 2</h2>  
<h3>Heading 3</h3>  
<h4>Heading 4</h4>  
<h5>Heading 5</h5>  
<h6>Heading 6</h6>
```




HTML Headings

- Search engines use the headings to index the structure and content of your web pages.
 - Users skim your pages by its headings.
 - It is important to use headings to show the document structure.
 - `<h1>` headings should be used for main headings, followed by `<h2>` headings, then the less important `<h3>`, and so on.
- ** Note:** Use HTML headings for headings only. Don't use headings to make text **BIG** or **bold**.



HTML Headings

- Each HTML heading has a default size.
- However, you can specify the size for any heading with the style attribute, using the CSS font-size property:

```
<h1 style="font-size: 60px;">Heading 1</h1>
```



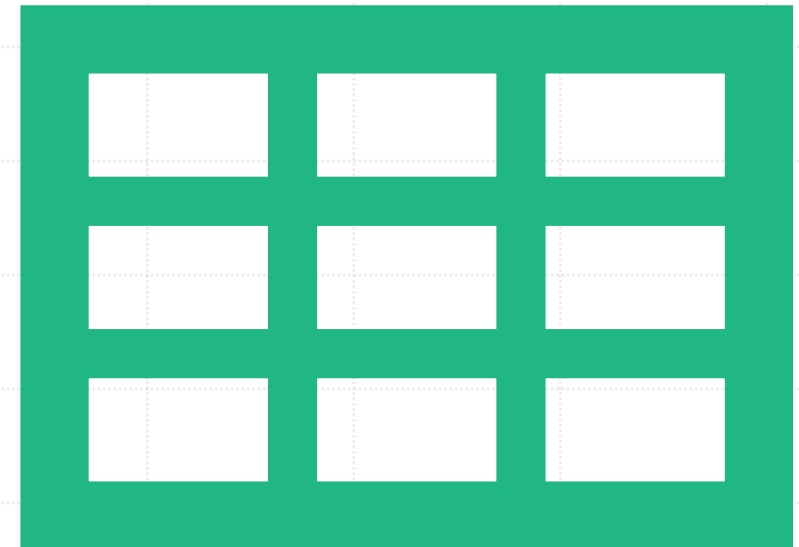
HTML Horizontal Rules

- The `<hr>` tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.
- The `<hr>` element is used to separate content (or define a change) in an HTML page:

```
<h1>This is heading 1</h1>  
<p>This is some text.</p>  
<hr>  
<h2>This is heading 2</h2>  
<p>This is some other text.</p>  
<hr>
```

HTML Tables

- An HTML table is defined with the `<table>` tag.
- Each table row is defined with the `<tr>` tag.
- A table header cell is defined with the `<th>` tag.
- By default, table headings are bold and centered.
- A table data cell is defined with the `<td>` tag.
 - The `<td>` elements are the data containers of the table.
They can contain all sorts of HTML elements; text, images, lists, other tables, etc.





HTML Table Example

```
<table>
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Row 1, Column 1</td>
    <td>Row 1, Column 2</td>
  </tr>
  <tr>
    <td>Row 2, Column 1</td>
    <td>Row 2, Column 2</td>
  </tr>
</table>
```

- `<table>`: Defines the table.
- `<tr>`: Defines a row.
- `<th>`: Defines a table header cell (bold and centered by default).
- `<td>`: Defines a table data cell.

HTML Tables

Adding a Border

- If you do not specify a border for the table, it will be displayed without borders.
- A border is set using the CSS border property:

```
table, th, td {  
    border: 1px solid black;  
}
```



How to View HTML Source?

- View HTML Source Code
 - Right-click in the page and select "View Page Source" (in Chrome) or "View Source" (in IE), or similar in other browsers.
 - This will open a window containing the HTML source code of the page.
- Inspect an HTML Element:
 - Right-click on an element (or a blank area), and choose "Inspect" or "Inspect Element" to see what elements are made up of (you will see both the HTML and the CSS).
 - You can also edit the HTML or CSS on-the-fly in the Elements or Styles panel that opens



Thank you