



# HTML 5

Tutorials

**HTML Tutorials**

## Contents

HTML Introduction -----	2
HTML Quotation and Citation Elements -----	17
HTML Colors -----	19
HTML Links -----	35
HTML Images -----	40
HTML Tables -----	43
HTML Lists -----	48
HTML Block and Inline Elements -----	52
HTML The class Attribute -----	53
HTML The id Attribute -----	57
My Header -----	57
HTML Iframes -----	59
HTML File Paths -----	61
HTML Head -----	62
HTML Symbols -----	65
HTML Forms-----	69
HTML Form Elements -----	74
HTML Input Types -----	78
HTML Input Attributes -----	86

# HTML Introduction

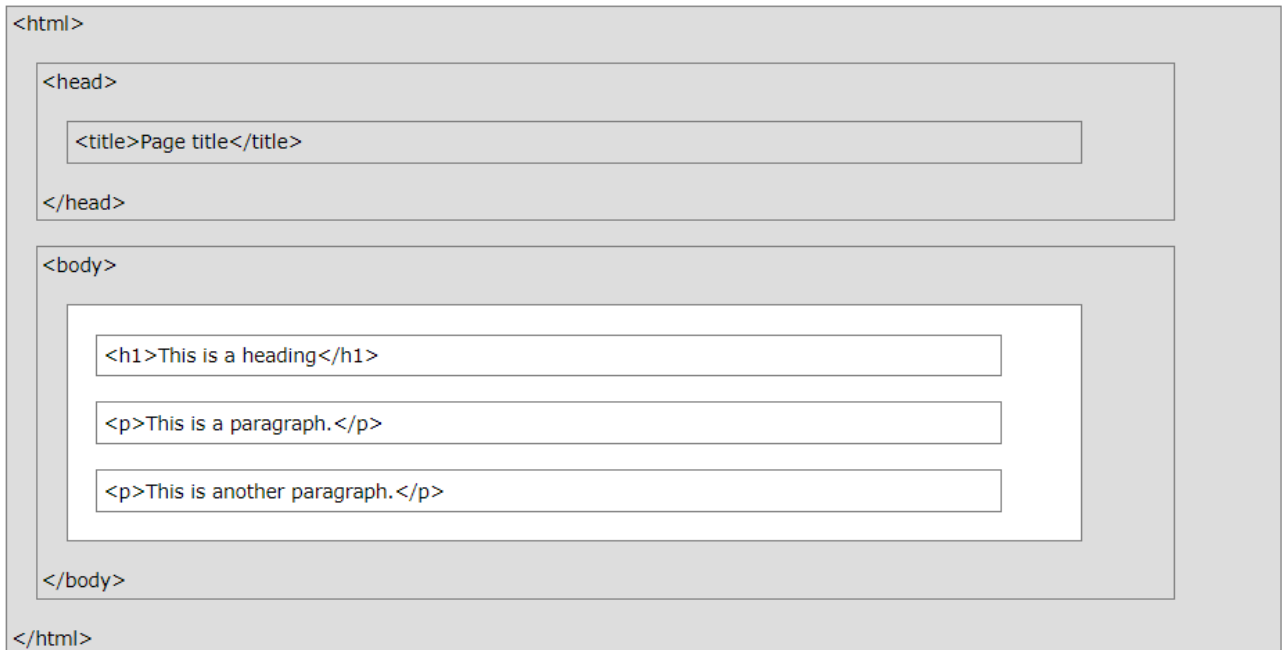
## What is HTML?

HTML is the standard markup language for creating Web pages.

- HTML stands for Hyper Text Markup Language
- HTML describes the structure of a Web page
- HTML consists of a series of elements
- HTML elements tell the browser how to display the content
- HTML elements are represented by tags
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on
- Browsers do not display the HTML tags, but use them to render the content of the page

### HTML Page Structure

Below is a visualization of an HTML page structure:



# A Simple HTML Document

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>

    <h1>My First Heading</h1>
    <p>My first paragraph.</p>

  </body>
</html>
```

## My First Heading

My first paragraph.

## Example Explained

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

## HTML Tags

HTML tags are element names surrounded by angle brackets:

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

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

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

# The <!DOCTYPE> Declaration

The `<!DOCTYPE>` declaration represents the document type, and helps browsers to display web pages correctly.

It must only appear once, at the top of the page (before any HTML tags).

The `<!DOCTYPE>` declaration is not case sensitive.

The `<!DOCTYPE>` declaration for HTML5 is: `<!DOCTYPE html>`

## HTML Versions

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

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

## HTML Headings

HTML headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important heading. `<h6>` defines the least important heading:

```
<!DOCTYPE html>
<html>
<body>

<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>

</body>
</html>
```

**This is heading 1**

**This is heading 2**

**This is heading 3**

**This is heading 4**

**This is heading 5**

**This is heading 6**

## HTML Paragraphs

HTML paragraphs are defined with the `<p>` tag:

```
<!DOCTYPE html>
<html>
<body>

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

</body>
</html>
```

This is a paragraph.

This is another paragraph.

## HTML Links

HTML links are defined with the `<a>` tag:

```

<!DOCTYPE html>
<html>
<body>

<h2>HTML Links</h2>
<p>HTML links are defined with the a tag:</p>

<a href="https://www.youtube.com/upciss">
This is a link</a>

</body>
</html>

```

## HTML Links

HTML links are defined with the a tag:

[This is a link](https://www.youtube.com/upciss)

The link's destination is specified in the `href` attribute.

Attributes are used to provide additional information about HTML elements.

You will learn more about attributes in a later chapter.

## HTML Images

HTML images are defined with the `img` tag.

The source file (`src`), alternative text (`alt`), `width`, and `height` are provided as attributes:

```

<!DOCTYPE html>
<html>
<body>

<h2>HTML Images</h2>
<p>HTML images are defined with the img tag:</p>



</body>
</html>

```

## HTML Images

HTML images are defined with the img tag:



## HTML Lists

HTML lists are defined with the `ul` (unordered/bullet list) or the `ol` (ordered/numbered list) tag, followed by `li` tags (list items):

```

<!DOCTYPE html>
<html>
<body>
<h2>An Unordered HTML List</h2>
  <ul>
    <li>Coffee</li>
    <li>Tea</li>
    <li>Milk</li>
  </ul>
<h2>An Ordered HTML List</h2>
  <ol>
    <li>Coffee</li>
    <li>Tea</li>
    <li>Milk</li>
  </ol>
</body>
</html>

```

## An Unordered HTML List

- Coffee
- Tea
- Milk

## An Ordered HTML List

1. Coffee
2. Tea
3. Milk

## Empty HTML Elements

HTML elements with no content are called empty elements.

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

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

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

```

<!DOCTYPE html>
<html>
<body>

<p>This is a <br> paragraph with
a line break.</p>

</body>
</html>

```

This is a  
paragraph with a line break.

## HTML Horizontal Rules

The `<hr>` tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.

The `<hr>` element is used to separate content (or define a change) in an HTML page:



<pre>&lt;!DOCTYPE html&gt; &lt;html&gt; &lt;body&gt;    &lt;h3&gt;This is heading 1&lt;/h3&gt;   &lt;p&gt;This is some text.&lt;/p&gt;   &lt;hr&gt;     &lt;h3&gt;This is heading 2&lt;/h3&gt;   &lt;p&gt;This is some other text.&lt;/p&gt;   &lt;hr&gt;   &lt;h3&gt;This is heading 2&lt;/h3&gt;   &lt;p&gt;This is some other text.&lt;/p&gt;  &lt;/body&gt; &lt;/html&gt;</pre>	<p><b>This is heading 1</b></p> <p>This is some text.</p> <hr/>
	<p><b>This is heading 2</b></p> <p>This is some other text.</p> <hr/>
	<p><b>This is heading 2</b></p> <p>This is some other text.</p>

## HTML Is Not Case Sensitive

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

The HTML5 standard does not require lowercase tags, but

UPCISS **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.

# HTML Text Formatting Elements

HTML also defines special **elements** for defining text with a special **meaning**.

HTML uses elements like `<b>` and `<i>` for formatting output, like **bold** or *italic* text.

Formatting elements were designed to display special types of text:

- `<b>` - Bold text
- `<strong>` - Important text
- `<i>` - Italic text
- `<em>` - Emphasized text
- `<u>` - Underline text
- `<mark>` - Marked text
- `<small>` - Small text
- `<big>` - Big Text
- `<del>` - Deleted text
- `<ins>` - Inserted text
- `<sub>` - Subscript text
- `<sup>` - Superscript text

```
<!DOCTYPE html>
<html>
<body>
  <p><b>This text is bold</b></p>
  <p><strong>This text is strong.</strong></p>
  <p><i>This text is italic</i></p>
  <p><em>This text is emphasized.</em></p>
  <p><u>This text is underline</u></p>
  <p><ins>This text is inserted</ins></p>
  <p>HTML <mark>Marked</mark> Formatting</p>
  <p>HTML <small>HTML</small> Formatting</p>
  <p>My Computer price is <del>48000</del> 45000.</p>
  <!--Subscripted text and Superscripted text-->
  <p>CO<sub>2</sub> and X <sup>2</sup></p>
</body>
</html>
```

**This text is bold**

**This text is strong.**

*This text is italic*

*This text is emphasized.*

This text is underline

This text is inserted

HTML **Marked** Formatting

HTML HTML Formatting

My Computer price is ~~48000~~ 45000.

CO<sub>2</sub> and X<sup>2</sup>

# HTML Attributes

- All HTML elements can have **attributes**
- Attributes provide **additional information** about an element
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

## The href Attribute

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

### Example

```
<a href="https://www.upciss.com">This is a link</a>
```

## The src Attribute

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

The filename of the image source is specified in the `src` attribute:

### Example

```

```

## The width and height Attributes

HTML images also have `width` and `height` attributes, which specifies the width and height of the image:

### Example

```

```

The width and height are specified in pixels by default; so `width="500"` means 500 pixels wide.

You will learn more about images in our HTML Images chapter.

## The alt Attribute

The `alt` attribute specifies an alternative text to be used, if an image cannot be displayed.

The value of the `alt` attribute can be read by screen readers. This way, someone "listening" to the webpage, e.g. a vision impaired person, can "hear" the element.

## Example

```

```

The `alt` attribute is also useful if the image cannot be displayed (e.g. if it does not exist):

## The style Attribute

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

## Example

```
<p style="color:red">This is a paragraph.</p>
```

You will learn more about styling later in this tutorial, and in our CSS Tutorial.

## The lang Attribute

The language of the document can be declared in the `<html>` tag.

The language is declared with the `lang` attribute.

Declaring a language is important for accessibility applications (screen readers) and search engines:

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

...

```
</body>
</html>
```

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

## The title Attribute

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

## Example

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

## We Suggest: Use Lowercase Attributes

The HTML5 standard does not require lowercase attribute names.

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

UPCISS **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.

## We Suggest: Quote Attribute Values

The HTML5 standard does not require quotes around attribute values.

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

### Bad

```
<a href=https://www.upciss.com>
```

### Good

```
<a href="https://www.upciss.com">
```

UPCISS **recommends** quotes in HTML, and **demands** quotes for stricter document types like XHTML.

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

## Example

```
<p title=About UPCISS>
```

Using quotes are the most common. Omitting quotes can produce errors.  
At UPCISS we **always** use quotes around attribute values.

## Single or Double Quotes?

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

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

```
<p title='Jk "Jitendra" UPCISS'>
```

Or vice versa:

```
<p title="Jk 'Jitendra' UPCISS">
```

```
<!DOCTYPE html>
<html>
<body>

<h2>Single or Double Quotes?</h2>
<p>In some situations, when the attribute value itself contains
double quotes, it is necessary to use single quotes:</p>
<p>Move your mouse over the paragraphs below to see the effect:
</p>

<p title='Jk "Jitendra" UPCISS'>Jitendra with double quotes</p>
<p title="Jk 'Jitendra' UPCISS">Jitendra with single quotes</p>

</body>
</html>
```

## Single or Double Quotes?

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

Move your mouse over the paragraphs below to see the effect:

Jitendra with double quotes

Jitendra with single quotes

Jk 'Jitendra' UPCISS

# HTML Display

You cannot be sure how HTML will be displayed.

Large or small screens, and resized windows will create different results.

With HTML, you cannot change the output by adding extra spaces or extra lines in your HTML code.

The browser will remove any extra spaces and extra lines when the page is displayed:

## Problem

This poem will display on a single line:

```
<!DOCTYPE html>
<html>
<body>
  <p>In HTML, spaces and new lines are ignored:</p>

  <p>
    My Bonnie lies over the ocean.

    My Bonnie lies over the sea.

    My Bonnie lies over the ocean.

    Oh, bring back my Bonnie to me.
  </p>
</body>
</html>
```

In HTML, spaces and new lines are ignored:

My Bonnie lies over the ocean. My Bonnie lies over the sea. My Bonnie lies over the ocean. Oh, bring back my Bonnie to me.

## The HTML `<pre>` Element

The HTML `<pre>` element defines preformatted text.

The text inside a `<pre>` element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks:

```
<!DOCTYPE html>
<html>
<body>

<p>The pre tag preserves both spaces and line breaks:</p>

<pre>
  My Bonnie lies over the ocean.

  My Bonnie lies over the sea.

  My Bonnie lies over the ocean.

  Oh, bring back my Bonnie to me.
</pre>

</body>
</html>
```

The pre tag preserves both spaces and line breaks:

```
My Bonnie lies over the ocean.

My Bonnie lies over the sea.

My Bonnie lies over the ocean.

Oh, bring back my Bonnie to me.
```

## The HTML Style Attribute

Setting the style of an HTML element, can be done with the **style** attribute.

The HTML **style** attribute has the following **syntax**:

```
<tagname style="property:value;">
```

The **property** is a CSS property. The **value** is a CSS value.

You will learn more about CSS later in this tutorial.

## Background Color

The CSS **background-color** property defines the background color for an HTML element.

This example sets the background color for a page to powderblue:

### Example

```
<body style="background-color:powderblue;">

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
```



# Text Color

The CSS `color` property defines the text color for an HTML element:

## Example

```
<h1 style="color:blue;">This is a heading</h1>  
<p style="color:red;">This is a paragraph.</p>
```

# Fonts

The CSS `font-family` property defines the font to be used for an HTML element:

## Example

```
<h1 style="font-family:verdana;">This is a heading</h1>  
<p style="font-family:courier;">This is a paragraph.</p>
```

# Text Size

The CSS `font-size` property defines the text size for an HTML element:

## Example

```
<h1 style="font-size:300%;">This is a heading</h1>
<p style="font-size:160%;">This is a paragraph.</p>
```

# Text Alignment

The CSS `text-align` property defines the horizontal text alignment for an HTML element:

## Example

```
<h1 style="text-align:center;">Centered Heading</h1>
<p style="text-align:left;">left paragraph.</p>
```

```
<!DOCTYPE html>
<html>
<body style="background-color:powderblue;">

<p>I am normal</p>
<p style="color:red;">I am red</p>
<p style="text-align:center;">Centered paragraph.</p>
<p style="font-size:40px;">I am big</p>
<p style="font-family:courier;">This is a paragraph.</p>
<p style="font-size:160%;">This is a paragraph.</p>

</body>
</html>
```

I am normal

I am red

Centered paragraph.

I am big

This is a paragraph.

This is a paragraph.

# HTML Quotation and Citation Elements

## HTML `<q>` for Short Quotations

The HTML `<q>` element defines a short quotation.

Browsers usually insert quotation marks around the `<q>` element.

## Example

```
<p>WWF's goal is to: <q>Build a future where people live in harmony with nature.</q></p>
```

## HTML `<blockquote>` for Quotations

The HTML `<blockquote>` element defines a section that is quoted from another source.

Browsers usually indent `<blockquote>` elements.

## Example

```
<p>Here is a quote from WWF's website:</p>
<blockquote>
For 50 years, WWF has been protecting the future of nature.
The world's leading conservation organization,
WWF works in 100 countries and is supported by
1.2 million members in the United States and
close to 5 million globally.
</blockquote>
```

## HTML `<abbr>` for Abbreviations

The HTML `<abbr>` element defines an abbreviation or an acronym.

Marking abbreviations can give useful information to browsers, translation systems and search-engines.

## Example

```
<p>The <abbr title="World Health Organization">WHO</abbr> was founded in 1948.</p>
```

## HTML `<address>` for Contact Information

The HTML `<address>` element defines contact information (author/owner) of a document or an article.

The `<address>` element is usually displayed in italic. Most browsers will add a line break before and after the element.

```
<address>
Written by John Doe.<br>
Visit us at:<br>
Example.com<br>
Box 564, Disneyland<br>
USA
</address>
```

## HTML <cite> for Work Title

The HTML `<cite>` element defines the title of a work.

Browsers usually display `<cite>` elements in italic.

### Example

```
<p><cite>The Scream</cite> by Edvard Munch. Painted in 1893.</p>
```

## HTML <bdo> for Bi-Directional Override

The HTML `<bdo>` element defines bi-directional override.

The `<bdo>` element is used to override the current text direction:

### Example

```
<bdo dir="rtl">This text will be written from right to left</bdo>
```

## HTML Links - The target Attribute

The `target` attribute specifies where to open the linked document.

The `target` attribute can have one of the following values:

- `_blank` - Opens the linked document in a new window or tab
- `_self` - Opens the linked document in the same window/tab as it was clicked (this is default)
- `_parent` - Opens the linked document in the parent frame
- `_top` - Opens the linked document in the full body of the window
- `framename` - Opens the linked document in a named frame

This example will open the linked document in a new browser window/tab:

## Example

```
<a href="https://www.w3schools.com/" target="_blank">Visit W3Schools!</a>
```

**Tip:** If your webpage is locked in a frame, you can use `target="_top"` to break out of the frame:

## Example

```
<a href="https://www.w3schools.com/html/" target="_top">HTML5 tutorial!</a>
```

# HTML Links - Image as Link

It is common to use images as links:

## Example

```
<a href="default.asp">
  
</a>
```

**Note:** `border:0;` is added to prevent IE9 (and earlier) from displaying a border around the image (when the image is a link).

# Link Titles

The `title` attribute specifies extra information about an element. The information is most often shown as a tooltip text when the mouse moves over the element.

## Example

```
<a href="https://www.w3schools.com/html/" title="Go to W3Schools HTML
section">Visit our HTML Tutorial</a>
```

# HTML Links - Create a Bookmark

HTML bookmarks are used to allow readers to jump to specific parts of a Web page. Bookmarks can be useful if your webpage is very long. To make a bookmark, you must first create the bookmark, and then add a link to it. When the link is clicked, the page will scroll to the location with the bookmark.

## Example

First, create a bookmark with the `id` attribute:

```
<h2 id="C4">Chapter 4</h2>
```

Then, add a link to the bookmark ("Jump to Chapter 4"), from within the same page:

```
<a href="#C4">Jump to Chapter 4</a>
```

Or, add a link to the bookmark ("Jump to Chapter 4"), from another page:

## Example

```
<a href="html_demo.html#C4">Jump to Chapter 4</a>
```

## External Paths

External pages can be referenced with a full URL or with a path relative to the current web page.

This example uses a full URL to link to a web page:

## Example

```
<a href="https://www.w3schools.com/html/default.asp">HTML tutorial</a>
```

This example links to a page located in the html folder on the current web site:

## Example

```
<a href="/html/default.asp">HTML tutorial</a>
```

This example links to a page located in the same folder as the current page:

## Example

```
<a href="default.asp">HTML tutorial</a>
```

# HTML Images

```

```

## HTML Images Syntax

In HTML, images are defined with the `<img>` tag.

The `<img>` tag is empty, it contains attributes only, and does not have a closing tag.

The `src` attribute specifies the URL (web address) of the image:

```

```

## The alt Attribute

The `alt` attribute provides an alternate text for an image, if the user for some reason cannot view it (because of slow connection, an error in the `src` attribute, or if the user uses a screen reader).

The value of the `alt` attribute should describe the image:

### Example

```

```

If a browser cannot find an image, it will display the value of the `alt` attribute:

### Example

```

```

**Note:** The `alt` attribute is required. A web page will not validate correctly without it.

## Image as a Link

To use an image as a link, put the `<img>` tag inside the `<a>` tag:

```
</a>
```

**Note:** `border:0;` is added to prevent IE9 (and earlier) from displaying a border around the image (when the image is a link).

## Example

```
<table style="width:100%">
  <tr>
    <th>Name</th>
    <th colspan="2">Telephone</th>
  </tr>
  <tr>
    <td>Bill Gates</td>
    <td>55577854</td>
    <td>55577855</td>
  </tr>
</table>
```

## HTML Table - Cells that Span Many Rows

To make a cell span more than one row, use the `rowspan` attribute:

## Example

```
<table style="width:100%">
  <tr>
    <th>Name:</th>
    <td>Bill Gates</td>
  </tr>
  <tr>
    <th rowspan="2">Telephone:</th>
    <td>55577854</td>
  </tr>
  <tr>
    <td>55577855</td>
  </tr>
</table>
```

## HTML Table - Adding a Caption

To add a caption to a table, use the `<caption>` tag:

## Example

```
<table style="width:100%">
  <caption>Monthly savings</caption>
  <tr>
    <th>Month</th>
    <th>Savings</th>
  </tr>
  <tr>
    <td>January</td>
```



```

        <td>$100</td>
    </tr>
    <tr>
        <td>February</td>
        <td>$50</td>
    </tr>
</table>

```

**Note:** The `<caption>` tag must be inserted immediately after the `<table>` tag.

## A Special Style for One Table

To define a special style for a special table, add an `id` attribute to the table:

### Example

```

<table id="t01">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
</table>

```

### Now you can define a special style for this table:

```

table#t01 {
  width: 100%;
  background-color: #f1f1c1;
}

```

### And add more styles:

```

table#t01 tr:nth-child(even) {
  background-color: #eee;
}
table#t01 tr:nth-child(odd) {
  background-color: #fff;
}
table#t01 th {
  color: white;
  background-color: black;
}

```

# HTML Lists

## Unordered HTML List

An unordered list starts with the [<ul>](#) tag. Each list item starts with the [<li>](#) tag.

The list items will be marked with bullets (small black circles) by default:

### Example

```
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
```

## Unordered HTML List - Choose List Item Marker

The CSS `list-style-type` property is used to define the style of the list item marker:

Value	Description
disc	Sets the list item marker to a bullet (default)
circle	Sets the list item marker to a circle
square	Sets the list item marker to a square
none	The list items will not be marked

### Example - Disc

```
<ul style="list-style-type:disc;">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
```

## Ordered HTML List

An ordered list starts with the [<ol>](#) tag. Each list item starts with the [<li>](#) tag.

The list items will be marked with numbers by default:

## Example

```
<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

## Ordered HTML List - The Type Attribute

The **type** attribute of the [<ol>](#) tag, defines the type of the list item marker:

Type	Description
type="1"	The list items will be numbered with numbers (default)
type="A"	The list items will be numbered with uppercase letters
type="a"	The list items will be numbered with lowercase letters
type="I"	The list items will be numbered with uppercase roman numbers
type="i"	The list items will be numbered with lowercase roman numbers

## Numbers:

```
<ol type="1">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

## HTML Description Lists

HTML also supports description lists.

A description list is a list of terms, with a description of each term.

The [<dl>](#) tag defines the description list, the [<dt>](#) tag defines the term (name), and the [<dd>](#) tag describes each term:

## Example

```
<dl>
  <dt>Coffee</dt>
  <dd>- black hot drink</dd>
  <dt>Milk</dt>
  <dd>- white cold drink</dd>
</dl>
```

# Nested HTML Lists

List can be nested (lists inside lists):

## Example

```
<ul>
  <li>Coffee</li>
  <li>Tea
    <ul>
      <li>Black tea</li>
      <li>Green tea</li>
    </ul>
  </li>
  <li>Milk</li>
</ul>
```

**Note:** List items can contain new list, and other HTML elements, like images and links, etc.

# HTML Block and Inline Elements

Every HTML element has a default display value depending on what type of element it is.

The two display values are: block and inline.

## Block-level Elements

A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).

The `<div>` element is a block-level element.

### Example

```
<div>Hello World</div>
```

Block level elements in HTML:

```
<address> <article> <aside> <blockquote> <canvas> <dd> <div>
<dl> <dt> <fieldset> <figcaption> <figure> <footer> <form>
<h1>_<h6> <header> <hr> <li> <main> <nav> <noscript> <ol>
<p> <pre> <section> <table> <tfoot> <ul> <video>
```

## Inline Elements

An inline element does not start on a new line and only takes up as much width as necessary.

This is an inline `<span>` element inside a paragraph.

### Example

```
<span>Hello World</span>
```

Inline elements in HTML:

```
<a> <abbr> <acronym> <b> <bdo> <big> <br> <button>
<cite> <code> <dfn> <em> <i> <img> <input> <kbd> <label>
<map> <object> <output> <q> <samp> <script> <select> <small>
<span> <strong> <sub> <sup> <textarea> <time> <tt> <var>
```

# The <div> Element

The `<div>` element is often used as a container for other HTML elements.

The `<div>` element has no required attributes, but `style`, `class` and `id` are common.

When used together with CSS, the `<div>` element can be used to style blocks of content:

## Example

```
<div style="background-color:black;color:white;padding:20px;">
  <h2>London</h2>
  <p>London is the capital city of England. It is the most populous city in the
  United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>
</div>
```

# The <span> Element

The `<span>` element is often used as a container for some text.

The `<span>` element has no required attributes, but `style`, `class` and `id` are common.

When used together with CSS, the `<span>` element can be used to style parts of the text:

## Example

```
<h1>My <span style="color:red">Important</span> Heading</h1>

<!-- A unique element -->
<h1 id="myHeader">My Cities</h1>

<!-- Multiple similar elements -->
<h2 class="city">London</h2>
<p>London is the capital of England.</p>

<h2 class="city">Paris</h2>
<p>Paris is the capital of France.</p>

<h2 class="city">Tokyo</h2>
<p>Tokyo is the capital of Japan.</p>
```

## Example

```
<a href="html_demo.html#C4">Jump to Chapter 4</a>
```

# HTML Iframes

```
<!DOCTYPE html>
<html>
<body>

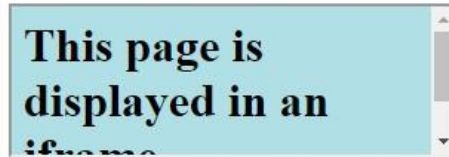
<h2>HTML Iframes</h2>
<p>You can use the height and width
attributes to specify the size of the
iframe:</p>

<iframe src="demo_iframe.htm"
height="100" width="300"></iframe>

</body>
</html>
```

## HTML Iframes

You can use the height and width attributes to specify the size of the iframe:



## Iframe Syntax

An HTML iframe is defined with the `<iframe>` tag:

```
<iframe src="URL"></iframe>
```

The `src` attribute specifies the URL (web address) of the inline frame page.

# Iframe - Set Height and Width

Use the `height` and `width` attributes to specify the size of the iframe.

The height and width are specified in pixels by default:

## Example

```
<iframe src="demo_iframe.htm" height="200" width="300"></iframe>
```

The height and width can also be specified in percent:

## Example

```
<iframe src="demo_iframe.htm" height="100%" width="100%"></iframe>
```

Or you can use CSS to set the height and width of the iframe:

## Example

```
<iframe src="demo_iframe.htm" style="height:200px;width:300px;"></iframe>
```

# Iframe - Remove the Border

By default, an iframe has a border around it.

To remove the border, add the `style` attribute and use the CSS `border` property:

## Example

```
<iframe src="demo_iframe.htm" style="border:none;"></iframe>
```

With CSS, you can also change the size, style and color of the iframe's border:

## Example

```
<iframe src="demo_iframe.htm" style="border:2px solid red;"></iframe>
```

# Iframe - Target for a Link

An iframe can be used as the target frame for a link.

The `target` attribute of the link must refer to the `name` attribute of the iframe:



## Example

```
<iframe src="demo_iframe.htm" name="iframe_a"></iframe>
```

```
<p><a href="https://www.w3schools.com" target="iframe_a">W3Schools.com</a></p>
```

## HTML File Paths

Path	Description
<code>&lt;img src="picture.jpg"&gt;</code>	picture.jpg is located in the same folder as the current page
<code>&lt;img src="images/picture.jpg"&gt;</code>	picture.jpg is located in the images folder in the current folder
<code>&lt;img src="/images/picture.jpg"&gt;</code>	picture.jpg is located in the images folder at the root of the current web
<code>&lt;img src="../picture.jpg"&gt;</code>	picture.jpg is located in the folder one level up from the current folder

## HTML File Paths

A file path describes the location of a file in a web site's folder structure.

File paths are used when linking to external files like:

- Web pages
- Images
- Style sheets
- JavaScripts

## Absolute File Paths

An absolute file path is the full URL to an internet file:

## Example

```

```

## Relative File Paths

A relative file path points to a file relative to the current page.

In this example, the file path points to a file in the images folder located at the root of the current web:

## Example

```

```

In this example, the file path points to a file in the images folder located in the current folder:

## Example

```

```

In this example, the file path points to a file in the images folder located in the folder one level above the current folder:

## Example

```

```

# HTML Head

## The HTML <head> Element

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

HTML metadata is data about the HTML document. Metadata is not displayed.

Metadata typically define the document title, character set, styles, scripts, and other meta information.

The following tags describe metadata: `<title>`, `<style>`, `<meta>`, `<link>`, `<script>`, and `<base>`.

# The HTML <title> Element

The `<title>` element defines the title of the document, and is required in all HTML documents.

The `<title>` element:

- defines a title in the browser tab
- provides a title for the page when it is added to favorites
- displays a title for the page in search engine results

A simple HTML document:

## Example

```
<!DOCTYPE html>
<html>

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

<body>
  The content of the document.....
</body>

</html>
```

# The HTML <link> Element

The `<link>` element is used to link to external style sheets:

## Example

```
<link rel="stylesheet" href="mystyle.css">
```

# The HTML <meta> Element

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

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

Define the character set used:

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

Define a description of your web page:

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

Define keywords for search engines:

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

Define the author of a page:

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

Refresh document every 30 seconds:

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

Example of `<meta>` tags:

## Example

```
<meta charset="UTF-8">
<meta name="description" content="Free Web tutorials">
<meta name="keywords" content="HTML,CSS,XML,JavaScript">
<meta name="author" content="John Doe">
```

## Setting The Viewport

HTML5 introduced a method to let web designers take control over the viewport, through the `<meta>` tag.

The viewport is the user's visible area of a web page. It varies with the device, and will be smaller on a mobile phone than on a computer screen.

You should include the following `<meta>` viewport element in all your web pages:

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

A `<meta>` viewport element gives the browser instructions on how to control the page's dimensions and scaling.

The `width=device-width` part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).

The `initial-scale=1.0` part sets the initial zoom level when the page is first loaded by the browser.

Here is an example of a web page *without* the viewport meta tag, and the same web page *with* the viewport `<meta>` tag:

## The HTML `<script>` Element

The `<script>` element is used to define client-side JavaScripts.

This JavaScript writes "Hello JavaScript!" into an HTML element with `id="demo"`:

### Example

```
<script>
function myFunction {
  document.getElementById("demo").innerHTML = "Hello JavaScript!";
}
</script>
```

## The HTML `<base>` Element

The `<base>` element specifies the base URL and base target for all relative URLs in a page:

### Example

```
<base href="https://www.w3schools.com/images/" target="_blank">
```

# HTML Symbols

## HTML Symbol Entities

HTML entities were described in the previous chapter.

Many mathematical, technical, and currency symbols, are not present on a normal keyboard.

To add such symbols to an HTML page, you can use an HTML entity name.

If no entity name exists, you can use an entity number, a decimal, or hexadecimal reference.

## Example

```
<p>I will display &euro;</p>  
<p>I will display &#8364;</p>  
<p>I will display &#x20AC;</p>
```

## Will display as:

I will display €  
I will display €  
I will display €

## Some Mathematical Symbols Supported by HTML

Char	Number	Entity	Description
∀	&#8704;	&forall;	FOR ALL
∂	&#8706;	&part;	PARTIAL DIFFERENTIAL
∃	&#8707;	&exist;	THERE EXISTS
∅	&#8709;	&empty;	EMPTY SETS
∇	&#8711;	&nabla;	NABLA
∈	&#8712;	&isin;	ELEMENT OF

∉	&#8713; &notin;	NOT AN ELEMENT OF
⊃	&#8715; &ni;	CONTAINS AS MEMBER
∏	&#8719; &prod;	N-ARY PRODUCT
Σ	&#8721; &sum;	N-ARY SUMMATION

[Full Math Reference](#)

## Some Greek Letters Supported by HTML

Char	Number	Entity	Description
A	&#913;	&Alpha;	GREEK CAPITAL LETTER ALPHA
B	&#914;	&Beta;	GREEK CAPITAL LETTER BETA
Γ	&#915;	&Gamma;	GREEK CAPITAL LETTER GAMMA
Δ	&#916;	&Delta;	GREEK CAPITAL LETTER DELTA
E	&#917;	&Epsilon;	GREEK CAPITAL LETTER EPSILON

Z	&#918;	&Zeta;	GREEK CAPITAL LETTER ZETA
---	--------	--------	---------------------------

## Some Other Entities Supported by HTML

Char	Number	Entity	Description
©	&#169;	&copy;	COPYRIGHT SIGN
®	&#174;	&reg;	REGISTERED SIGN
€	&#8364;	&euro;	EURO SIGN
™	&#8482;	&trade;	TRADEMARK
←	&#8592;	&larr;	LEFTWARDS ARROW
↑	&#8593;	&uarr;	UPWARDS ARROW
→	&#8594;	&rarr;	RIGHTWARDS ARROW
↓	&#8595;	&darr;	DOWNWARDS ARROW
♠	&#9824;	&spades;	BLACK SPADE SUIT



♠	&#9827;	&clubs;	BLACK CLUB SUIT
•	&#9829;	&hearts;	BLACK HEART SUIT
♦	&#9830;	&diams;	BLACK DIAMOND SUIT

# HTML Forms

## The <form> Element

The HTML `<form>` element defines a form that is used to collect user input:

```
<form>
•
form elements
•
</form>
```

An HTML form contains **form elements**.

Form elements are different types of input elements, like text fields, checkboxes, radio buttons, submit buttons, and more.

## The <input> Element

The `<input>` element is the most important form element.

The `<input>` element can be displayed in several ways, depending on the **type** attribute.

Here are some examples:

Type	Description
<code>&lt;input type="text"&gt;</code>	Defines a one-line text input field

`<input type="radio">`

Defines a radio button (for selecting one of many choices)

`<input type="submit">`

Defines a submit button (for submitting the form)

## Text Input

`<input type="text">` defines a one-line input field for **text input**:

### Example

```
<form>
  First name:<br>
  <input type="text" name="firstname"><br>
  Last name:<br>
  <input type="text" name="lastname">
</form>
```

This is how it will look like in a browser:

First name:

Last name:

**Note:** The form itself is not visible. Also note that the default width of a text field is 20 characters.

## Radio Button Input

`<input type="radio">` defines a **radio button**.

Radio buttons let a user select ONE of a limited number of choices:

### Example

```
<form>
  <input type="radio" name="gender" value="male" checked> Male<br>
  <input type="radio" name="gender" value="female"> Female<br>
  <input type="radio" name="gender" value="other"> Other
</form>
```

This is how the HTML code above will be displayed in a browser:

- ☒ Male
- ☐ Female
- ☐ Other

## The Submit Button

`<input type="submit">` defines a button for **submitting** the form data to a **form-handler**.

The form-handler is typically a server page with a script for processing input data.

The form-handler is specified in the form's **action** attribute:

### Example

```
<form action="/action_page.php">
  First name:<br>
  <input type="text" name="firstname" value="Mickey"><br>
  Last name:<br>
  <input type="text" name="lastname" value="Mouse"><br><br>
  <input type="submit" value="Submit">
</form>
```

This is how the HTML code above will be displayed in a browser:

First name:

Last name:

## The Action Attribute

The **action** attribute defines the action to be performed when the form is submitted.

Normally, the form data is sent to a web page on the server when the user clicks on the submit button.

In the example above, the form data is sent to a page on the server called `"/action_page.php"`. This page contains a server-side script that handles the form data:

```
<form action="/action_page.php">
```

If the `action` attribute is omitted, the action is set to the current page.

## The Target Attribute

The `target` attribute specifies if the submitted result will open in a new browser tab, a frame, or in the current window.

The default value is `"_self"` which means the form will be submitted in the current window.

To make the form result open in a new browser tab, use the value `"_blank"`:

### Example

```
<form action="/action_page.php" target="_blank">
```

Other legal values are `"_parent"`, `"_top"`, or a name representing the name of an iframe.

## The Method Attribute

The `method` attribute specifies the HTTP method (**GET** or **POST**) to be used when submitting the form data:

### Example

```
<form action="/action_page.php" method="get">
```

or:

### Example

```
<form action="/action_page.php" method="post">
```

## When to Use GET?

The default method when submitting form data is GET.

However, when GET is used, the submitted form data will be **visible in the page address field**:

```
/action_page.php?firstname=Mickey&lastname=Mouse
```

### Notes on GET:

- 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! (will be visible in the URL)
- Useful for form submissions where a user wants to bookmark the result
- GET is better for non-secure data, like query strings in Google

## When to Use POST?

Always use POST if the form data contains sensitive or personal information. The POST method does not display the submitted form data in the page address field.

### Notes on POST:

- POST has no size limitations, and can be used to send large amounts of data.
- Form submissions with POST cannot be bookmarked

## The Name Attribute

Each input field must have a `name` attribute to be submitted.

If the `name` attribute is omitted, the data of that input field will not be sent at all.

This example will only submit the "Last name" input field:

### Example

```
<form action="/action_page.php">
  First name:<br>
  <input type="text" value="Mickey"><br>
  Last name:<br>
  <input type="text" name="lastname" value="Mouse"><br><br>
  <input type="submit" value="Submit">
</form>
```

## Grouping Form Data with <fieldset>

The `<fieldset>` element is used to group related data in a form.

The `<legend>` element defines a caption for the `<fieldset>` element.

### Example

```
<form action="/action_page.php">
  <fieldset>
    <legend>Personal information:</legend>
    First name:<br>
    <input type="text" name="firstname" value="Mickey"><br>
```

```
Last name:<br>
<input type="text" name="lastname" value="Mouse"><br><br>
<input type="submit" value="Submit">
</fieldset>
</form>
```

This is how the HTML code above will be displayed in a browser:

Personal information: First name:

Last name:

## HTML Form Elements

This chapter describes all HTML form elements.

### The <input> Element

The most important form element is the `<input>` element.

The `<input>` element can be displayed in several ways, depending on the `type` attribute.

#### Example

```
<input name="firstname" type="text">
```

If the `type` attribute is omitted, the input field gets the default type: "text".

All the different input types are covered in the next chapter.

### The <select> Element

The `<select>` element defines a **drop-down list**:

#### Example

```
<select name="cars">
  <option value="volvo">Volvo</option>
  <option value="saab">Saab</option>
  <option value="fiat">Fiat</option>
```

```
<option value="audi">Audi</option>
</select>
```

The `<option>` element defines an option that can be selected.

By default, the first item in the drop-down list is selected.

To define a pre-selected option, add the `selected` attribute to the option:

## Example

```
<option value="fiat" selected>Fiat</option>
```

## Visible Values:

Use the `size` attribute to specify the number of visible values:

## Example

```
<select name="cars" size="3">
  <option value="volvo">Volvo</option>
  <option value="saab">Saab</option>
  <option value="fiat">Fiat</option>
  <option value="audi">Audi</option>
</select>
```

## Allow Multiple Selections:

Use the `multiple` attribute to allow the user to select more than one value:

## Example

```
<select name="cars" size="4" multiple>
  <option value="volvo">Volvo</option>
  <option value="saab">Saab</option>
  <option value="fiat">Fiat</option>
  <option value="audi">Audi</option>
</select>
```

## The <textarea> Element

The `<textarea>` element defines a multi-line input field (**a text area**):

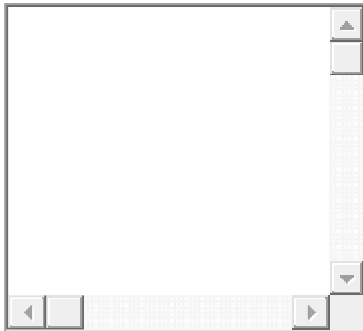
## Example

```
<textarea name="message" rows="10" cols="30">
The cat was playing in the garden.
</textarea>
```

The `rows` attribute specifies the visible number of lines in a text area.

The `cols` attribute specifies the visible width of a text area.

This is how the HTML code above will be displayed in a browser:



You can also define the size of the text area by using CSS:

## Example

```
<textarea name="message" style="width:200px; height:600px;">
The cat was playing in the garden.
</textarea>
```

## The <button> Element

The `<button>` element defines a clickable **button**:

## Example

```
<button type="button" onclick="alert('Hello World!')">Click Me!</button>
```

This is how the HTML code above will be displayed in a browser:

Click Me!

**Note:** Always specify the **type** attribute for the button element. Different browsers may use different default types for the button element.

## HTML5 Form Elements

HTML5 added the following form elements:

- `<datalist>`
- `<output>`

**Note:** Browsers do not display unknown elements. New elements that are not supported in older browsers will not "destroy" your web page.



# HTML5 <datalist> Element

The `<datalist>` element specifies a list of pre-defined options for an `<input>` element.

Users will see a drop-down list of the pre-defined options as they input data.

The `list` attribute of the `<input>` element, must refer to the `id` attribute of the `<datalist>` element.



## Example

```
<form action="/action_page.php">
  <input list="browsers">
  <datalist id="browsers">
    <option value="Internet Explorer">
    <option value="Firefox">
    <option value="Chrome">
    <option value="Opera">
    <option value="Safari">
  </datalist>
</form>
```

# HTML5 <output> Element

The `<output>` element represents the result of a calculation (like one performed by a script).

## Example

Perform a calculation and show the result in an `<output>` element:

```
<form action="/action_page.php"
  oninput="x.value=parseInt(a.value)+parseInt(b.value)">
  0
  <input type="range" id="a" name="a" value="50">
  100 +
  <input type="number" id="b" name="b" value="50">
  =
  <output name="x" for="a b"></output>
  <br><br>
  <input type="submit">
</form>
```

# HTML Input Types

This chapter describes the different input types for the `<input>` element.

## HTML Input Types

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 Text

`<input type="text">` defines a **one-line text input field**:

### Example

```
<form>
  First name:<br>
  <input type="text" name="firstname"><br>
  Last name:<br>
  <input type="text" name="lastname">
</form>
```

# Input Type Password

`<input type="password">` defines a **password field**:

## Example

```
<form>
  User name:<br>
  <input type="text" name="username"><br>
  User password:<br>
  <input type="password" name="psw">
</form>
```

# Input Type Submit

`<input type="submit">` defines a button for **submitting** form data to a **form-handler**.

The form-handler is typically a server page with a script for processing input data.

The form-handler is specified in the form's `action` attribute:

## Example

```
<form action="/action_page.php">
  First name:<br>
  <input type="text" name="firstname" value="Mickey"><br>
  Last name:<br>
  <input type="text" name="lastname" value="Mouse"><br><br>
  <input type="submit" value="Submit">
</form>
```

# Input Type Reset

`<input type="reset">` defines a **reset button** that will reset all form values to their default values:

## Example

```
<form action="/action_page.php">
  First name:<br>
  <input type="text" name="firstname" value="Mickey"><br>
  Last name:<br>
  <input type="text" name="lastname" value="Mouse"><br><br>
  <input type="submit" value="Submit">
  <input type="reset">
</form>
```

If you change the input values and then click the "Reset" button, the form-data will be reset to the default values.

## Input Type Radio

`<input type="radio">` defines a **radio button**.

Radio buttons let a user select ONLY ONE of a limited number of choices:

### Example

```
<form>
  <input type="radio" name="gender" value="male" checked> Male<br>
  <input type="radio" name="gender" value="female"> Female<br>
  <input type="radio" name="gender" value="other"> Other
</form>
```

## Input Type Checkbox

`<input type="checkbox">` defines a **checkbox**.

Checkboxes let a user select ZERO or MORE options of a limited number of choices.

### Example

```
<form>
  <input type="checkbox" name="vehicle1" value="Bike"> I have a bike<br>
  <input type="checkbox" name="vehicle2" value="Car"> I have a car
</form>
```

This is how the HTML code above will be displayed in a browser:

- ☐ I have a bike
- ☐ I have a car

## Input Type Button

`<input type="button">` defines a **button**:

### Example

```
<input type="button" onclick="alert('Hello World!')" value="Click Me!">
```

This is how the HTML code above will be displayed in a browser:

# HTML5 Input Types

HTML5 added several new input types:

- color
- date
- datetime-local
- email
- month
- number
- range
- search
- tel
- time
- url
- week

New input types that are not supported by older web browsers, will behave as `<input type="text">`.

## Input Type Color

The `<input type="color">` is used for input fields that should contain a color.

Depending on browser support, a color picker can show up in the input field.

### Example

```
<form>
  Select your favorite color:
  <input type="color" name="favcolor">
</form>
```

## Input Type Date

The `<input type="date">` is used for input fields that should contain a date.

Depending on browser support, a date picker can show up in the input field.

### Example

```
<form>
  Birthday:
  <input type="date" name="bday">
</form>
```

You can also use the `min` and `max` attributes to add restrictions to dates:

## Example

```
<form>
  Enter a date before 1980-01-01:
  <input type="date" name="bday" max="1979-12-31"><br>
  Enter a date after 2000-01-01:
  <input type="date" name="bday" min="2000-01-02"><br>
</form>
```

## Input Type Datetime-local

The `<input type="datetime-local">` specifies a date and time input field, with no time zone.

Depending on browser support, a date picker can show up in the input field.

## Example

```
<form>
  Birthday (date and time):
  <input type="datetime-local" name="bdaytime">
</form>
```

## Input Type Email

The `<input type="email">` is used for input fields that should contain an e-mail address.

Depending on browser support, the e-mail address can be automatically validated when submitted.

Some smartphones recognize the email type, and add ".com" to the keyboard to match email input.

## Example

```
<form>
  E-mail:
  <input type="email" name="email">
</form>
```

## Input Type File

The `<input type="file">` defines a file-select field and a "Browse" button for file uploads.

## Example

```
<form>
  Select a file: <input type="file" name="myFile">
</form>
```

## Input Type Month

The `<input type="month">` allows the user to select a month and year.

Depending on browser support, a date picker can show up in the input field.

## Example

```
<form>
  Birthday (month and year):
  <input type="month" name="bdaymonth">
</form>
```

## Input Type Number

The `<input type="number">` defines a **numeric** input field.

You can also set restrictions on what numbers are accepted.

The following example displays a numeric input field, where you can enter a value from 1 to 5:

## Example

```
<form>
  Quantity (between 1 and 5):
  <input type="number" name="quantity" min="1" max="5">
</form>
```

## Input Restrictions

Here is a list of some common 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
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

You will learn more about input restrictions in the next chapter.

The following example displays a numeric input field, where you can enter a value from 0 to 100, in steps of 10. The default value is 30:

## Example

```
<form>
  Quantity:
  <input type="number" name="points" min="0" max="100" step="10" value="30">
</form>
```



# Input Type Range

The `<input type="range">` 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 `min`, `max`, and `step` attributes:

## Example

```
<form>
  <input type="range" name="points" min="0" max="10">
</form>
```

# Input Type Search

The `<input type="search">` is used for search fields (a search field behaves like a regular text field).

## Example

```
<form>
  Search Google:
  <input type="search" name="googlesearch">
</form>
```

# Input Type Tel

The `<input type="tel">` is used for input fields that should contain a telephone number.

## Example

```
<form>
  Telephone:
  <input type="tel" name="phone" pattern="[0-9]{3}-[0-9]{2}-[0-9]{3}">
</form>
```

# Input Type Time

The `<input type="time">` allows the user to select a time (no time zone).

Depending on browser support, a time picker can show up in the input field.

## Example

```
<form>
  Select a time:
  <input type="time" name="usr_time">
</form>
```

## Input Type Url

The `<input type="url">` is used for input fields that should contain a URL address.

Depending on browser support, the url field can be automatically validated when submitted.

Some smartphones recognize the url type, and adds ".com" to the keyboard to match url input.

## Example

```
<form>
  Add your homepage:
  <input type="url" name="homepage">
</form>
```

## Input Type Week

The `<input type="week">` allows the user to select a week and year.

Depending on browser support, a date picker can show up in the input field.

## Example

```
<form>
  Select a week:
  <input type="week" name="week_year">
</form>
```

# HTML Input Attributes

## The value Attribute

The `value` attribute specifies the initial value for an input field:

## Example

```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John">
</form>
```

## The readonly Attribute

The **readonly** attribute specifies that the input field is read only (cannot be changed):

## Example

```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John" readonly>
</form>
```

## The disabled Attribute

The **disabled** attribute specifies that the input field is disabled.

A disabled input field is unusable and un-clickable, and its value will not be sent when submitting the form:

## Example

```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John" disabled>
</form>
```

## The size Attribute

The **size** attribute specifies the size (in characters) for the input field:

## Example

```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John" size="40">
</form>
```

# The max length Attribute

The `maxlength` attribute specifies the maximum allowed length for the input field:

## Example

```
<form action="">
  First name:<br>
  <input type="text" name="firstname" maxlength="10">
</form>
```

With a `maxlength` attribute, the input field will not accept more than the allowed number of characters.

The `maxlength` attribute does not provide any feedback. If you want to alert the user, you must write JavaScript code.

**Note:** Input restrictions are not foolproof, and JavaScript provides many ways to add illegal input. To safely restrict input, it must be checked by the receiver (the server) as well!

## HTML5 Attributes

HTML5 added the following attributes for `<input>`:

- autocomplete
- autofocus
- form
- formaction
- formenctype
- formmethod
- formnovalidate
- formtarget
- height and width
- list
- min and max
- multiple
- pattern (regexp)
- placeholder
- required
- step

and the following attributes for `<form>`:

- autocomplete
- novalidate

# The autocomplete Attribute

The `autocomplete` attribute specifies whether a form or input field should have autocomplete on or off.

When autocomplete is on, the browser automatically completes the input values based on values that the user has entered before.

**Tip:** It is possible to have autocomplete "on" for the form, and "off" for specific input fields, or vice versa.

The `autocomplete` attribute works with `<form>` and the following `<input>` types: text, search, url, tel, email, password, datepickers, range, and color.

## Example

An HTML form with autocomplete on (and off for one input field):

```
<form action="/action_page.php" autocomplete="on">
  First name:<input type="text" name="fname"><br>
  Last name: <input type="text" name="lname"><br>
  E-mail: <input type="email" name="email" autocomplete="off"><br>
  <input type="submit">
</form>
```

**Tip:** In some browsers you may need to activate the autocomplete function for this to work.

# The novalidate Attribute

The `novalidate` attribute is a `<form>` attribute.

When present, novalidate specifies that the form data should not be validated when submitted.

## Example

Indicates that the form is not to be validated on submit:

```
<form action="/action_page.php" novalidate>
  E-mail: <input type="email" name="user_email">
  <input type="submit">
</form>
```

# The autofocus Attribute

The `autofocus` attribute specifies that the input field should automatically get focus when the page loads.

## Example

Let the "First name" input field automatically get focus when the page loads:

First name: `<input type="text" name="fname" autofocus>`

# The form Attribute

The `form` attribute specifies one or more forms an `<input>` element belongs to.

## Example

An input field located outside the HTML form (but still a part of the form):

```
<form action="/action_page.php" id="form1">  
  First name: <input type="text" name="fname"><br>  
  <input type="submit" value="Submit">  
</form>
```

Last name: `<input type="text" name="lname" form="form1">`

# The formaction Attribute

The `formaction` attribute specifies the URL of a file that will process the input control when the form is submitted.

The formaction attribute overrides the action attribute of the `<form>` element.

The formaction attribute is used with `type="submit"` and `type="image"`.

## Example

An HTML form with two submit buttons, with different actions:

```
<form action="/action_page.php">  
  First name: <input type="text" name="fname"><br>  
  Last name: <input type="text" name="lname"><br>  
  <input type="submit" value="Submit"><br>  
  <input type="submit" formaction="/action_page2.php">
```

```
    value="Submit as admin">
</form>
```

## The formenctype Attribute

The `formenctype` attribute specifies how the form data should be encoded when submitted (only for forms with `method="post"`).

The `formenctype` attribute overrides the `enctype` attribute of the `<form>` element.

The `formenctype` attribute is used with `type="submit"` and `type="image"`.

### Example

Send form-data that is default encoded (the first submit button), and encoded as "multipart/form-data" (the second submit button):

```
<form action="/action_page_binary.asp" method="post">
  First name: <input type="text" name="fname"><br>
  <input type="submit" value="Submit">
  <input type="submit" formenctype="multipart/form-data"
    value="Submit as Multipart/form-data">
</form>
```

## The formmethod Attribute

The `formmethod` attribute defines the HTTP method for sending form-data to the action URL.

The `formmethod` attribute overrides the `method` attribute of the `<form>` element.

The `formmethod` attribute can be used with `type="submit"` and `type="image"`.

### Example

The second submit button overrides the HTTP method of the form:

```
<form action="/action_page.php" method="get">
  First name: <input type="text" name="fname"><br>
  Last name: <input type="text" name="lname"><br>
  <input type="submit" value="Submit">
  <input type="submit" formmethod="post" value="Submit using POST">
</form>
```

# The formnovalidate Attribute

The `formnovalidate` attribute overrides the `novalidate` attribute of the `<form>` element.

The `formnovalidate` attribute can be used with `type="submit"`.

## Example

A form with two submit buttons (with and without validation):

```
<form action="/action_page.php">
  E-mail: <input type="email" name="userid"><br>
  <input type="submit" value="Submit"><br>
  <input type="submit" formnovalidate value="Submit without validation">
</form>
```

# The formtarget Attribute

The `formtarget` attribute specifies a name or a keyword that indicates where to display the response that is received after submitting the form.

The `formtarget` attribute overrides the `target` attribute of the `<form>` element.

The `formtarget` attribute can be used with `type="submit"` and `type="image"`.

## Example

A form with two submit buttons, with different target windows:

```
<form action="/action_page.php">
  First name: <input type="text" name="fname"><br>
  Last name: <input type="text" name="lname"><br>
  <input type="submit" value="Submit as normal">
  <input type="submit" formtarget="_blank"
    value="Submit to a new window">
</form>
```

# The height and width Attributes

The `height` and `width` attributes specify the height and width of an `<input type="image">` element.

Always specify the size of images. If the browser does not know the size, the page will flicker while images load.



## Example

Define an image as the submit button, with height and width attributes:

```
<input type="image" src="img_submit.gif" alt="Submit" width="48" height="48">
```

## The list Attribute

The **list** attribute refers to a **<datalist>** element that contains pre-defined options for an **<input>** element.

## Example

An **<input>** element with pre-defined values in a **<datalist>**:

```
<input list="browsers">

<datalist id="browsers">
  <option value="Internet Explorer">
  <option value="Firefox">
  <option value="Chrome">
  <option value="Opera">
  <option value="Safari">
</datalist>
```

## The min and max Attributes

The **min** and **max** attributes specify the minimum and maximum values for an **<input>** element.

The **min** and **max** attributes work with the following input types: number, range, date, datetime-local, month, time and week.

## Example

**<input>** elements with min and max values:

Enter a date before 1980-01-01:

```
<input type="date" name="bday" max="1979-12-31">
```

Enter a date after 2000-01-01:

```
<input type="date" name="bday" min="2000-01-02">
```

Quantity (between 1 and 5):

```
<input type="number" name="quantity" min="1" max="5">
```

# The multiple Attribute

The **multiple** attribute specifies that the user is allowed to enter more than one value in the `<input>` element.

The **multiple** attribute works with the following input types: email, and file.

## Example

A file upload field that accepts multiple values:

Select images: `<input type="file" name="img" multiple>`

# The pattern Attribute

The **pattern** attribute specifies a regular expression that the `<input>` element's value is checked against.

The **pattern** attribute works with the following input types: text, search, url, tel, email, and password.

**Tip:** Use the global [title](#) attribute to describe the pattern to help the user.

**Tip:** Learn more about [regular expressions](#) in our JavaScript tutorial.

## Example

An input field that can contain only three letters (no numbers or special characters):

Country code: `<input type="text" name="country_code" pattern="[A-Za-z]{3}" title="Three letter country code">`

# The placeholder Attribute

The **placeholder** attribute specifies a hint that describes the expected value of an input field (a sample value or a short description of the format).

The hint is displayed in the input field before the user enters a value.

The **placeholder** attribute works with the following input types: text, search, url, tel, email, and password.

## Example

An input field with a placeholder text:

```
<input type="text" name="fname" placeholder="First name">
```

## The required Attribute

The **required** attribute specifies that an input field must be filled out before submitting the form.

The **required** attribute works with the following input types: text, search, url, tel, email, password, date pickers, number, checkbox, radio, and file.

## Example

A required input field:

Username: `<input type="text" name="usrname" required>`

## The step Attribute

The **step** attribute specifies the legal number intervals for an `<input>` element.

Example: if `step="3"`, legal numbers could be -3, 0, 3, 6, etc.

**Tip:** The step attribute can be used together with the max and min attributes to create a range of legal values.

The **step** attribute works with the following input types: number, range, date, datetime-local, month, time and week.

## Example

An input field with a specified legal number intervals:

```
<input type="number" name="points" step="3">
```