




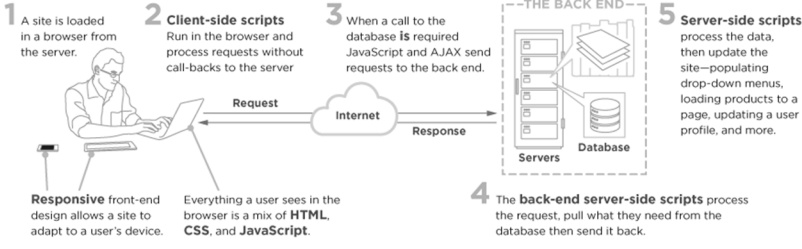




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 <h2>Frontend</h2>			
<ul style="list-style-type: none"> - Front-end web development is the practice of converting data to graphical interface for user to view and interact with data through digital interaction using HTML, CSS and JavaScript. - A front-end developer architects and develops websites and applications using web technologies (i.e., HTML, CSS, DOM, and JavaScript), which run on the Open Web Platform or act as compilation input for non-web platform environments 			
			
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 <h1>Frontend</h1> 				
 <p>1 A site is loaded in a browser from the server.</p> <p>2 Client-side scripts Run in the browser and process requests without call-backs to the server.</p> <p>3 When a call to the database is required JavaScript and AJAX send requests to the back end.</p> <p>4 The back-end server-side scripts process the request, pull what they need from the database then send it back.</p> <p>5 Server-side scripts process the data, then update the site—populating drop-down menus, loading products to a page, updating a user profile, and more.</p> <p>Responsive front-end design allows a site to adapt to a user's device. Everything a user sees in the browser is a mix of HTML, CSS, and JavaScript.</p> <p>THE BACK END</p> <p>Servers Database</p>				
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 <h1>HTML</h1> 				
<ul style="list-style-type: none"> - HTML: Hypertext Markup Language is the standard markup language for documents designed to be displayed in a web browser. - Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. - HTML is the backbone of any website development process, without which a web page doesn't exist. 				
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 <h1>CSS</h1> 			
<ul style="list-style-type: none"> - Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. - CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. 			
<div style="text-align: right;">  5 </div>			
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 <h1>JavaScript</h1> 			
<ul style="list-style-type: none"> - JavaScript (JS) is a high-level, interpreted scripting language that conforms to the ECMAScript specification. - JavaScript lets you add interactive features to your Web sites, including dynamically updated content, controlled multimedia, animated images, and much more. 			
<div style="text-align: right;">  6 </div>			
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<h1>HTML</h1>		
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 <h2>HTML Tag</h2>				
<ul style="list-style-type: none"> - HTML is a markup language that provides a description of the structure/layout of your web page. - An HTML <i>element</i> is formed using a tag. <ul style="list-style-type: none"> ▪ EX: <div data-bbox="430 1597 1208 1794"> <p><p> : tag is used to describe a paragraph HTML element.</p> <p><h1> : Highest-level heading</p> <p><h6> : Lowest-level heading</p> <p> : An image</p> </div> 				
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 <h1>HTML Tag</h1> 			
<ul style="list-style-type: none"> - These tags are enclosed within angle braces. - HTML elements contain both <i>opening</i> and <i>closing</i> tags to indicate where an element starts and ends. <ul style="list-style-type: none"> ▪ Opening tag: <tag name> ▪ Closing tag: </tag name> ▪ EX: <p> has its closing tag </p> <body> tag has its closing tag </body> <div> tag has its closing tag </div> - However, not all of these elements require the end tag. Some elements, the so-called <i>void elements</i>, do not have an end tag. <ul style="list-style-type: none"> ▪ EX: <hr/> horizontal line
 line break tag 			
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 <h1>Basic HTML File</h1> 			
<ul style="list-style-type: none"> - Basic HTML file to get a better understanding of how to use markup to define the structure of a web page. 			
<pre> <DOCTYPE! html> <html> <head> <title>Nong Lam University</title> </head> <body> <h1>First HTML File</h1> <p>Welcome to Nong Lam University</p> </body> </html> </pre>			
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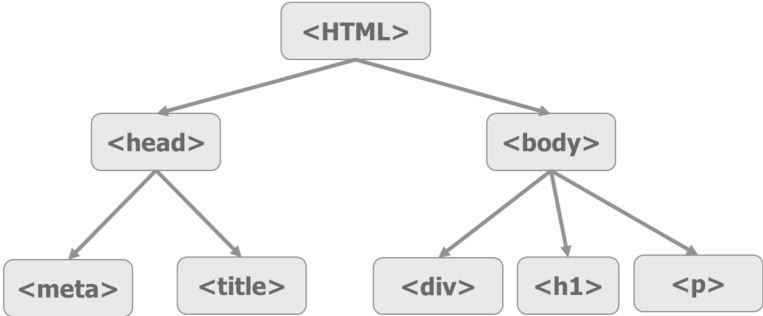
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Basic HTML File



- The root element is html tag. Within this root element there are multiple elements.
- <head> and <body> tag within the root <html> element.




```


graph TD
    HTML[<HTML>] --> head[<head>]
    HTML --> body[<body>]
    head --> meta[<meta>]
    head --> title[<title>]
    body --> div[<div>]
    body --> h1[<h1>]
    body --> p[<p>]
  
```

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Basic HTML File






- The <head> tag contains supporting information about the file, links to Javascript files and CSS stylesheets.
- The <body> element contains the main content of an HTML file, the information that is rendered by your web browser.
- There can be only one <body> and <head> tag within an HTML file, and most of the HTML you write will exist within this element.





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 <h2>HTML Attributes</h2> 			
<ul style="list-style-type: none"> - HTML attributes provide additional information about an HTML element. Attributes can be considered as properties of the element. - An element may have a single attribute, many attributes, or no attributes at all. <pre><tagName attribute_name="...value..."></tagName></pre> <ul style="list-style-type: none"> - EX: <pre><p title="Welcome" style="color:red"> Hello, World! </p></pre> 			
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 <h2>Id and Class attribute</h2> 			
<ul style="list-style-type: none"> - The id and class attributes can be used to identify specific HTML elements across your HTML page. - The id attribute give any element a unique identifier. - The class attribute is similar to the id attribute in that it is used to identify specific elements. - Id and Class can later be used for things like applying specific styles with CSS or capturing input with some Javascript code. 			
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 <h2>Id attribute</h2> 				
<ul style="list-style-type: none"> - An id value should only be used for a single element. - An id value must not contain any whitespace - A single element cannot have multiple id values <pre> <!-- Right --> <p id="id1"></p> <p id="id2"></p> <!-- Wrong --> <p id="number1 number2"></p> <p id="number3"></p> <p id="number3"></p> </pre> <div style="text-align: right;">  15 </div>				
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 <h2>Class attribute</h2> 				
<ul style="list-style-type: none"> - The same class value can be used across multiple elements - An element can have multiple class values, separated by whitespaces - Ex: <pre> <p class="class1 class2"></p> <p class="class3"></p> <p class="class3"></p> </pre> <div style="text-align: right;">  16 </div>				
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 <h2>Basic tag</h2> 				
<ul style="list-style-type: none"> - Tag <code><a></code>: Hyperlinking <ul style="list-style-type: none"> ▪ connect to a HTML page or other web pages by creating a hyperlink. ▪ Attribute href: A URL connect to web address. ▪ An absolute URL: URL have three main components: <ul style="list-style-type: none"> • The Protocol: http://, https:// ftp:// • The Domain: Domain name of website • The path: information direct to webpage ▪ A relative URL: provide less information than absolute URLs and generally refer to pages on the same domain. ▪ Ex: <code>Google</code> <code>About</code>  			17	
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 <h2>Basic tag</h2> 				
<ul style="list-style-type: none"> - Block-level Elements <ul style="list-style-type: none"> ▪ Headings (<code><h1></code>-<code><h6></code>) ▪ Ordered and Unordered Lists (<code></code>, <code></code>) ▪ List Items (<code></code>) ▪ Paragraphs (<code><p></code>) ▪ Logical divisions (<code><div></code>) 			18	
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 <h2>Basic tag</h2> 			
<ul style="list-style-type: none"> - Headings tag: h1 → h6 <ul style="list-style-type: none"> ▪ <h1>: Highest-level heading ▪ <h6>: Lowest-level heading ▪ The HTML standard has five additional text heading elements h2 → h6 ▪ You should use heading levels in structure of your HTML pages, an h2 element should be used for a header one level below an h1 element, an h3 element should be used a level below h2, and so on. 			
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 <h2>Basic tag</h2> 			
<pre> <html> <head> <title>h1 - h6 elements</title> </head> <body> <h1>Heading Level 1</h1> <h2>Heading Level 2</h2> <h3>Heading Level 3</h3> <h4>Heading Level 4</h4> <h5>Heading Level 5</h5> <h6>Heading Level 6</h6> </body> </html> </pre>			
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 Basic tag 			
<h1>Heading Level 1</h1> <h2>Heading Level 2</h2> <h3>Heading Level 3</h3> <h4>Heading Level 4</h4> <h5>Heading Level 5</h5> <h6>Heading Level 6</h6>			
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 Basic tag 			
<ul style="list-style-type: none"> - Lists: a bulleted or numbered list in web page content. - Unordered Lists : a list begin a bulleted. - Ordered Lists : a list begin a number. - Attribute: type <ul style="list-style-type: none"> ▪ Ex: <ol type="I"> 			
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Basic tag



- Unordered Lists


```

<html>
<head>
<title>List of product</title>
</head>
<body>
<h1>List of product</h1>
<ul>
<li>PC Gaming</li>
<li>Monitor LCD</li>
<li>SSD Desktop</li>
<li>DDR4 </li>
</ul>
</body>
</html>

```


List of product

- PC Gaming
- Monitor LCD
- SSD Desktop
- DDR4



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Basic tag



- Order list


```

<html>
<head>
<title>List of product</title>
</head>
<body>
<h1>List of product</h1>
<ol>
<li>PC Gaming</li>
<li>Monitor LCD</li>
<li>SSD Desktop</li>
<li>DDR4 </li>
</ol>
</body>
</html>

```




List of product

1. PC Gaming
2. Monitor LCD
3. SSD Desktop
4. DDR4




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 <h2>Basic tag</h2> 			
<ul style="list-style-type: none"> - Block Elements: HTML tag can make full width in web page, making a block around content. <ul style="list-style-type: none"> ▪ Ex: <h1>-<h6>, , , , <p>, <div> - Inline Elements: HTML tag cannot make full width. Inline Elements do not start a new line, it's part of the content in a block. <ul style="list-style-type: none"> ▪ Ex: <a>, <i>, , 			
<div style="text-align: right;">  25 </div>			
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 <h2>Basic tag</h2> 			
<pre> <html> <head> <title>Block vs Inline HTML Element</title> </head> <body> <h1>Block vs Inline HTML Element</h1> <p>Block element begin with new line.</p> <p> Inline elements inside a block elements, you can search here </p> </body> </html> </pre>			
<div style="text-align: right;"> 26 </div>			
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 <h2>Basic tag</h2>			
<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <h3>Block vs Inline HTML Element</h3> <p>Block element begin with new line.</p> <p>Inline elements inside <i>a block elements</i>, <u>you can search here</u></p> </div>			
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 <h2>Basic tag</h2>			
<ul style="list-style-type: none"> - Div tag <div>: defines a division or a section for web page. - Div tag is often used as a container for other HTML elements. - Div tag does render anything on web page, it's create a block and we can use style sheet to format. 			
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Basic tag



```
<html>
<head>
  <title>Div Tag</title>
</head>
<body>
  <h1>HTML Div tag</h1>
  <div>
    Content of div 1.
  </div>
  <div>
    Content of div 2.
  </div>
</body>
</html>
```


HTML Div tag

Content of div 1.
Content of div 2.


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Basic tag



```
<html>
<head>
  <title>Div Tag</title>
</head>
<body>
  <h1>HTML Div tag</h1>
  <div style='background-color: red'>
    Content of div 1.
  </div>
  <div style='background-color: blue'>
    Content of div 2.
  </div>
</body>
</html>
```


HTML Div tag

Content of div 1.
Content of div 2.


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Basic tag



- Table tag **<table>**: defines an HTML table with multi row and column.
- The **<tr>** tag is used to create table rows.
- The **<td>**, **<th>** tag is used to create data cells.


```

<table border = "1">
  <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>


```

Row 1, Column 1	Row 1, Column 2
Row 2, Column 1	Row 2, Column 2



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Basic tag




- Table Header, Body, and Footer
 - **<thead>** – to create a separate table header.
 - **<tbody>** – to indicate the main body of the table.
 - **<tfoot>** – to create a separate table footer.



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Basic tag




```
<table border = "1" width = "100%">
  <thead>
    <tr>
      <td colspan = "3">Header of the table</td>
    </tr>
  </thead>
  <tfoot>
    <tr>
      <td colspan = "3">Footer of the table</td>
    </tr>
  </tfoot>
  <tbody>
    <tr>
      <td>Cell 1</td>
      <td>Cell 2</td>
      <td>Cell 3</td>
    </tr>
    <tr>
      <td>Cell 1</td>
      <td>Cell 2</td>
      <td>Cell 3</td>
    </tr>
  </tbody>
</table>
```


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Basic tag






Header of the table		
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Footer of the table		




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 <h2>HTML Forms</h2> 			
<ul style="list-style-type: none"> - HTML forms are how we receive user input on our web pages. - If you've ever visited a blog and left a comment or used your credit card online to purchase something, you have used HTML forms to interact with the web page you were visiting. - Ex: when you visit a website and you must login to access some function, You must provide the username and password for the website. 			
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 <h2>HTML Forms</h2> 			
<ul style="list-style-type: none"> - Input tag <code><input></code> define some control allow the user to input data. - Input tag no need close tag. - Label tag <code><label></code> using with input tag to make label for every input tag. 			
<pre> <form> <label for="username"> Username: <input type="text" id="username" name="username"> </label> </form> </pre>			
<div style="border: 1px solid black; padding: 10px; width: fit-content;"> Username: <input type="text"/> </div>			
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HTML Forms



- Attribute type is used to define a type of form control.
- List of type

Value	Description
button	Defines a clickable button (mostly used with a JavaScript to activate a script)
checkbox	Defines a checkbox
color	Defines a color picker
date	Defines a date control (year, month, day (no time))
datetime-local	Defines a date and time control (year, month, day, time (no timezone))
email	Defines a field for an e-mail address
file	Defines a file-select field and a "Browse" button (for file uploads)

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HTML Forms



Value	Description
hidden	Defines a hidden input field
image	Defines an image as the submit button
month	Defines a month and year control (no timezone)
number	Defines a field for entering a number
password	Defines a password field
radio	Defines a radio button
range	Defines a range control (like a slider control)
reset	Defines a reset button
search	Defines a text field for entering a search string
submit	Defines a submit button
tel	Defines a field for entering a telephone number
text	Default. Defines a single-line text field
time	Defines a control for entering a time (no timezone)
url	Defines a field for entering a URL
week	Defines a week and year control (no timezone)

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 <h1>HTML Forms</h1> 			
<ul style="list-style-type: none"> - To input a text with single line, you need to use input tag with type "text". - To input a text with multi line, you need to use textarea tag <textarea> 			
<div style="text-align: right;">  39 </div>			
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 <h1>HTML Forms</h1> 			
<pre> <form> <label for="name"> Name: <input type="text" id="name" name="name"> </label>

 <label for="name"> Address: <textarea id="address" name="address"> </label> </form> </pre>			
<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>Name: <input type="text"/></p> <p>Address: <input type="text"/></p> </div>			
<div style="text-align: right;">  40 </div>			
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 <h2>HTML Forms</h2> 			
<ul style="list-style-type: none"> - A <code><button></code> element should be used whenever you want to create a clickable button to perform some action on the page. <ul style="list-style-type: none"> ▪ submit: submits form data to a server ▪ reset: resets all the data in the current form ▪ button: no default behavior. 			
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 <h2>HTML Forms</h2> 			
<ul style="list-style-type: none"> - <code><select></code> tag (with nested <code><option></code>) used to create a drop-down selection of items that a user can choose from. - Including the <code>selected</code> attribute in an <code><option></code> element will show that option by default. 			
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="border: 1px solid black; padding: 10px; width: 45%;"> <pre> <form> <label for="selector"> <p>Select you technology</p> <select id="selector"> <option>C/C++</option> <option selected>JAVA</option> <option>PHP</option> <option>C#</option> </select> </label> </form> </pre> </div> <div style="border: 1px solid black; padding: 10px; width: 45%;"> <p>Select you technology</p> <div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> JAVA ▼ </div> <div style="margin-top: 5px;"> C/C++ JAVA PHP C# </div> </div> </div> </div>			
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		<h1>CSS</h1>	
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		<h1>CSS</h1>	
<ul style="list-style-type: none"> - CSS (Cascading Style Sheets) is a style sheet language used for describing the presentation of a document written in a markup language - CSS describes how HTML elements are to be displayed on screen, paper, or in other media - CSS saves a lot of work. It can control the layout of multiple web pages all at once - External stylesheets are stored in CSS files 			
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 <h1>CSS</h1> 			
<p>- CSS can be added to HTML elements in 3 ways:</p> <ul style="list-style-type: none"> ▪ Inline - by using the style attribute in HTML elements ▪ Internal - by using a <style> element in the <head> section ▪ External - by using an external CSS file 			
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 <h1>CSS</h1> 			
<pre><h1 style="color:blue;">This is a Blue Heading</h1></pre>			
<pre><head> <style> body {background-color: powderblue;} h1 {color: blue;} p {color: red;} </style> </head></pre>			
<pre><head> <link rel="stylesheet" href="styles.css"> </head></pre>			
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CSS Systax



Selector

Declaration

Declaration

h1

{ color:blue; font-size:12px; }

Property


Value

Property

Value


- 3 type of selector

- Tag Selector
- Id Selector
- Class Selector



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CSS




- Tag selector:

- The tag selector selects elements based on the tag name.
- Ex: You can select all <p> elements on a page like this

```



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

```




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<p>- Id selector:</p> <ul style="list-style-type: none"> ▪ 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. 			
<pre><p id="para1">This paragraph refers to two classes.</p></pre>			
<pre>#para1 { text-align: center; color: red; }</pre>			
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<h2>CSS</h2> <p>- Class selector:</p> <ul style="list-style-type: none"> ▪ 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. 			
<pre><p class="center">This paragraph refers to two classes.</p></pre>			
<pre>.center { text-align: center; color: red; }</pre>			
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CSS



- Define multi selector:



```
h3, .red, #redElement{
  color: red;
}
```
- Define child selector: apply exactly for some selector.


```
#header #menu #item p{
  color: red;
}
```
- Nested selector



```
#header #menu #item > p{
  color: red;
}
```

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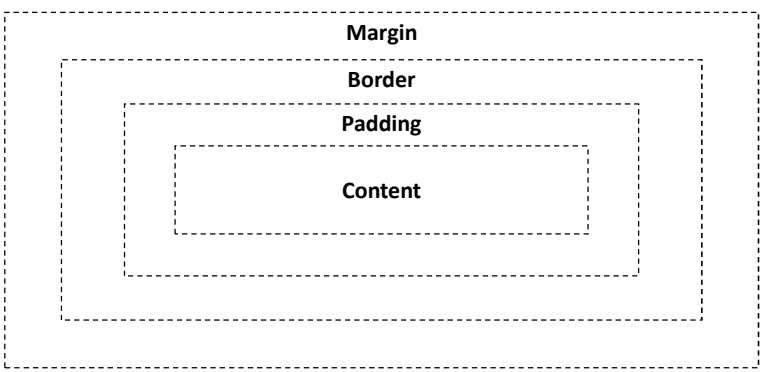
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HTML Box Model






- Your browser renders every HTML element as a box, you can format all component of box.






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 <h1>HTML Box Model</h1> 			
<p>- The CSS box model is essentially a box that wraps around every HTML element. It consists of: margins, borders, padding, and the actual content.</p> <ul style="list-style-type: none"> ▪ Margin - Clears an area outside the border. The margin is transparent ▪ Border - A border that goes around the padding and content ▪ Padding - Clears an area around the content. The padding is transparent ▪ Content - The content of the box, where text and images appear 			
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 <h1>HTML Box Model</h1> 			
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="border: 1px solid black; padding: 10px; width: 40%;"> <pre> <style> div { background-color: lightgrey; width: 300px; border: 15px solid blue; padding: 50px; margin: 20px; } </style> <h1>Demo Box Model</h1> <div>Div Data</div> </pre> </div> <div style="width: 55%;"> <h2>Demo Box Model</h2> <div style="border: 15px solid blue; padding: 50px; margin: 20px; background-color: lightgrey; text-align: center;"> <p>Div Data</p> </div> </div> </div>			
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HTML Box Model



- height and width:


- Use the height and width CSS properties to change the height and width of an element's content area.

Value	Description
auto	The browser calculates the height. This is default
<i>length</i>	Defines the height in px, cm, etc. Read about length units
%	Defines the height in percent of the containing block
initial	Sets this property to its default value. Read about initial
inherit	Inherits this property from its parent element. Read about inherit



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HTML Box Model



- padding: to create spacing between an element's *content area* and *border*.




- The padding property is a shorthand property for:

- padding-top
- padding-right
- padding-bottom
- padding-left





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 <h2>HTML Box Model</h2> 			
<ul style="list-style-type: none"> - Padding property with four values: <ul style="list-style-type: none"> ▪ padding:20px 15px 10px 5px; <ul style="list-style-type: none"> • Top padding is 20px • Right padding is 15px • Bottom padding is 10px • Left padding is 5px - Padding property with three values: <ul style="list-style-type: none"> ▪ padding:20px 15px 10px; <ul style="list-style-type: none"> • Top padding is 20px • Right and left padding are 15px • Bottom padding is 10px 			
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 <h2>HTML Box Model</h2> 			
<ul style="list-style-type: none"> - Padding property with two values: <ul style="list-style-type: none"> ▪ padding:20px 15px; <ul style="list-style-type: none"> • Top and bottom padding are 20px • Right and left padding are 15px - Padding property with one values: <ul style="list-style-type: none"> ▪ padding:20px; <ul style="list-style-type: none"> • All four paddings are 20px 			
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 <h1>HTML Box Model</h1> 			
<ul style="list-style-type: none"> - Margin: The margin property is very similar to the padding property, except it allows you to define the spacing around the outside of an HTML element past the border. - Margin with value <i>auto</i>: making a html element position to center with outside element. 			
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 <h1>HTML Box Model</h1> 			
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <pre> <style> .box1 { margin: auto; width:100px; background-color:red; } .box2 { width:100px; background-color:orange; } </style> <div class="box1"> Box Margin auto</div> <div class="box2"> Box without margin</div> </pre> </div> <div style="width: 50%; text-align: center;">  </div> </div>			
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 <h2>HTML Box Model</h2> 			
<p>- Border: border CSS property sets the border of an element. The syntax for the border property is as follows:</p> <ul style="list-style-type: none"> ▪ border: width style color; <ul style="list-style-type: none"> • Width: width of border. • Style: can include things like dotted, groove, double, and solid. • Color: color value for border. 			
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 <h2>HTML Text Format</h2> 			
Color	<i>Color: colorcode;</i>	Format color for text content.	
Font Size	<i>font-size: size;</i>	Set the size of the text.	
Font Weight	<i>font-weight: type;</i>	The weight of a font.	
font-family	<i>font-family: font name;</i>	The font for an element.	
text-align	<i>text-align: alignment ;</i>	The horizontal alignment of text in an element	
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CSS Layout




- Safe study and presentation.




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Bootstrap Framework




- Safe study and presentation.




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Font Awesome




- Safe study and presentation.



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JAVASCRIPT




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 <h1>Javascript</h1> 			
<ul style="list-style-type: none"> - Javascript is the programming language of the web. - Javascript allow access and control HTML element in webpage. - Javascript allows making dynamic webpage from static webpage. - One of the main reasons we use Javascript to build interactivity is because it allows us to manipulate the Document Object Model (or DOM) for short. 			
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 <h1>Javascript</h1> 			
<ul style="list-style-type: none"> - Using Javascript, we can manipulate the DOM to do things like: <ul style="list-style-type: none"> ▪ Modify existing HTML elements ▪ Modify attributes on HTML elements ▪ Add or modify the CSS associated with HTML elements ▪ Add and delete HTML elements 			
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Variable




- The var keyword is used to declare a variable.
 - Ex: `var text="new text";`
`var button = document.querySelector('button');`
- Variable always has a data type associated with it that tells the computer exactly how to handle the data that it's given. In Javascript, the data's type is automatically determined when the code is executed
- You can use method ***console.log()*** to output data to console webpage.


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JS Operator






- Arithmetic Operators

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
**	Power Operator
/	Division
%	Modulus (Division Remainder)
++	Increment
--	Decrement




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 JS Operator 			
- Assignment Operators			
Operator	Example	Same As	 71
=	x = y	x = y	
+=	x += y	x = x + y	
-=	x -= y	x = x - y	
*=	x *= y	x = x * y	
/=	x /= y	x = x / y	
%=	x %= y	x = x % y	
**=	x **= y	x = x ** y	
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 JS Operator 			
- Comparison Operators			
perator	Description	 72	
==	equal to		
===	equal value and equal type		
!=	not equal		
!==	not equal value or not equal type		
>	greater than		
<	less than		
>=	greater than or equal to		
<=	less than or equal to		
?	ternary operator		
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 JS Operator												
- Logical Operators												
<table><tr><th>Operator</th><th>Description</th></tr><tr><td>&&</td><td>logical and</td></tr><tr><td> </td><td>logical or</td></tr><tr><td>!</td><td>logical not</td></tr></table>					Operator	Description	&&	logical and		logical or	!	logical not
Operator	Description											
&&	logical and											
	logical or											
!	logical not											
				 73								
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JS Operator




- Bitwise Operators

perato r	Description	Example	Same as	Result	Decimal
&	AND	5 & 1	0101 & 0001	0001	1
	OR	5 1	0101 0001	0101	5
~	NOT	~ 5	~0101	1010	10
^	XOR	5 ^ 1	0101 ^ 0001	0100	4
<<	Zero fill left shift	5 << 1	0101 << 1	1010	10
>>	Signed right shift	5 >> 1	0101 >> 1	0010	2
>>>	Zero fill right shift	5 >>> 1	0101 >>> 1	0010	2



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JS Operator




- Logical Operators

Operator	Description
&&	logical and
	logical or
!	logical not



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JS Condition




- Conditional statements are used to perform different actions based on different conditions.

- Syntax


```
if (condition) {
    // execute if the condition is true
}
```

```
if (condition) {
    //execute if the condition is true
} else {
    // execute if the condition is false
}
```



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JS Condition




- Syntax

```


if (condition1) {
    //execute if condition1 is true
} else if (condition2) {
    //execute if the condition1 is false and
    condition2 is true
} else {
    //execute if the condition1 is false and
    condition2 is false
}

```



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JS Switch



```



switch(expression) {
    case x:
        // code block
        break;
    case y:
        // code block
        break;
    default:
        // code block
}

```





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 <h2>JS For Loop</h2> 				
<ul style="list-style-type: none"> - For loop execute a block of code a number of times. - Syntax 				
<pre>for (for init; for condition; for update) { // code block to be executed }</pre>				
<ul style="list-style-type: none"> - For Each: loops through the values of an iterable objects (ex: array) 				
<pre>for (variable of iterable) { // code block to be executed }</pre>				
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 <h2>JS While Loop</h2> 				
<ul style="list-style-type: none"> - While loop execute a block of code until condition is false. - Syntax 				
<pre>while (condition) { // code block to be executed }</pre>				
				
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 <h2>JS do while Loop</h2> 			
<ul style="list-style-type: none"> - Do while loop similar while loop but do while loop will execute the code block once, before checking condition. - Syntax 			
<pre>do { // code block to be executed } while (condition);</pre>			
<div style="text-align: right;">  81 </div>			
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 <h2>JS Function (Method)</h2> 			
<ul style="list-style-type: none"> - Define: 			
<pre>function name(parameter1, parameter2, ...) { // code here }</pre>			
<pre>var name = function (parameter1, parameter2, ...) { // code here }</pre>			
<div style="text-align: right;">  82 </div>			
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 <h2>Data Structures: Arrays</h2> 			
<ul style="list-style-type: none"> - Arrays are used to store multiple values in a single variable. <pre>var phone = ["Apple", "Sam Sung", "Sony"];</pre>			
<ul style="list-style-type: none"> - JS Arrays can store any valid data type. <pre>var data = ["Tí", "Nguyễn Vannw", 20];</pre>			
<ul style="list-style-type: none"> - JS Arrays don't limit to storing data. 			
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 <h2>Arrays</h2> 			
<ul style="list-style-type: none"> - Declaration: <ul style="list-style-type: none"> ▪ Way 1: Use [] instead. ▪ Way 2: new Array(). <pre>var data = []; // Good var data = new Array(); // Bad</pre>			
<ul style="list-style-type: none"> - Access data: You access an array element by referring to the index number. Array indexes start with 0. <pre>var cars = ["Saab", "Volvo", "BMW"]; var myCar = cars[2];</pre>			
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 <h1>Arrays</h1> 			
<p>- Add data:</p> <ul style="list-style-type: none"> Use the <code>Array.push()</code> method to add items to the end of an array. <pre>var data = []; data.push("Lemon"); //or data[1]="Apple";</pre>			
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 <h1>Arrays</h1> 			
<p>- Remove data:</p> <ul style="list-style-type: none"> Method <code>Array.pop()</code> to remove the last item in the array and returns the removed item. Method <code>Array.shift()</code> to remove the first item in the array and returns the removed item. <code>Array.unshift()</code> adds an item to the beginning of an array. <code>Array.unshift()</code> returns the new size of the array. <pre>var data = []; data.push("Lemon"); //or data[1]="Apple"; var item = data.shift();//remove Lemon, return lemon var size = data.unshift();//add Lemon, return 2 var item1 = data.pop(); //remove Apple, return Apple</pre>			
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Arrays




- Edit data:

- To edit data we use index num to access.
- Index number: start: 0; end: n-1.

```
var data = [];
data.push("Lemon"); //or
data[1]="Apple";
data[1]="Orange"; // change Apple → Orange
```


- Array size:

- **Array.length** will return the number of items currently in the array.



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Arrays



- Retrieve Arrays




```
var printArray = function(arrays){
  for(var i = 0; i < arrays.length; i++) {
    console.log(arrays[i]);
  }
}
printArray(data);
```

```
var printArray = function(arrays){
  for(var a of arrays){
    console.log(a);
  }
}
printArray(data);
```




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 <h1>Arrays</h1> 			
<ul style="list-style-type: none"> - Print array or convert array to string <ul style="list-style-type: none"> ▪ The Array.toString() method will take an array and convert it into a string, with items separated by commas. ▪ The console.log(array) method will show all data of array to browser console; 			
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 <h1>Data Structures: Object</h1> 			
<ul style="list-style-type: none"> - JS Object is a special data type that can contain multiple data type. - Data of JS Object is called properties. - Define: <ul style="list-style-type: none"> ▪ We use "{}" to create Object. ▪ A properties of the object have 2 parts: "name:value" 			
<pre>var person = { firstName: "Ti", lastName: "Nguyễn Văn", age: 20, class: "CNTT" };</pre>			
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 <h2 style="display: inline;">Data Structures: Object</h2> 			
<ul style="list-style-type: none"> - Accessing Object Properties <ul style="list-style-type: none"> ▪ <code>object.properties</code> ▪ <code>object['properties']</code> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>var fName = person.lastName; var lName = person["firstName"];</pre> </div> <ul style="list-style-type: none"> - Add or modify properties: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>person["firstName"] = Teo" ; person.score = 8.2;</pre> </div>			
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 <h2 style="display: inline;">Data Structures: Object</h2> 			
<ul style="list-style-type: none"> - Remove properties: using the delete keyword to remove a properties. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>delete person.score;</pre> </div> <ul style="list-style-type: none"> - Retrieve Arrays <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>for(var properties of person){ console.log(properties);// get properties name console.log(person[properties]);// get //properties value }</pre> </div>			
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JS HTML DOM




- **Working with Element Nodes:** Each element on your HTML page has an associated **element node** in the *Document Object Model (DOM)*.
- The DOM can be accessed using Javascript through the document object.
- **document** object behaves like any other Javascript object, and has many different properties and methods that are useful in accessing nodes in the DOM.



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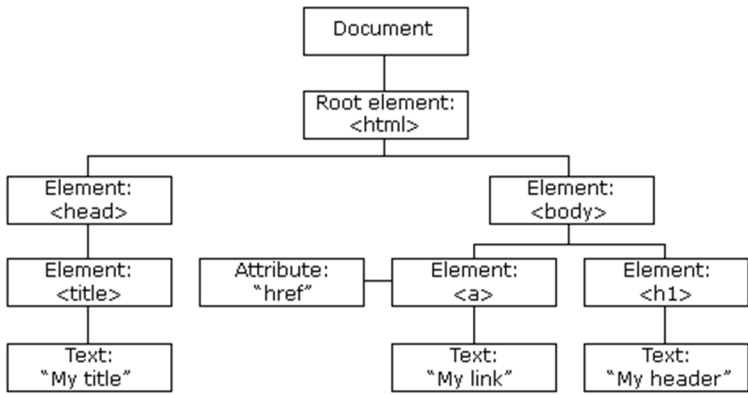
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JS HTML DOM








```

graph TD
    Document[Document] --> Root[Root element: <html>]
    Root --> Head[Element: <head>]
    Root --> Body[Element: <body>]
    Head --> Title[Element: <title>]
    Title --> TitleText[Text: "My title"]
    Body --> A[Element: <a>]
    Body --> H1[Element: <h1>]
    A --> AAttr[Attribute: "href"]
    A --> AText[Text: "My link"]
    H1 --> H1Text[Text: "My header"]
  
```





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 <h1>JS HTML DOM</h1> 			
<ul style="list-style-type: none"> - The HTML DOM is a standard object model and programming interface for HTML. It defines: <ul style="list-style-type: none"> ▪ The HTML elements as objects ▪ The properties of all HTML elements ▪ The methods to access all HTML elements: add, get, modify, remove. ▪ The events for all HTML elements 			
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 <h1>DOM Methods</h1> 			
<ul style="list-style-type: none"> - Access element <ul style="list-style-type: none"> ▪ document.querySelector(): return the first element it finds with the selector provided. If not found return null. ▪ document.getElementById(id): get element with an id attribute. ▪ document.getElementsByTagName(tag): get element with an html name tag. ▪ document.getElementsByClassName(class): get element with class attribute. 			
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 <h1>DOM Methods</h1> 				
<pre>var app = document.querySelector("#app"); var name = document.getElementById("name"); var table = document.getElementsByTagName("table"); var title = document.getElementsByClassName("title");</pre>				
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 <h1>DOM Methods</h1> 				
<ul style="list-style-type: none"> - Create Elements: document.createElement(element) - Insert Elements: Element.appendChild(element_node) 				
<pre>var h1 = document.createElement('h1'); h1.innerHTML = "A new HTML element!"; var content = document.querySelector('#content'); content.appendChild(h1);</pre>				
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 <h2>DOM Methods</h2> 				
<p>- Remove Element: To remove an HTML element, you must know the parent of the element:</p>				
<pre><div id="div1"> <p id="p1">This is a paragraph.</p> <p id="p2">This is another paragraph.</p> </div> <script> var parent = document.getElementById("div1"); var child = document.getElementById("p1"); parent.removeChild(child); </script></pre>				
<pre>var child = document.getElementById("p1"); child.parentNode.removeChild(child);</pre>				
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 <h2>DOM Modifying Attributes</h2> 				
<p>- Add, Remove, and View Element Attributes:</p> <ul style="list-style-type: none"> ▪ Element.getAttributeNames() ▪ Element.getAttribute(name) ▪ Element.setAttribute(name, value) ▪ Element.removeAttribute(name) 				
<pre>var fName = person.lastName; var lName = person["firstName"];</pre>				
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 <h1>JS Mouse Event</h1> 			
Event	Description		
onclick	The event occurs when the user clicks on an element		
oncontextmenu	The event occurs when the user right-clicks on an element to open a context menu		
ondblclick	The event occurs when the user double-clicks on an element		
onmousedown	The event occurs when the user presses a mouse button over an element		
onmouseenter	The event occurs when the pointer is moved onto an element		
onmouseleave	The event occurs when the pointer is moved out of an element		
onmousemove	The event occurs when the pointer is moving while it is over an element		
onmouseout	The event occurs when a user moves the mouse pointer out of an element, or out of one of its children		
onmouseover	The event occurs when the pointer is moved onto an element, or onto one of its children		
onmouseup	The event occurs when a user releases a mouse button over an element		
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 <h1>Jquery</h1> 			
<ul style="list-style-type: none"> - jQuery is JavaScript library. - The purpose of jQuery is to make it much easier to use JavaScript on your website. - The jQuery library contains the following features: <ul style="list-style-type: none"> ▪ HTML/DOM manipulation ▪ CSS manipulation ▪ HTML event methods ▪ Effects and animations ▪ AJAX ▪ Utilities 			
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 <h2>jQuery Syntax</h2> 			
<ul style="list-style-type: none"> - <code>\$(selector).action()</code> <ul style="list-style-type: none"> ▪ <code>"\$"</code>: character to access jQuery. ▪ <code>\$(selector)</code>: to access to selector matching. ▪ <code>action()</code>: method of jQuery. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>\$(this).show()</code> - show the current element.</p> <p><code>\$("a").hide()</code> - hides all <code><p></code> elements.</p> <p><code>\$(".item").hide()</code> - hides all elements with <code>class="item"</code>.</p> <p><code>\$("#item").hide()</code> - hides the element with <code>id="item"</code>.</p> </div>			
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 <h2>jQuery Running</h2> 			
<ul style="list-style-type: none"> - To run jQuery we must reference to jQuery lib. - 2 way to reference: <ul style="list-style-type: none"> ▪ jQuery CDN: include cdn link. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre><script src="https://code.jquery.com/jquery-3.4.1.min.js"></script></pre> </div> ▪ jQuery lib: <ul style="list-style-type: none"> • Download latest version from jQuery homepage https://jquery.com/download/. • Extract and link lib file to html page. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre><script src="jquery-3.4.1.min.js"></script></pre> </div> 			
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jQuery Running




- Document ready event: all jQuery methods must be declared inside document ready event

- Way 1:



```
$(document).ready(function(){
    // jQuery methods
});
```
- Way 2:


```
$(function(){
    // jQuery methods
});
```


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jQuery Selectors






Syntax	Description
\$("* ")	Selects all elements
\$(this)	Selects the current HTML element
\$("p.intro")	Selects all <p> elements with class="intro"
\$("p:first")	Selects the first <p> element
\$("ul li:first")	Selects the first element of the first
\$("ul li:first-child")	Selects the first element of every




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 <h1>jQuery Selectors</h1> 			
<p>- Filtering Selectors:</p> <ul style="list-style-type: none"> ▪ first(): return first element in all element selected. ▪ last(): return first element in all element selected. ▪ eq(n): return nth element in (n+1) element selected. ▪ filter(): filter all element want to select. ▪ Not(): filter all element want to remove. 			
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 <h1>jQuery Selectors</h1> 			
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="flex: 1;"> <pre> <script> \$(document).ready(function(){ \$("div").first().css("background", "yellow") \$("div").eq(2).css("background", "blue"); \$("div").last().css("background", "red"); }); </script> <div> First div</div> <div> Second div </div> <div> Thirt div </div> <div> Last div </div> </pre> </div> <div style="flex: 1; text-align: center;"> <div style="background-color: yellow; padding: 5px; margin-bottom: 5px;">First div</div> <div style="background-color: blue; padding: 5px; margin-bottom: 5px;">Second div</div> <div style="background-color: red; padding: 5px; margin-bottom: 5px;">Thirt div</div> <div style="background-color: red; padding: 5px;">Last div</div> </div> </div>			
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 jQuery Selectors 			
Syntax	Description		
<code>\$("[href]")</code>	Selects all elements with an href attribute		
<code>\$("a[target='_blank']")</code>	Selects all <a> elements with a target attribute value equal to "_blank"		
<code>\$("a[target!='_blank']")</code>	Selects all <a> elements with a target attribute value NOT equal to "_blank"		
<code>\$(":button")</code>	Selects all <button> elements and <input> elements of type="button"		
<code>\$("tr:even")</code>	Selects all even <tr> elements		
<code>\$("tr:odd")</code>	Selects all odd <tr> elements		
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 jQuery event 			
Mouse Events	Keyboard Events	Form Events	Document/Window Events
click	keypress	submit	load
dblclick	keydown	change	resize
mouseenter	keyup	focus	scroll
mouseleave		blur	unload
- Ex: <pre> \$(".btn").click(function(){ // action }); </pre>			
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 <h2>jQuery - HTML</h2> 	
<p>- Get Content:</p> <ul style="list-style-type: none"> ▪ <code>text()</code>: Get the text content of selected elements ▪ <code>html()</code>: Get the content of selected elements (including HTML markup) ▪ <code>val()</code>: Get the value of form fields ▪ <code>attr("attributeName")</code>: Get value of html element attribute. 	
<pre> <p id="test">This is some bold text in a paragraph.</p> --- \$("#test").text() → "This is some bold text in a paragraph. " \$("#test").html() → "This is some bold text in a paragraph." </pre>	
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 <h2>jQuery - HTML</h2> 	
<p>- Get Content:</p> <ul style="list-style-type: none"> ▪ <code>text("text")</code>: Set the text content of selected elements ▪ <code>html("html")</code>: Set the content of selected elements (including HTML markup) ▪ <code>val("value")</code>: Set the value of form fields ▪ <code>attr("attributeName", "value")</code>: Set value for html element attribute. 	
<pre> \$("#test").text("This is some bold text in a paragraph. ") \$("#test").html("This is some bold text in a paragraph.") </pre>	
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 <h2>jQuery - HTML</h2> 			
<p>- Add Elements</p> <ul style="list-style-type: none"> ▪ Append: Inserts content at the end of the selected elements ▪ prepend(): Inserts content at the beginning of the selected elements ▪ after(): Inserts content after the selected elements ▪ before(): Inserts content before the selected elements <pre> \$("p").append("Appended text."); \$("p").prepend("Prepended text."); \$("p").after("Text after"); \$("p").before("Text before"); </pre>			
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 <h2>jQuery - HTML</h2> 			
<p>- Remove Elements</p> <ul style="list-style-type: none"> ▪ remove(): Removes the selected element (and its child elements) ▪ empty(): Removes the child elements from the selected element <pre> \$("#content").remove(); \$("#content").empty(); </pre>			
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 <h1>jQuery</h1> 				
<p>- Get, Set CSS Classes</p> <ul style="list-style-type: none"> ▪ <code>addClass()</code>: Adds one or more classes to the selected elements ▪ <code>removeClass()</code>: Removes one or more classes from the selected elements ▪ <code>toggleClass()</code>: Toggles between adding/removing classes from the selected elements <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>\$("h1, h2, p").addClass("bg-success border"); \$("h1, h2, p").removeClass("bg-success border"); \$("h1, h2, p").toggleClass("bg-success border");</pre> </div> <div style="text-align: right;">  115 </div>				
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 <h1>jQuery</h1> 				
<p>- Get, Set CSS Classes</p> <ul style="list-style-type: none"> ▪ <code>css("propertyname")</code>: return the value of a CSS property ▪ <code>css("propertyname", "value")</code>: set a CSS property <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>\$("p").css("background-color"); \$("p").css("background-color", "yellow");</pre> </div> <div style="text-align: right;">  116 </div>				
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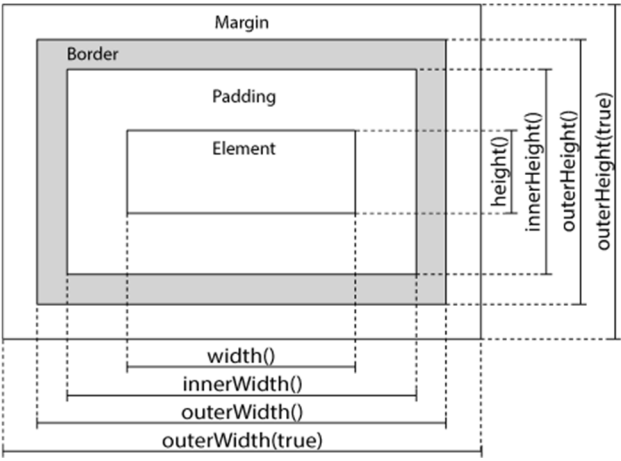
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jQuery - HTML




- Dimensions





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jQuery - HTML





- **width():** set or get the width of an element (**without** padding, border and margin).
- **height():** set or get the height of an element (**without** padding, border and margin).
- **innerWidth():** get returns the width of an element (**includes** padding)
- **innerHeight():** get returns the width of an element (**includes** padding)



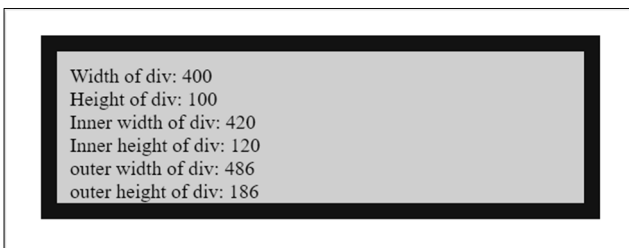

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 <h2>jQuery - HTML</h2> 			
<ul style="list-style-type: none"> ▪ outerWidth(): get the width of an element (includes padding and border) ▪ outerHeight(): get the height of an element (includes padding and border) ▪ outerWidth(true): get the width of an element (includes padding, border, and margin) ▪ outerHeight(true): get the height of an element (includes padding, border, and margin) 			
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 <h2>jQuery - HTML</h2> 			
<pre>#div1 { height: 100px; width: 400px; margin: 20px; padding: 10px; border: 13px solid blue; background-color: lightblue; }</pre>			
			
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 <h2>jQuery - Traversing</h2> 			
<p>- HTML DOM is designed like a tree in data structure. Every HTML elements has a parent element and childrent element. Traversing is understood as moving through each element (parent and child) .</p>			
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 <h2>jQuery - Traversing</h2> 			
<p>- Traversing method:</p> <ul style="list-style-type: none"> ▪ parent(): returns a direct parent of this element. ▪ children(): returns all direct children of this element. ▪ find(): returns descendant elements of the selected element (search in all children). ▪ next(): return element next to this element. ▪ nextAll(): return all next element. ▪ prev() return element previous to this element. ▪ prevAll(): return all previous element. 			
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AJAX




- Safe study and presentation.




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Datatable



- Safe study and presentation.



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Q & A







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