

WEB PROGRAMMING AND APPLICATIONS (Tutorial 1)









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HTML Table

HTML tables allow web developers to arrange data into rows and columns.

- Each table row starts with a `<tr>` and ends with a `</tr>` tag.
- Each table cell is defined by a `<td>` and a `</td>` tag. Everything between `<td>` and `</td>` are the content of the table cell.
- Sometimes you want your cells to be table header cells. In those cases, use the `<th>` tag instead of the `<td>` tag

CSS	Description	Example
<code>border</code>	To add a border, use the CSS <code>border</code> property on <code>table</code> , <code>th</code> , and <code>td</code> elements	<pre>table, th, td { border: 1px solid black; }</pre>
<code>border-collapse</code>	To avoid having double borders, set the CSS <code>border-collapse</code> property to <code>collapse</code>	<pre>table, th, td { border: 1px solid black; border-collapse: collapse; }</pre>
<code>border-radius</code>	With the <code>border-radius</code> property, the borders get rounded corners	<pre>table, th, td { border: 1px solid black; border-radius: 10px; }</pre>
<code>border-style</code>	With the <code>border-style</code> property, you can set the appearance of the border. <ul style="list-style-type: none">• <code>dotted</code> • <code>dashed</code> • <code>solid</code> • <code>double</code> • <code>groove</code> • <code>ridge</code> • <code>inset</code> • <code>outset</code> • <code>none</code>• <code>hidden</code>	<pre>th, td { border-style: dotted; }</pre>
<code>border-color</code>	With the <code>border-color</code> property, you can set the color of the border.	<pre>th, td { border-color: #96D4D4; }</pre>
<code>padding</code>	Cell padding is the space between the cell edges and the cell content. By default the padding is set to 0	<pre>th, td { padding: 15px; }</pre>

	<table><tr><th>Firstname</th><th>Lastname</th><th>Age</th></tr><tr><td>Jill</td><td>Smith</td><td>50</td></tr><tr><td>Eve</td><td>Jackson</td><td>94</td></tr><tr><td>John</td><td>Doe</td><td>80</td></tr></table>	Firstname	Lastname	Age	Jill	Smith	50	Eve	Jackson	94	John	Doe	80	
Firstname	Lastname	Age												
Jill	Smith	50												
Eve	Jackson	94												
John	Doe	80												
border-spacing	<p>To change the space between table cells</p> <table><tr><th>Firstname</th><th>Lastname</th><th>Age</th></tr><tr><td>Jill</td><td>Smith</td><td>50</td></tr><tr><td>Eve</td><td>Jackson</td><td>94</td></tr><tr><td>John</td><td>Doe</td><td>80</td></tr></table>	Firstname	Lastname	Age	Jill	Smith	50	Eve	Jackson	94	John	Doe	80	<pre>table { border-spacing: 30px; }</pre>
Firstname	Lastname	Age												
Jill	Smith	50												
Eve	Jackson	94												
John	Doe	80												
HTML Table Colspan & Rowspan														
colspan	<p>To make a cell span over multiple columns, use the colspan attribute</p> <table><tr><th colspan="2">Name</th><th>Age</th></tr><tr><td>Jill</td><td>Smith</td><td>43</td></tr><tr><td>Eve</td><td>Jackson</td><td>57</td></tr></table>	Name		Age	Jill	Smith	43	Eve	Jackson	57	<pre><table> <tr> <th colspan="2">Name</th> <th>Age</th> </tr> <tr> <td>Jill</td> <td>Smith</td> <td>43</td> </tr> <tr> <td>Eve</td> <td>Jackson</td> <td>57</td> </tr> </table></pre>			
Name		Age												
Jill	Smith	43												
Eve	Jackson	57												
	<p>To make a cell span over multiple rows, use the rowspan attribute</p> <table><tr><th>Name</th><td>Jill</td></tr><tr><th rowspan="2">Phone</th><td>555-1234</td></tr><tr><td>555-8745</td></tr></table>	Name	Jill	Phone	555-1234	555-8745	<pre><table> <tr> <th>Name</th> <td>Jill</td> </tr> <tr> <th rowspan="2">Phone</th> <td>555-1234</td> </tr> <tr></pre>							
Name	Jill													
Phone	555-1234													
	555-8745													

		<pre> <td>555-8745</td> </tr> </table> </pre>
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HTML Text

CSS	Description	Example
color	<p>The color property is used to set the color of the text. The color is specified by:</p> <ul style="list-style-type: none"> a color name - like "red" a HEX value - like "#ff0000" an RGB value - like "rgb(255,0,0)" 	<pre> body { color: blue; } h1 { color: "#ff0000"; } </pre>
text-align	<p>The text-align property is used to set the horizontal alignment of a text. A text can be left or right aligned, centered, or justified.</p>	<pre> h1 { text-align: center; } h2 { text-align: left; } h3 { text-align: right; } </pre>
text-decoration-line	<p>The text-decoration-line property is used to add a decoration line to text (overline, line-through, underline, none)</p> <p>Overline text decoration</p> <p>Line-through text decoration</p> <p><u>Underline text decoration</u></p> <p><u>Overline and underline text decoration.</u></p>	<pre> h1 { text-decoration-line: overline; } h2 { text-decoration-line: line-through; } h3 { text-decoration-line: underline; } p { text-decoration-line: overline underline; } </pre>

<p>text-decoration-color</p>	<p>The <code>text-decoration-color</code> property is used to set the color of the decoration line</p> <p>Overline text decoration</p> <p>Line-through text decoration</p> <p><u>Underline text decoration</u></p> <p><u>Overline and underline text decoration.</u></p>	<pre>h1 { text-decoration-line: overline; text-decoration-color: red; } h2 { text-decoration-line: line-through; text-decoration-color: blue; } h3 { text-decoration-line: underline; text-decoration-color: green; } p { text-decoration-line: overline underline; text-decoration-color: purple; }</pre>
<p>text-decoration-style</p>	<p>The <code>text-decoration-style</code> property is used to set the style of the decoration line</p> <p><u>Heading 1</u></p> <p><u>Heading 2</u></p> <p><u>Heading 3</u></p> <p>A paragraph.</p> <p>Another paragraph.</p> <p>Another paragraph.</p>	<pre>h1 { text-decoration-line: underline; text-decoration-style: solid; } h2 { text-decoration-line: underline; text-decoration-style: double; } h3 { text-decoration-line: underline; text-decoration-style: dotted; } p.ex1 { text-decoration-line: underline; text-decoration-style: dashed; } p.ex2 { text-decoration-line: underline; text-decoration-style: wavy; } p.ex3 { text-decoration-line: underline; text-decoration-color: red; text-decoration-style: wavy; }</pre>

<p>text-decoration-thickness</p>	<p>The <code>text-decoration-thickness</code> property is used to set the thickness of the decoration line</p> <p><u>Heading 1</u></p> <p><u>Heading 2</u></p> <p><u>Heading 3</u></p> <p>A paragraph. ■ ■ ■ ■</p>	<pre>h1 { text-decoration-line: underline; text-decoration-thickness: auto; } h2 { text-decoration-line: underline; text-decoration-thickness: 5px; } h3 { text-decoration-line: underline; text-decoration-thickness: 25%; } p { text-decoration-line: underline; text-decoration-color: red; text-decoration-style: double; text-decoration-thickness: 5px; }</pre>
<p>text-decoration</p>	<p>The <code>text-decoration</code> property is a shorthand property for:</p> <ul style="list-style-type: none"> • <code>text-decoration-line</code> (required) • <code>text-decoration-color</code> (optional) • <code>text-decoration-style</code> (optional) • <code>text-decoration-thickness</code> (optional) 	<pre>h1 { text-decoration: underline; } h2 { text-decoration: underline red; } h3 { text-decoration: underline red double; } p { text-decoration: underline red double 5px; }</pre>
<p>font-size</p>	<p>Use em instead of pixels to allow users to resize the text (in the browser menu). If you use pixels, you can still use the zoom tool to resize the entire page.</p>	<pre>h1 { font-size: large; } h2 { font-size: 30px; } p { font-size: 0.875em; /* 14px/16=0.875em */ }</pre>

	<div> <div>large</div> <div>larger</div> <div>medium</div> <div>small</div> <div>smaller</div> <div>x-large</div> <div>x-small</div> <div>xx-large</div> <div>xx-small</div> </div>	
font-style	<p>This property has three values:</p> <ul style="list-style-type: none"> normal - The text is shown normally italic - The text is shown in italics oblique - The text is "leaning" (oblique is very similar to italic, but less supported) 	<pre>p.normal { font-style: normal; } p.italic { font-style: italic; } p.oblique { font-style: oblique; }</pre>
font-weight	<p>The font-weight property specifies the weight of a font</p>	<pre>p.normal { font-weight: normal; } p.thick { font-weight: bold; }</pre>

HTML List

In HTML, there are two main types of lists:

- unordered lists () - the list items are marked with bullets
- ordered lists () - the list items are marked with numbers or letters

CSS	Description	Example
list-style-type	The list-style-type property specifies the type of list item marker.	<pre>ul.a { list-style-type: circle; } ul.b {</pre>

	<p>Example of unordered lists:</p> <ul style="list-style-type: none"> ○ Coffee ○ Tea ○ Coca Cola <ul style="list-style-type: none"> ■ Coffee ■ Tea ■ Coca Cola <p>Example of ordered lists:</p> <ul style="list-style-type: none"> I. Coffee II. Tea III. Coca Cola <ul style="list-style-type: none"> a. Coffee b. Tea c. Coca Cola 	<pre>list-style-type: square; } ol.c { list-style-type: upper-roman; } ol.d { list-style-type: lower-alpha; }</pre>
list-style-image	<p>The list-style-image property specifies an image as the list item marker</p> <ul style="list-style-type: none"> ■ Coffee ■ Tea ■ Coca Cola 	<pre>ul { list-style-image: url('sqpurple.gif'); }</pre>
list-style-position	<p>The list-style-position property specifies the position of the list-item markers (bullet points)</p> <p>list-style-position: outside (default):</p> <ul style="list-style-type: none"> Coffee - A brewed drink prepared from roasted coffee beans, which are the seeds of berries from the Coffea plant Tea - An aromatic beverage commonly prepared by pouring hot or boiling water over cured leaves of the Camellia sinensis, an evergreen shrub (bush) native to Asia Coca Cola - A carbonated soft drink produced by The Coca-Cola Company. The drink's name refers to two of its original ingredients, which were kola nuts (a source of caffeine) and coca leaves <p>list-style-position: inside:</p> <ul style="list-style-type: none"> Coffee - A brewed drink prepared from roasted coffee beans, which are the seeds of berries from the Coffea plant Tea - An aromatic beverage commonly prepared by pouring hot or boiling water over cured leaves of the Camellia sinensis, an evergreen shrub (bush) native to Asia Coca Cola - A carbonated soft drink produced by The Coca-Cola Company. The drink's name refers to two of its original ingredients, which were kola nuts (a source of caffeine) and coca leaves 	<pre>ul.a { list-style-position: outside; } ul.b { list-style-position: inside; }</pre>
list-style	<p>The list-style property is a shorthand property.</p>	<pre>ul { list-style: square inside url("sqpurple.gif"); }</pre>

HTML Forms

An HTML form is used to collect user input. The user input is most often sent to a server for processing.

The HTML `<form>` element is used to create an HTML form for user input

Attribute	Description	Example
action	The action attribute defines the action to be performed when the form is submitted	<code><form action="/action_page.php"></code> ... <code></form></code>
target	<p>The target attribute specifies where to display the response that is received after submitting the form</p> <ul style="list-style-type: none"> • _blank: The response is displayed in a new window or tab • _self: The response is displayed in the current window • _parent: The response is displayed in the parent frame • _top: The response is displayed in the full body of the window • framename: The response is displayed in a named iframe 	<code><form action="/action_page.php" target="_blank"></code>
method	<p>The method attribute specifies how to send form-data</p> <p>The form-data can be sent as URL variables (with method="get") or as HTTP post transaction (with method="post").</p> <p>Notes on GET:</p> <ul style="list-style-type: none"> • Appends form-data into the URL in name/value pairs • The length of a URL is limited (about 3000 characters) • Never use GET to send sensitive data! • Useful for form submissions where a user wants to bookmark the result 	<code><form action="/action_page.php" method="get"></code> <code><form action="/action_page.php" method="post"></code>

	<ul style="list-style-type: none"> • GET is better for non-secure data, like query strings in Google <p>Notes on POST:</p> <ul style="list-style-type: none"> • Appends form-data inside the body of the HTTP request (data is not shown in URL) • Has no size limitations • Form submissions with POST cannot be bookmarked 	
enctype	<p>The enctype attribute specifies how the form-data should be encoded when submitting it to the server</p> <p>Note: The enctype attribute can be used only if method="post".</p> <ul style="list-style-type: none"> • application/x-www-form-urlencoded Default. All characters are encoded before sent (spaces are converted to "+" symbols, and special characters are converted to ASCII HEX values) • multipart/form-data This value is necessary if the user will upload a file through the form • text/plain Sends data without any encoding at all. Not recommended 	<pre><form action="/action_page.php" method="post" enctype="multipart/form-data"></pre>

The HTML **<input>** element is the most used form element.

An **<input>** element can be displayed in many ways, depending on the **type** attribute. Here are the different input types you can use in HTML:

- `<input type="button">`
- `<input type="checkbox">`
- `<input type="color">`
- `<input type="date">`

- `<input type="datetime-local">`
- `<input type="email">`
- `<input type="file">`
- `<input type="hidden">`
- `<input type="image">`
- `<input type="month">`
- `<input type="number">`
- `<input type="password">`
- `<input type="radio">`
- `<input type="range">`
- `<input type="reset">`
- `<input type="search">`
- `<input type="submit">`
- `<input type="tel">`
- `<input type="text">`
- `<input type="time">`
- `<input type="url">`
- `<input type="week">`

Input type	Description
text	<p><code><input type="text"></code> defines a single-line text input field</p> <pre> <form> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname">
 <label for="lname">Last name:</label>
 <input type="text" id="lname" name="lname"> </form> </pre>
password	<p><code><input type="password"></code> defines a password field</p> <pre> <form> <label for="username">Username:</label>
 <input type="text" id="username" name="username">
 <label for="pwd">Password:</label>
 <input type="password" id="pwd" name="pwd"> </form> </pre>
submit	<p><code><input type="submit"></code> defines a button for submitting form data to a form-handler.</p> <pre> <form action="/action_page.php"> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname" value="John">
 <label for="lname">Last name:</label>
 <input type="text" id="lname" name="lname" value="Doe">

 <input type="submit" value="Register"> </form> </pre>

reset	<p><code><input type="reset"></code> defines a reset button that will reset all form values to their default values:</p> <pre> <form action="/action_page.php"> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname" value="John">
 <label for="lname">Last name:</label>
 <input type="text" id="lname" name="lname" value="Doe">

 <input type="submit" value="Register"> <input type="reset" value="Reset"> </form> </pre>
radio	<p><code><input type="radio"></code> defines a radio button. It let a user select ONLY ONE of a limited number of choices</p> <p><code><p>Choose your favorite Web language:</p></code></p> <pre> <form> <input type="radio" id="html" name="fav_language" value="HTML"> <label for="html">HTML</label>
 <input type="radio" id="css" name="fav_language" value="CSS"> <label for="css">CSS</label>
 <input type="radio" id="javascript" name="fav_language" value="JavaScript"> <label for="javascript">JavaScript</label> </form> </pre>
checkbox	<p><code><input type="checkbox"></code> defines a checkbox.</p> <p>Checkboxes let a user select ZERO or MORE options of a limited number of choices.</p> <pre> <form> <input type="checkbox" id="vehicle1" name="vehicle1" value="Bike"> <label for="vehicle1"> I have a bike</label>
 <input type="checkbox" id="vehicle2" name="vehicle2" value="Car"> <label for="vehicle2"> I have a car</label>
 <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat"> <label for="vehicle3"> I have a boat</label> </form> </pre>
button	<p>The <code><input type="button"></code> defines a button</p> <pre> <input type="button" onclick="alert('Hello World!')" value="Click Me!"> </pre>

date	<p>The <code><input type="date"></code> is used for input fields that should contain a date</p> <pre> <form> <label for="birthday">Birthday:</label> <input type="date" id="birthday" name="birthday"> </form> </pre>
time	<p>The <code><input type="time"></code> allows the user to select a time (no time zone)</p> <pre> <form> <label for="appt">Select a time:</label> <input type="time" id="appt" name="appt"> </form> </pre>
range	<p>The <code><input type="range"></code> defines a control for entering a number whose exact value is not important (like a slider control). Default range is 0 to 100. However, you can set restrictions on what numbers are accepted with the <code>min</code>, <code>max</code>, and <code>step</code> attributes</p> <pre> <form> <label for="vol">Volume (between 0 and 50):</label> <input type="range" id="vol" name="vol" min="0" max="50"> </form> </pre>

This section describes the different attributes for the HTML `<input>` element.

Attribute	Description
value	<p>The input <code>value</code> attribute specifies an initial value for an input field</p> <pre> <form> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname" value="John">
 <label for="lname">Last name:</label>
 <input type="text" id="lname" name="lname" value="Doe"> </form> </pre>
readonly	<p>The input <code>readonly</code> attribute specifies that an input field is read-only</p> <pre> <form> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname" value="John" readonly>
 <label for="lname">Last name:</label>
 <input type="text" id="lname" name="lname" value="Doe"> </form> </pre>

size	The input size attribute specifies the visible width, in characters, of an input field.
maxlength	<p>The input maxlength attribute specifies the maximum number of characters allowed in an input field.</p> <p>Note: When a maxlength is set, the input field will not accept more than the specified number of characters. However, this attribute does not provide any feedback. So, if you want to alert the user, you must write JavaScript code.</p>
min max	<p>The input min and max attributes specify the minimum and maximum values for an input field.</p> <p>The min and max attributes work with the following input types: number, range, date, datetime-local, month, time and week.</p>
multiple	<p>The input multiple attribute specifies that the user is allowed to enter more than one value in an input field.</p> <p>The multiple attribute works with the following input types: email, and file.</p> <pre><form> <label for="files">Select files:</label> <input type="file" id="files" name="files" multiple> </form></pre>
pattern	<p>The input pattern attribute specifies a regular expression that the input field's value is checked against, when the form is submitted.</p> <p>The pattern attribute works with the following input types: text, date, search, url, tel, email, and password.</p> <pre><form> <label for="country_code">Country code:</label> <input type="text" id="country_code" name="country_code" pattern="[A-Za-z]{3}" title="Three letter country code"> </form></pre>
placeholder	The input placeholder attribute specifies a short hint that describes the expected value of an input field (a sample value or a short description of the expected format).
required	The input required attribute specifies that an input field must be filled out before submitting the form.

	<p>The required attribute works with the following input types: text, search, url, tel, email, password, date pickers, number, checkbox, radio, and file.</p> <pre><form> <label for="username">Username:</label> <input type="text" id="username" name="username" required> </form></pre>
step	<p>The input step attribute specifies the legal number intervals for an input field. Example: if step="3", legal numbers could be -3, 0, 3, 6, etc.</p>
autofocus	<p>The input autofocus attribute specifies that an input field should automatically get focus when the page loads.</p> <pre><form> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname" autofocus>
 <label for="lname">Last name:</label>
 <input type="text" id="lname" name="lname"> </form></pre>
list	<p>The input list attribute refers to a <datalist> element that contains pre-defined options for an <input> element.</p> <p>For the select element, the user is required to select one of the options you've given. For the datalist element, it is suggested that the user select one of the options you've given, but he can actually enter anything he wants in the input.</p> <pre><form> <input list="browsers"> <datalist id="browsers"> <option value="Edge"> <option value="Firefox"> <option value="Chrome"> <option value="Opera"> <option value="Safari"> </datalist> </form></pre>

HTML <select> tag

The `<select>` element is used to create a drop-down list.

The `<select>` element is most often used in a form, to collect user input.

The `name` attribute is needed to reference the form data after the form is submitted (if you omit the `name` attribute, no data from the drop-down list will be submitted).

The `id` attribute is needed to associate the drop-down list with a label.

The `<option>` tags inside the `<select>` element define the available options in the drop-down list.

Example:

```
<label for="cars">Choose a car:</label>

<select name="cars" id="cars">
  <option value="volvo">Volvo</option>
  <option value="saab">Saab</option>
  <option value="mercedes">Mercedes</option>
  <option value="audi">Audi</option>
</select>
```

The `<optgroup>` tag is used to group related options in a `<select>` element (drop-down list).

If you have a long list of options, groups of related options are easier to handle for a user.

Example:

```
<label for="cars">Choose a car:</label>
<select name="cars" id="cars">
  <optgroup label="Swedish Cars">
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
  </optgroup>
  <optgroup label="German Cars">
    <option value="mercedes">Mercedes</option>
    <option value="audi">Audi</option>
  </optgroup>
</select>
```


Attribute	Description
multiple	<p>The multiple attribute is a boolean attribute.</p> <p>When present, it specifies that multiple options can be selected at once.</p> <pre><label for="cars">Choose a car:</label> <select name="cars" id="cars" multiple> <option value="volvo">Volvo</option> <option value="saab">Saab</option> <option value="opel">Opel</option> <option value="audi">Audi</option> </select></pre>
size	<p>The size attribute specifies the number of visible options in a drop-down list.</p> <p>If the value of the size attribute is greater than 1, but lower than the total number of options in the list, the browser will add a scroll bar to indicate that there are more options to view.</p>
size	<p>The input size attribute specifies the visible width, in characters, of an input field.</p>
form	<p>The form attribute specifies the form the drop-down list belongs to.</p> <p>The value of this attribute must be equal to the id attribute of a <form> element in the same document.</p>
required	<p>The required attribute is a boolean attribute.</p> <p>When present, it specifies the user is required to select a value before submitting the form.</p>