Chapter 4: Using Advanced HTML

CST4013 | Website Designing

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Learning Outcomes

- Explain the advanced HTML elements including formatting text, forms and CSS.
- Practice the used of advanced HTML elements in a dynamic websites.

HTML Formatting Text

- There are two categories of markup in HTML formatting text tags:
  - Structural markup: the elements that can use to describe both headings and paragraphs.
  - Semantic markup: which provides extra information; such as where emphasis is placed in a sentence or that something that have written is a quotation.

HTML Formatting Text

Bold	By enclosing words in the tags and we can make characters appear bold.
Italic	By enclosing words in the tags and we can make characters appear italic.
Sup	The <sup> element is used to contain characters that should be superscript such as the suffixes of dates or mathematical concepts like raising a number to a power such as 2^2.
Sub	The <sub> element is used to contain characters that should be subscript. It is commonly used with foot notes or chemical formulas such as H_20.
Strong	The use of the element indicates that its content has strong importance. For example, the words contained in this element might be said with strong emphasis

HTML Formatting Text

em	The element indicates emphasis that subtly changes the meaning of a sentence.
Blockquote <blockquote> </blockquote>	The <blockquote> element is used for longer quotes that take up an entire paragraph. Note how the <p> element is still used inside the <blockquote> element.
Quote <q> </q>	The <q> element is used for shorter quotes that sit within a paragraph.
Ins <ins> </ins>	The <ins> element can be used to show content that has been inserted into a document,
Del <del> </del>	The <del> element can show text that has been deleted from it.

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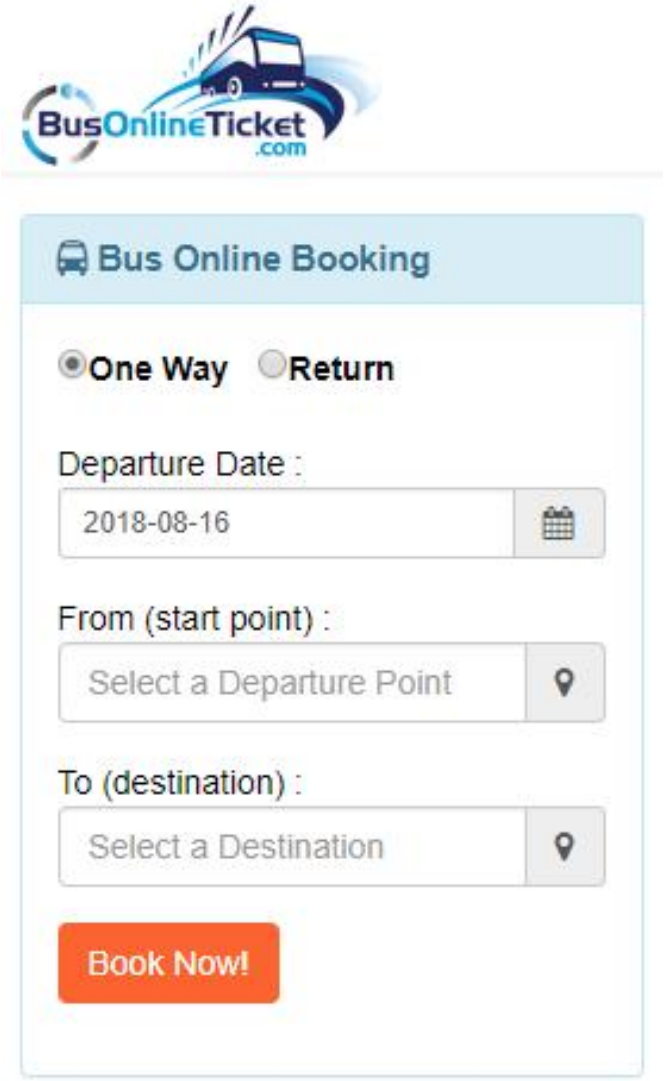
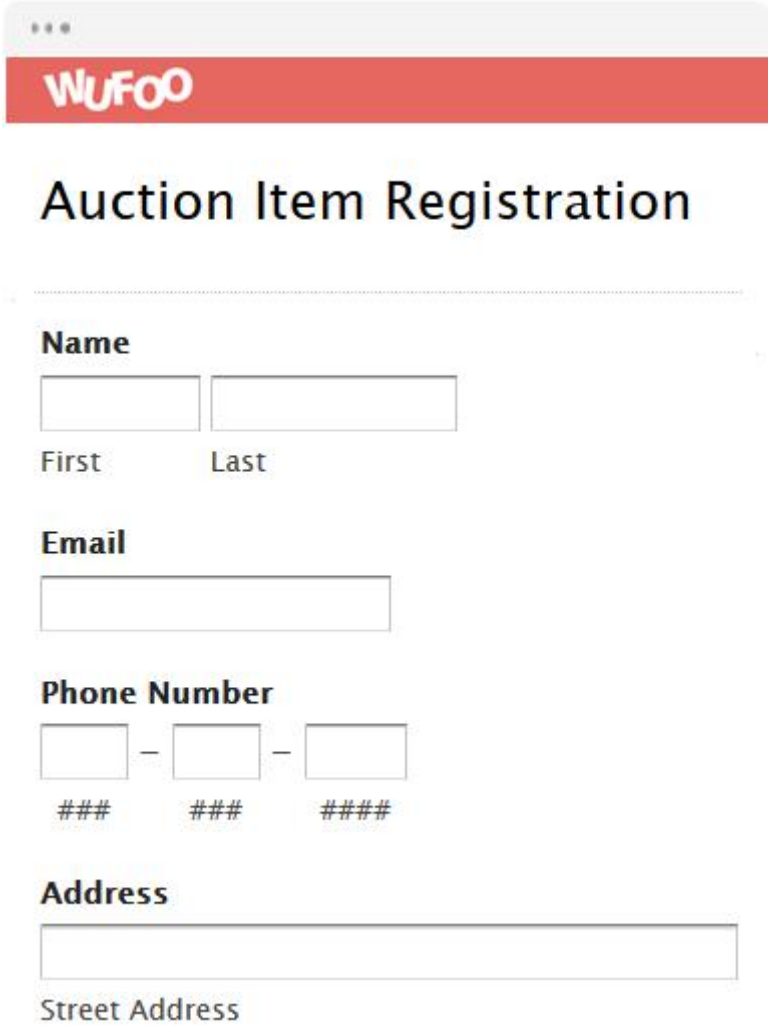
HTML Forms





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HTML Forms

- The HTML `<form>` element defines a form that is used to collect user input.
- An HTML form contains **form elements**.
- Form elements are different types of input elements, like text fields, checkboxes, radio buttons, submit buttons, and more.
- Syntax:

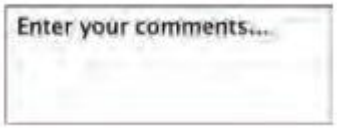
```
<form>
.
form elements
.
</form>
```

HTML Form Controls

- Adding Text
  - Text input (single-line)

    - Used for a single line of text such as email addresses and names.
  - Password input

    - Like a single line text box but it masks the characters entered.
  - Text area (multi-line)

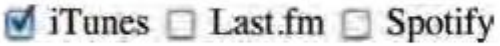


    - For longer areas of text, such as messages and comments.

HTML Form Controls

- Making Choices
  - Radio buttons

    - For use when a user must select one of a number of options.
  - Checkboxes



    - When a user can select andunselect one or more optionsText area (multi-line)
  - Drop-down boxes

    - When a user must pick one of a number of options from a list.

HTML Form Controls

- Submitting Forms
  - Submit buttons

    - To submit data from your form to another web page.
  - Image buttons

    - Similar to submit buttons but they allow you to use an image.
- Uploading Files
  - File upload

    - Allows users to upload files (e.g. images) to a website.

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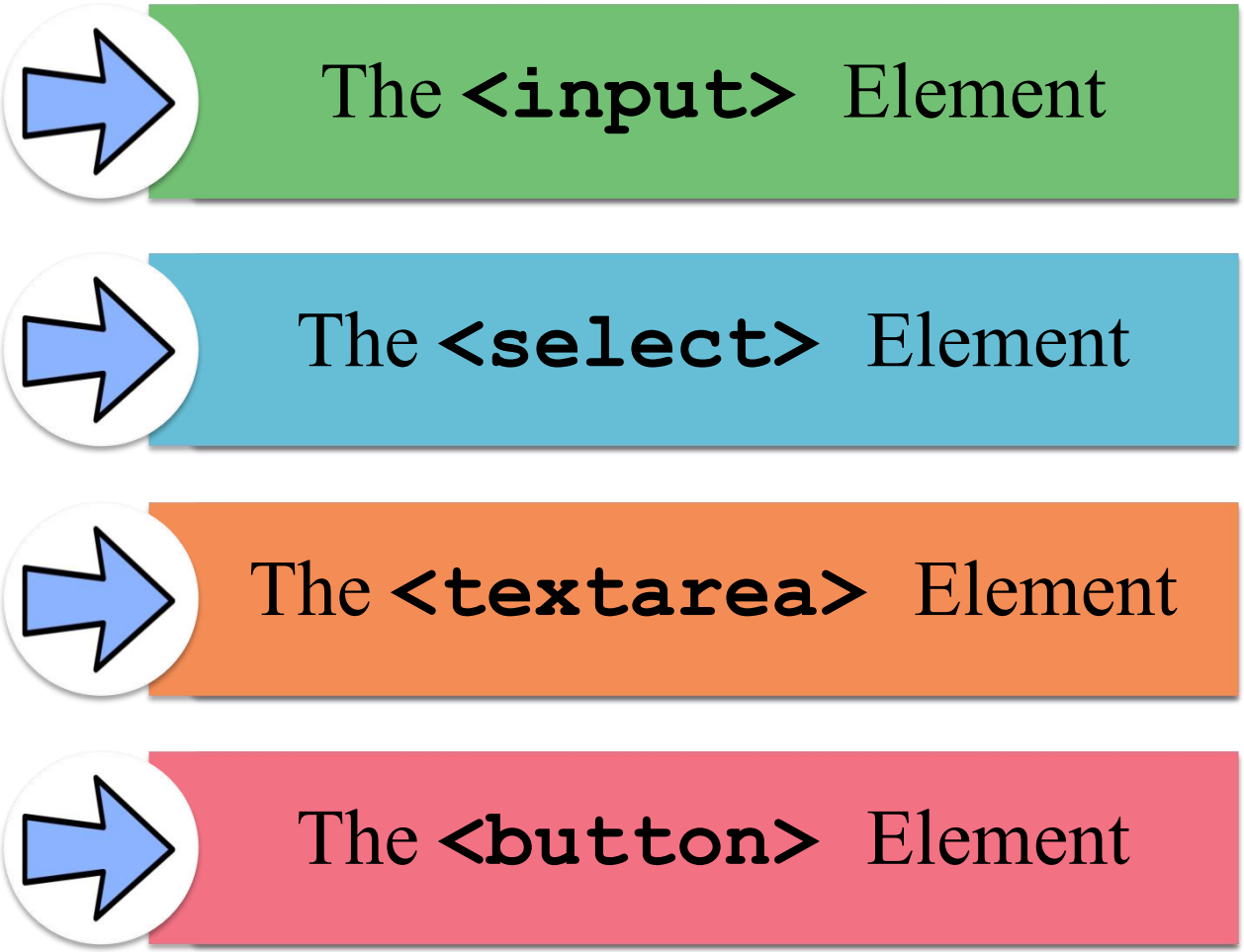
HTML Form Structure

<form action="welcome.php" method="post">	
<form>	• Form controls live inside a <form> element. • This element should always carry the action attribute and will usually have a method and id attribute.
action	• Every <form> element requires an action attribute. • Its value is the URL for the page on the server that will receive the information in the form when it is submitted.
method	• Forms can be sent using one of two methods: get or post. • With the get method, the values from the form are added to the end of the URL specified in the action attribute. • With the post method the values are sent in what are known as HTTP headers.

HTML Form Elements



HTML Form Elements

Tag	Description
`<form>`	Defines an HTML form for user input
`<input>`	Defines an input control
`<textarea>`	Defines a multiline input control (text area)
`<label>`	Defines a label for an <input> element
`<fieldset>`	Groups related elements in a form
`<legend>`	The <legend> element can come directly after the opening <fieldset> tag and contains a caption which helps identify the purpose of that group of form controls.

HTML Form Elements

Tag	Description
`<select>`	Defines a drop-down list
`<optgroup>`	Defines a group of related options in a drop-down list
`<option>`	Defines an option in a drop-down list
`<button>`	Defines a clickable button
`<datalist>`	Specifies a list of pre-defined options for input controls
`<output>`	Defines the result of a calculation

HTML Input Element

Types	Scripting	Description
Text input	`<input type="text" name="username" size="15" maxlength="30"/>`	Defines a single-line text input field.
Password input	`<input type="password" name="password" size="15" maxlength="30"/>`	Defines a single-line text input field with the hidden characters.
Textarea	`<textarea name="comments" cols="20" rows="4">Enter your comments... </textarea>`	Defines a multi-line text input field.

HTML Input Element

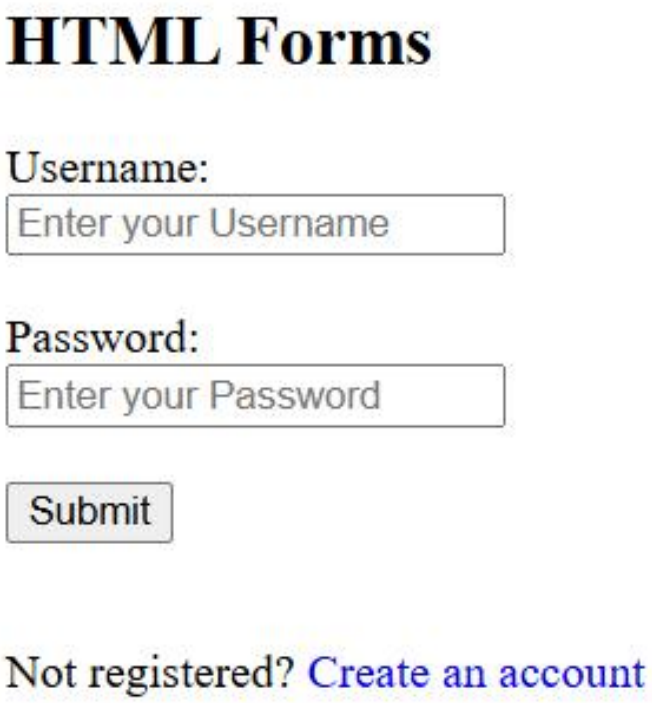
Types	Scripting	Description
Radio Button	`<input type="radio" name="genre" value="rock" checked="checked"/> Rock`	Radio buttons allow users to pick just one of a number of options.
Checkbox	`<input type="checkbox" name="service" value="itunes" checked="checked"/> iTunes`	Checkboxes allow users to select (and unselect) one or more options in answer to a question
Dropdown Listbox	`<select name="devices"> <option value="ipod">iPod</option> <option value="radio">Radio</option> </select>`	A drop down list box (also known as a select box) allows users to select one option from a drop down list.

HTML Input Element

Types	Scripting	Description
Submit Button	`<input type="submit" name="subscribe" value="Subscribe" />`	The submit button is used to send a form to the server.
Image Button	`<input type="image" src="images/subscribe.jpg" width="100" height="20" />`	Used an image for submit button.
File Input Box	`<input type="file" name="user-song" />` ` ` `<input type="submit" value="Upload" />`	Allow users to upload a file for example an image, video, mp3, or a PDF.

Exercise

- Write HTML scripting based on the following HTML forms diagram.



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Exercise

```
<!DOCTYPE html>
<html>
<head>
   <title>HTML Login Form</title>
 </head>
<body>
   <h2>HTML Forms</h2>
    <form action="">
      <label for="first"> Username: </label>
<br>
        <input type="text" id="first"
name="first" placeholder="Enter your
Username" required> <br> <br>
   <label for="password"> Password: </label>
<br>
```

```
 <input type="password" id="password"
name="password" placeholder="Enter your
Password" required> <br> <br>
<div class="wrap">
    <button type="submit" onclick="solve()">
Submit </button>
      </div> <br>
  </form>
  <p>Not registered? <a href="#" style="text-
decoration: none;">
        Create an account </a>
      </p>
   </div>
</body>
</html>
```

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HTML Input Restrictions

Attribute	Description
disabled	Specifies that an input field should be disabled
max	Specifies the maximum value for an input field
maxlength	Specifies the maximum number of character for an input field
min	Specifies the minimum value for an input field
pattern	Specifies a regular expression to check the input value against

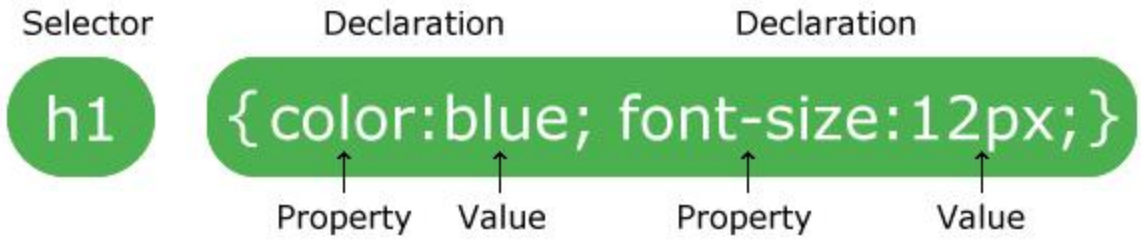
HTML Input Restrictions

Attribute	Description
readonly	Specifies that an input field is read only (cannot be changed)
required	Specifies that an input field is required (must be filled out)
size	Specifies the width (in characters) of an input field
step	Specifies the legal number intervals for an input field
value	Specifies the default value for an input field

CSS Introduction

- Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language.
- CSS describes **how HTML elements are to be displayed on screen, paper, or in other media**
- External stylesheets are stored in **CSS files.**
- CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

CSS Syntax



- A CSS rule-set consists of a **selector** and a **declaration block.**
- The selector indicate which element the rule applies to.
- The declaration indicate how the elements referred to in the selector should be styled.
- The declaration block contains one or more declarations separated by semicolons.
- Each declaration includes a CSS **property name** and **a value**, separated by a colon.
- A CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.

CSS Syntax Example

```
<!DOCTYPE html>
<html>
   <head>
       <style>
          p {
             color:red;
             text-align:center;
          }
       </style>
   </head>
   <body>
       <p>Hello World!</p>
       <p>These paragraphs are styled with CSS.</p>
   </body>
</html>
```

In the following example all <p> elements will be center-aligned, with a red text color:

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CSS Selectors

CSS selectors are used to find or select HTML elements based on their element name, id, class, attribute, and more.

Element Selector

- The element selector selects elements based on the element name.
- Example: All <p> elements will be center-aligned, with a red text color).

```
p {
    text-align:center;
    color:red;
}
```

ID Selector

- The id selector uses the id attribute of an HTML element to select a specific element.
- The id of an element should be unique within a page, so the id selector is used to select one unique element.
- To select an element with a specific id, write a hash (#) character, followed by the id of the element.
- The style rule below will be applied to the HTML element with id="para1":

```
#para1 {
    text-align:center;
    color:red;
}
```

Class Selector

- The class selector selects elements with a specific class attribute.
- To select elements with a specific class, write a period (.) character, followed by the name of the class.
- In the example below, all HTML elements with class="center" will be red and center-aligned:

```
.center {
    text-align:center;
    color:red;
}
```

Class Selector

- You can also specify that only specific HTML elements should be affected by a class.
- In the example below, only <p> elements with class="center" will be center-aligned:

```
p.center {
    text-align:center;
    color:red;
}
```

CSS Types

There are three ways of inserting a style sheet:

1. External style sheet
2. Internal style sheet
3. Inline style

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External Style Sheet

- An external style sheet is used to define the style for many HTML pages.
- Each page must include a reference to the external style sheet file inside the <link> element.
- To use an external style sheet, add a link to it in the <head> section of each HTML page:

```
<head>
<link rel="stylesheet" type="text/css
" href="mystyle.css">
</head>
```

External Style Sheet

- An external style sheet can be written in any text editor.
- The file should not contain any html tags.
- The style sheet file must be saved with a .css extension.
- Here is how the "mystyle.css" looks:

```
body {
    background-color:lightblue;
}
h1 {
    color: navy;
    margin-left:20px;
}
```

Note: Do not add a space between the property value and the unit (such as `margin-left: 20 px;`). The correct way is: `margin-left: 20px;`

Internal Style Sheet

- An internal style sheet may be used if one single page has a unique style.
- Internal styles are defined within the <style> element, inside the <head> section of an HTML page:

```
<head>
<style>
body {
    background-color:linen;
}
h1 {
    color:maroon;
    margin-left:40px;
}
</style>
</head>
```

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Inline Styles

- An inline style may be used to apply a unique style for a single element.
- To use inline styles, add the style attribute to the relevant element.
- The style attribute can contain any CSS property.
- The example below shows how to change the color and the left margin of a <h1> element:

```
<h1 style="color:blue;margin-left:30px;">
This is a heading</h1>
```

Tip: An inline style loses many of the advantages of a style sheet (by mixing content with presentation). Use this method sparingly.

Cascading Order

What style will be used when there is more than one style specified for an HTML element?

All the styles will "cascade" into a new "virtual" style sheet by the following rules, where number one has the highest priority:

1. Inline style (inside an HTML element)
2. External and internal style sheets (in the head section)
3. Browser default

JavaScript Introduction

- JavaScript is a high-level, dynamic, interpreted programming language primarily used for client-side web development.

- It allows developers to create interactive and dynamic web content, enhancing the user experience by providing features such as interactivity, animations, and dynamic updates without the need to reload the entire web page.

- JavaScript was initially created by Brendan Eich at Netscape Communications Corporation in 1995, originally named LiveScript, but later renamed JavaScript to capitalize on the popularity of Java.

JavaScript Functions

- Interactivity
  - Making web pages interactive through event handling.
- Dynamic Content Manipulation
  - Changing content and styles on the fly.
- Form Validation
  - Validating user inputs before submission.
- Animation
  - Creating animations for a better user experience.
- AJAX
  - Enabling asynchronous communication with the server.
- Data Handling and Storage
  - Managing data and providing persistence.

JavaScript Syntax

- Inline JavaScript
- Internal JavaScript
- External JavaScript
- defer and async attributes
- DOM Methods

Inline JavaScript

- Inline JavaScript is placed directly within an HTML element's attributes.
- This is often used for small snippets of code, such as event handlers.

```
<!DOCTYPE html>
<html>
<head>
    <title>Inline JavaScript Example</title>
</head>
<body>
    <button onclick="alert('Hello,
world!')">Click me</button>
</body>
</html>
```

Internal JavaScript

- Internal JavaScript is placed within a <script> tag inside the HTML document.
- This is useful for including JavaScript that is only relevant to a specific page.

```
<!DOCTYPE html>
<html>
<head>
    <title>Internal JavaScript Example</title>
    <script>
        function showAlert() {
            alert('Hello, world!');
        }
    </script>
</head>
<body>
    <button onclick="showAlert()">Click me</button>
</body>
</html>
```

External JavaScript

- External JavaScript is written in a separate .js file and linked to the HTML document using the <script> tag with the src attribute.
- This is the preferred method for larger scripts and for maintaining clean and manageable code.

JavaScript File (script.js)

```
function showAlert() {
    alert('Hello, world!');
}
```

HTML file (index.html)

```
<!DOCTYPE html>
<html>
<head>
    <title>External JavaScript Example</title>
    <script src="script.js"></script>
</head>
<body>
    <button onclick="showAlert()">Click
me</button>
</body>
</html>
```

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Using the Defer or async Attribute

- Defer: The script will be executed after the HTML document has been fully parsed.
- This ensures that the script does not block the rendering of the page.

```
<!DOCTYPE html>
<html>
<head>
    <title>Async Attribute Example</title>
    <script src="script.js" async></script>
</head>
<body>
    <button onclick="showAlert()">Click me</button>
</body>
</html>
```

Using the Defer or Async Attribute

- Async: The script will be executed as soon as it is downloaded, which can lead to faster loading times, but the execution order is not guaranteed.

```
<!DOCTYPE html>
<html>
<head>
    <title>Defer Attribute Example</title>
    <script src="script.js" defer></script>
</head>
<body>
    <button onclick="showAlert()">Click me</button>
</body>
</html>
```

Document Object Model (DOM) Methods

- You can also insert JavaScript directly into an HTML document by creating and appending <script> elements using DOM methods.
- This is more advanced and is typically used dynamically to load scripts.

```
<!DOCTYPE html>
<html>
<head>
    <title>DOM Method Example</title>
</head>
<body>
    <button id="loadScript">Load Script</button>

    <script>
        document.getElementById('loadScript').onclick = function() {
            var script = document.createElement('script');
            script.src = 'script.js';
            document.head.appendChild(script);
        };
    </script>
</body>
</html>
```

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THANK YOU

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