

HTML Introduction

HTML stands for HyperText Markup Language and is the basic structural element that is used to create webpages. HTML is a markup language, which means that it is used to “mark up” the content within a document, in this case a webpage, with structural and semantic information that tells a browser how to display a page. When an HTML document is loaded by a web browser, the browser uses the HTML tags that have marked up the document to render the page’s content.

"Hypertext" refers to the hyperlinks that an HTML page may contain. "Markup language" refers to the way tags are used to define the page layout and elements within the page. Below is an example of HTML used to define a basic webpage with a title and a single paragraph of text.

HTML, as a markup language doesn't really “do” anything in the sense that a programming language does. HTML contains no programming logic. It doesn't have common conditional statements such as If/Else. ... This is because HTML is not a programming language.

History of HTML

The first version of HTML was written by Tim Berners-Lee in 1993. Since then, there have been many different versions of HTML. The most widely used version throughout the 2000's was HTML 4.01, which became an official standard in December 1999. Another version, XHTML, was a rewrite of HTML as an XML language.

Applications of HTML

As mentioned before, HTML is one of the most widely used language over the web. I'm going to list few of them here:

- **Web pages development** - HTML is used to create pages which are rendered over the web. Almost every page of web is having html tags in it to render its details in browser.
- **Internet Navigation** - HTML provides tags which are used to navigate from one page to another and is heavily used in internet navigation.
- **Responsive UI** - HTML pages now-a-days works well on all platform, mobile, tabs, desktop or laptops owing to responsive design strategy.

- **Offline support** HTML pages once loaded can be made available offline on the machine without any need of internet.

STRUCTURE OF HTML

An HTML document is composed of three parts:

1. a line containing HTML Version information
2. a declarative header section (delimited by the head element),
3. a body, which contains the document's actual content. The body may be implemented by the body element

The DOCTYPE

A DOCTYPE declaration must be specified on the first line of each web document:

HTML 4.01:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"  
"http://www.w3.org/TR/html4/loose.dtd">
```

XHTML 1.1:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"  
"http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
```

HTML5

```
<!doctype HTML>
```

Head Section

Listed below are all the tags that can be used in the head element:

- <base>
- <link>
- <meta>
- <noscript>

- `<script>`
- `<style>`
- `<title>`

For example:

Giving title to Webpage

```
<HEAD>  
<TITLE> A Hello world Example in HTML<TITLE>  
</HEAD>
```

Providing CSS to Webpage

```
<head>  
  
<style>  
  
H1 {Color:red;}  
  
</style>  
  
</head>
```

Providing Meta Description

The `<meta>` tag defines metadata about an HTML document. Metadata is data (information) about data.

`<meta>` tags always go inside the `<head>` element, and are typically used to specify character set, page description, keywords, author of the document, and viewport settings.

Metadata will not be displayed on the page, but is machine parsable.

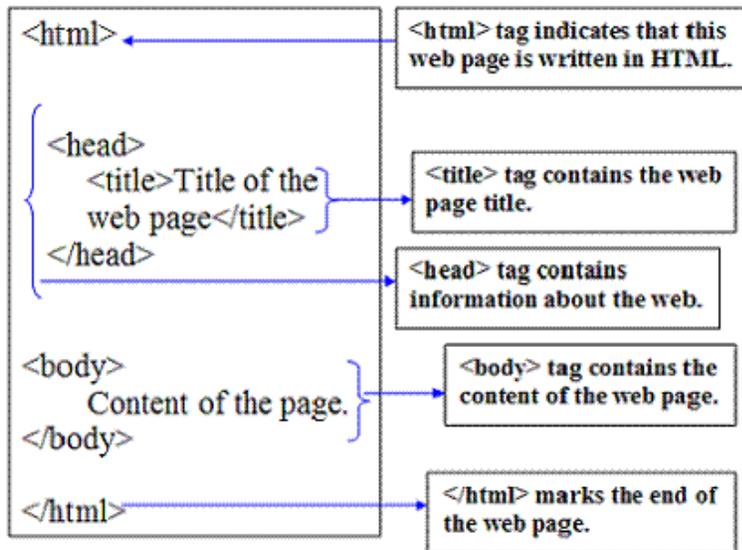
Metadata is used by browsers (how to display content or reload page), search engines (keywords), and other web services.

There is a method to let web designers take control over the viewport (the user's visible area of a web page), through the `<meta>` tag

```

<head>
<meta charset="UTF-8">
<meta name="description" content="Free Web tutorials">
<meta name="keywords" content="HTML, CSS, JavaScript">
<meta name="author" content="John Doe">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>

```



1	<p><!DOCTYPE...></p> <p>This tag defines the document type and HTML version.</p>
2	<p><html></p> <p>This tag encloses the complete HTML document and mainly comprises of document header which is represented by <code><head>...</head></code> and document body which is represented by <code><body>...</body></code> tags.</p>
3	<p><head></p> <p>This tag represents the document's header which can keep other HTML tags like <code><title></code>, <code><link></code> etc.</p>
4	<p><title></p> <p>The <code><title></code> tag is used inside the <code><head></code> tag to mention the document title.</p>

5 <body>

This tag represents the document's body which keeps other HTML tags like <h1>, <div>, <p> etc.

HTML Attribute

An attribute is used to define the characteristics of an HTML element and is placed inside the element's opening tag. All attributes are made up of two parts – a **name** and a **value**

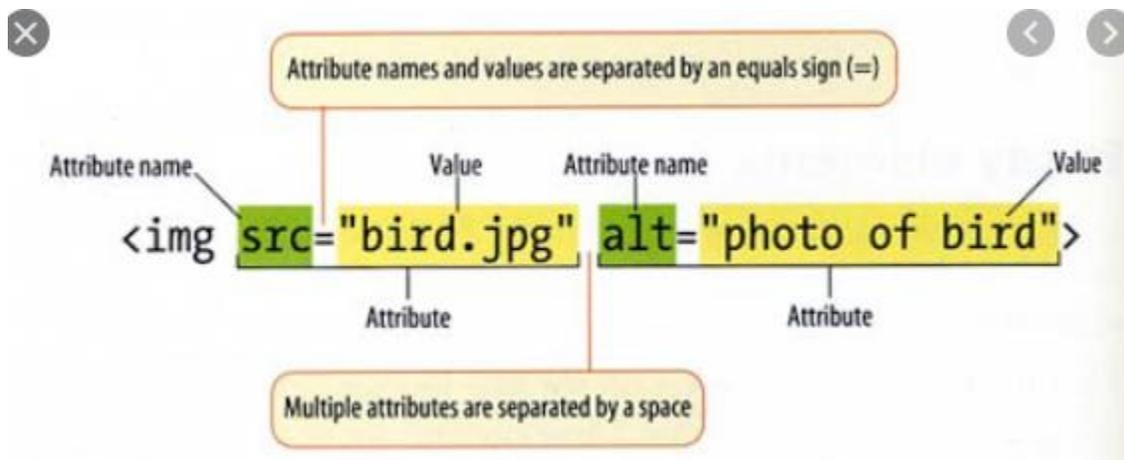
- The **name** is the property you want to set. For example, the paragraph <p> element in the example carries an attribute whose name is **align**, which you can use to indicate the alignment of paragraph on the page.
- The **value** is what you want the value of the property to be set and always put within quotations. The below example shows three possible values of align attribute: **left**, **center** and **right**.

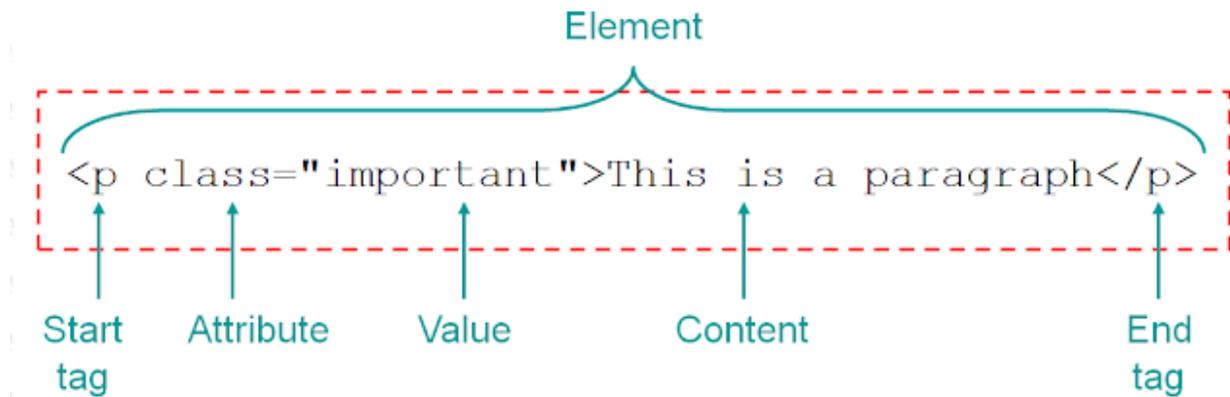
```
<!DOCTYPE html>
<html>

  <head>
    <title>Align Attribute Example</title>
  </head>

  <body>
    <p align = "left">This is left aligned</p>
    <p align = "center">This is center aligned</p>
    <p align = "right">This is right aligned</p>
  </body>

</html>
```





HTML Links - Hyperlinks

HTML links are hyperlinks. You can click on a link and jump to another document. When you move the mouse over a link, the mouse arrow will turn into a little hand.

The HTML `<a>` tag defines a hyperlink. It has the following syntax:

```
<a href="url">link text</a>
```

The most important attribute of the `<a>` element is the `href` attribute, which indicates the link's destination. The link text is the part that will be visible to the reader.

Text hyperlink – Uses a word or phrase to take visitors to another page, file or document.

```
<a href="url">link text</a>
```

Image hyperlink – Uses an image to take visitors to another page, file or document.

```
<a href="https://www.w3schools.com">

</a>
```

Bookmark hyperlink – Uses text or an image to take visitors to another part of a web page.

```
<a href="#section2">Go to Section 2</a>
```

..

.

.

`<p id="section2">This is the section where you want to jump when you click on link go to section2</p>`

How to link to an email address:

`Send email`

Building Navigation or menu with hyperlink

```
<body>
<a href="page1.html">Home</a>|
<a href="page2.html">Products</a>|
<a href="page3.html">Gallery</a>|
<a href="page4.html">Services</a>|
<a href="page5.html">Contact us</a>
</body>
```

Output

[Home](#) | [Products](#) | [Gallery](#) | [Services](#) | [Contact us](#)

HTML TABLE

To **create table** in **HTML**, use the `<table>` tag. A **table** consist of rows and columns, which can be set using one or more `<tr>`, `<th>`, and `<td>` elements. A **table** row is defined by the `<tr>` tag. To set **table** header, use the `<th>` tag.

The `<table>` tag defines an HTML table.

Each table row is defined with a `<tr>` tag. Each table header is defined with a `<th>` tag. Each table data/cell is defined with a `<td>` tag.

By default, the text in `<th>` elements are bold and centered.

By default, the text in `<td>` elements are regular and left-aligned.

```
<table border="2px">
<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></table>

```

Output

Firstname	Lastname	Age
Jill	Smith	50
Eve	Jackson	94

Table with colspan and rowspan

```

<table border="2px">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td colspan="2">Jill</td>
    <td rowspan="2">50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
  </tr>
</table>

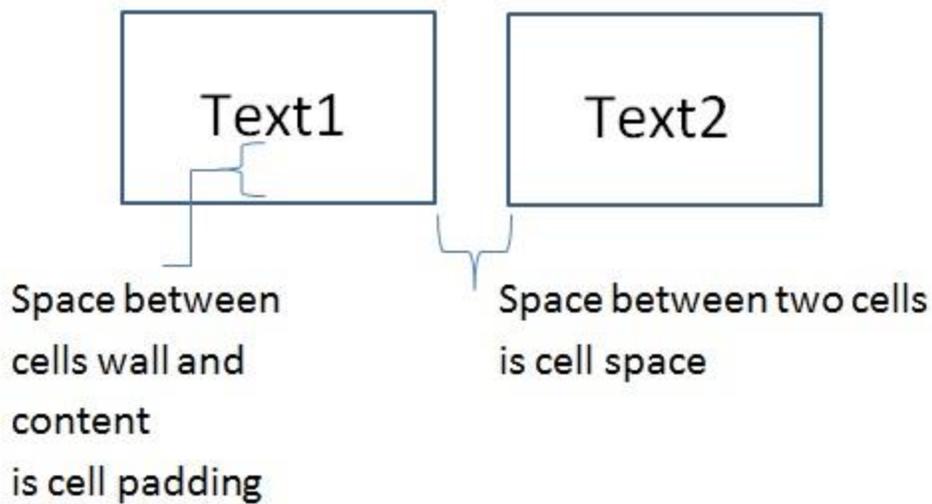
```

Output

Firstname	Lastname	Age
Jill		50
Eve	Jackson	

cellpadding and cellspacing

There are two attributes called **cellpadding** and **cellspacing** which you will use to adjust the white space in your table cells. The **cellspacing** attribute defines space between table cells, while **cellpadding** represents the distance between cell borders and the content within a cell.



Text Formatting tags in HTML

Formatting elements were designed to display special types of text:

- `` - Bold text
- `` - Important text
- `<i>` - Italic text
- `` - Emphasized text
- `<mark>` - Marked text
- `<small>` - Smaller text
- `` - Deleted text
- `<ins>` - Inserted text
- `<sub>` - Subscript text
- `<sup>` - Superscript text

The HTML `` element defines bold text, without any extra importance.

``This text is bold``

The HTML `` element defines text with strong importance. The content inside is typically displayed in bold.

``This text is important!``

The HTML `<i>` element defines a part of text in an alternate voice or mood. The content inside is typically displayed in italic.

`<i>`This text is italic`</i>`

The HTML `` element defines emphasized text. The content inside is typically displayed in italic.

``This text is emphasized``

The HTML `<small>` element defines smaller text:

`<small>`This is some smaller text.`</small>`

The HTML `<mark>` element defines text that should be marked or highlighted:

Example

`<p>`Do not forget to buy `<mark>`milk`</mark>` today.`</p>`

The HTML `` element defines text that has been deleted from a document. Browsers will usually strike a line through deleted text:

`<p>`My favorite color is ``blue`` red.`</p>`

The HTML `<ins>` element defines a text that has been inserted into a document. Browsers will usually underline inserted text:

`<p>`My favorite color is ``blue`` `<ins>`red`</ins>`.`</p>`

The HTML `<sub>` element defines subscript text. Subscript text appears half a character below the normal line, and is sometimes rendered in a smaller font. Subscript text can be used for chemical formulas, like H₂O:

`<p>This is _{subscripted} text.</p>`

The HTML `<sup>` element defines superscript text. Superscript text appears half a character above the normal line, and is sometimes rendered in a smaller font.

`<p>This is ^{superscripted} text.</p>`

Example

```
<html>
<body>
<p> This is Normal text<sup> This text is in superscript. </sup> </p>
<p> This is Normal text <big> This text in in larger size. </big> </p>
<p> This is Normal text <small> the size of this text is smaller </small>
</p>
</body>
</html>
```

Output

This is Normal text ^{This text is in superscript.}

This is Normal text This text in in larger size.

This is Normal text the size of this text is smaller

Image Tag

1. Use the **HTML** `` element to define an **image**.
2. Use the **HTML** `src` attribute to define the URL of the **image**.
3. Use the **HTML** `alt` attribute to define an alternate text for an **image**, if it cannot be displayed.

The `` tag is written as ``

(no end **tag**) with the **image** URL inserted between the double quotes of the src attribute. The srcset attribute can also be used in order to specify different **images**

The `` tag has two required attributes:

- src - Specifies the path to the image
- alt - Specifies an alternate text for the image, if the image for some reason cannot be displayed

```

```

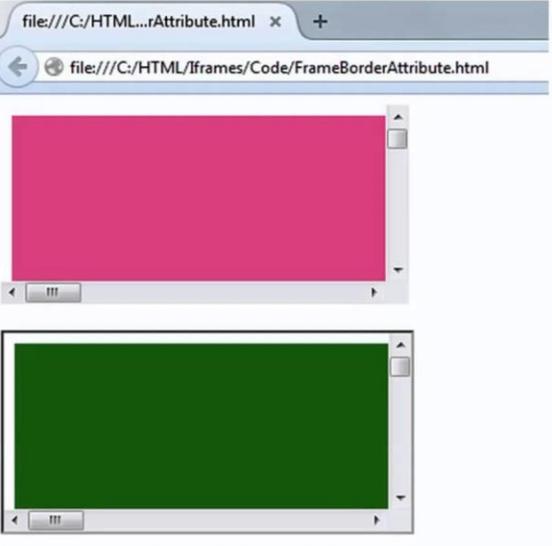
Iframe(inline Frame)

An inline frame is used to embed another document within the current HTML document.

The **iframe in HTML** stands for Inline Frame. The **"iframe"** tag defines a rectangular region within the document in which the browser can display a separate document, including scrollbars and borders.

```
<iframe src="https://www..com" title="when you hover on title it will display value of title attribute"></iframe>
```

Code	Output
<pre><html> <body> <iframe src="Image4.html" frameborder="0"> </iframe>

 <iframe src="Image5.html" frameborder="1"> </iframe> </body> </html></pre>	 <p>The screenshot shows a web browser window with two iframes. The top iframe has a pink background and no border, while the bottom iframe has a green background and a visible border. The browser's address bar shows the file path: file:///C:/HTML/frames/Code/FrameBorderAttribute.html.</p>

Embedding Youtube video using iframe

```
<iframe width="420" height="315"
src="https://www.youtube.com/embed/tgbNymZ7vqY">
</iframe>
```

Lists in html

HTML lists are used to present **list** of information in well formed and semantic way. There are three different types of **list in HTML** and each one has a specific purpose and meaning. **Unordered list** — Used to create a **list** of related items, in no particular order.

- **Unordered list** — Used to create a list of related items, in no particular order.
- **Ordered list** — Used to create a list of related items, in a specific order.
- **Description list** — Used to create a list of terms and their descriptions. A description list is a list of items with a description or definition of each item.

The description list is created using `<dl>` element. The `<dl>` element is used in conjunction with the `<dt>` element which specify a term, and the `<dd>` element which specify the term's definition.

-

Example with ol, ul, dl list tag

```

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

</body>
</html>

```

Output

An Unordered HTML List

- Coffee
- Tea
- Milk

An Ordered HTML List

1. Coffee
2. Tea
3. Milk

Coffee
- black hot drink

Milk
- white cold drink

Media Queries in html

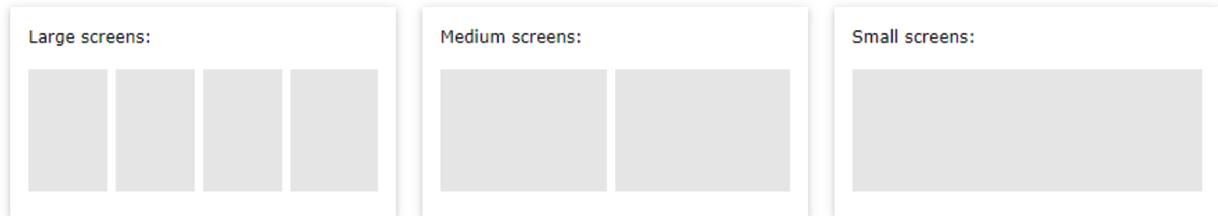
Media query is a CSS technique introduced in CSS3. It uses the **@media** rule to include a block of CSS properties only if a certain condition is true.

A page can then be optimized and laid out completely differently for **mobile phones, tablets**, and varying browser **window sizes**.

The result of the query will be true if the media type specified in the media query matches the type of device the document is being displayed on, as well as all expressions in the media query are satisfied. When a media query is true, the related style sheet or style rules are applied to the target device.

Media Queries For Columns

A common use of media queries, is to create a flexible layout. In this example, we create a layout that varies between four, two and full-width columns, depending on different screen sizes:



```
.column {  
  float: left;  
  width: 25%;  
}  
  
/* On screens that are 992px wide or less, go from four columns to two columns */  
@media screen and (max-width: 992px) {  
  .column {  
    width: 50%;  
  }  
}  
  
/* On screens that are 600px wide or less, make the columns stack on top of each other instead of  
next to each other */  
@media screen and (max-width: 600px) {  
  .column {  
    width: 100%;  
  }  
}
```

Desktop



@media screen and
(min-width: 1024px)
{...}

Tablet

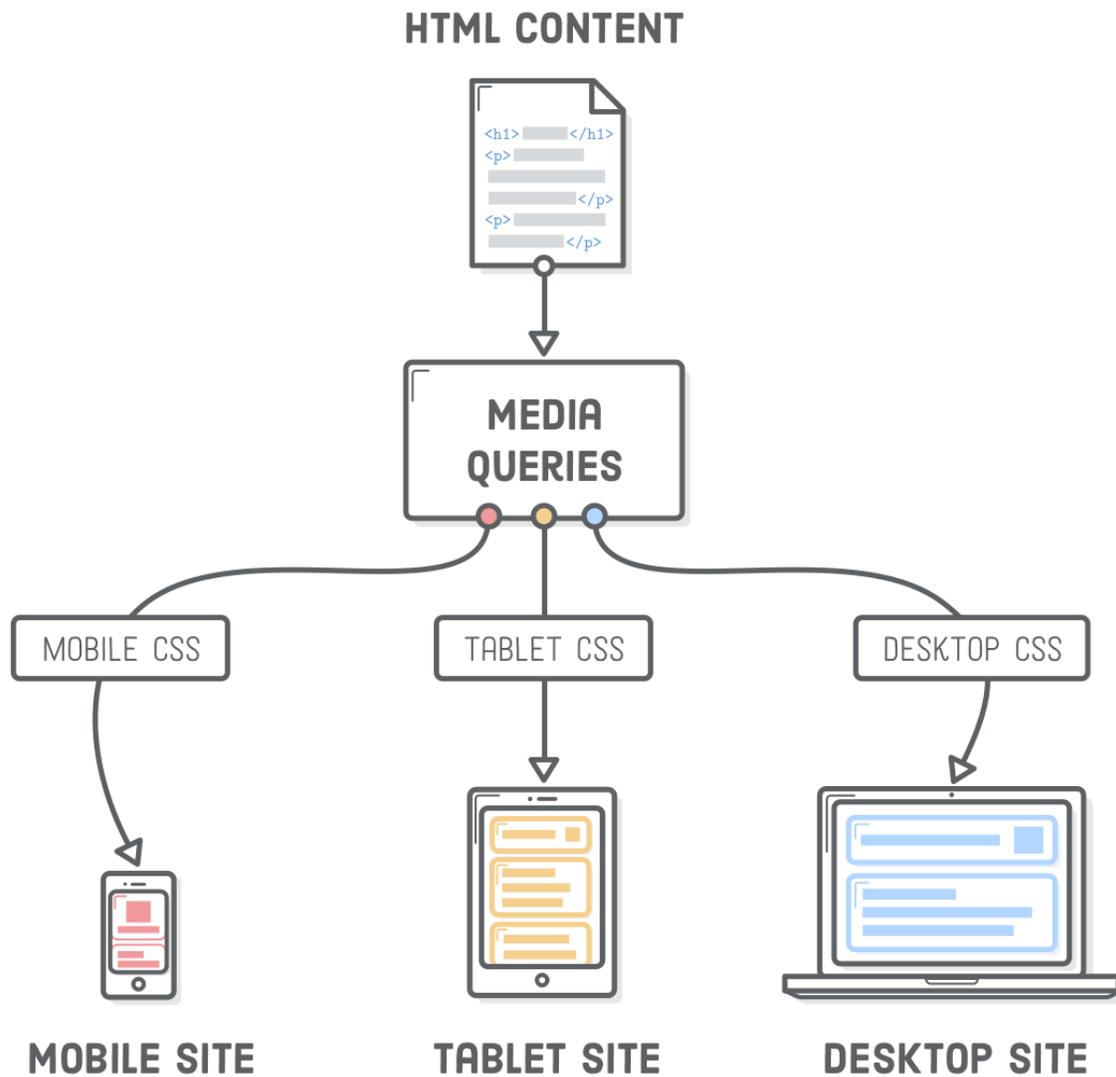


@media screen and
(min-width: 768px) and
(max-width: 1023px)
{...}

Smartphone



@media screen and
(max-width: 767px)
{...}



Example of Media Queries

```
<html>
<head>
<style>
/* Set the background color of body to tan */
body {
  background-color: tan;
}

/* On screens that are 992px or less, set the background color to blue */
```

```
@media screen and (max-width: 992px) {
  body {
    background-color: blue;
  }
}

/* On screens that are 600px or less, set the background color to olive */
@media screen and (max-width: 600px) {
  body {
    background-color: olive;
  }
}
</style>
</head>
<body>
<p> This is Normal text<sup> This text is in superscript. </sup> </p>
</body>
</html>
```

Form tag in HTML

The Action Attribute

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

Usually, the form data is sent to a file on the server when the user clicks on the submit button.

The Target Attribute

The **target** attribute specifies where to display the response that is received after submitting the form.

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

Value	Description
<code>_blank</code>	The response is displayed in a new window or tab
<code>_self</code>	The response is displayed in the current window
<code>_parent</code>	The response is displayed in the parent frame
<code>_top</code>	The response is displayed in the full body of the window
<code>framename</code>	The response is displayed in a named iframe

The Method Attribute

The `method` attribute specifies the HTTP method to be used when submitting the form data.

The form-data can be sent as URL variables (with `method="get"`) or as HTTP post transaction (with `method="post"`).

```
<form action="/action_page.php" target="_blank" method="get">
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname" value="Doe"><br><br>
  <input type="submit" value="Submit">
</form>
```

The HTML `<form>` element can contain one or more of the following form elements:

- `<input>`
- `<label>`
- `<select>`
- `<textarea>`
- `<button>`
- `<fieldset>`
- `<legend>`
- `<datalist>`
- `<output>`
- `<option>`
- `<optgroup>`

Example

```
<!DOCTYPE HTML>
<html>
<body>
<form action="" method="post">
Username<input type="text" /><br/>
Password<input type="password" /><br/>
Email<input type="email" name="emailField"/><br/>
Language<select>
<option>Hindi</option>
<option>English</option>
<option>Punjabi</option>
<option>Telgug</option>
</select><br/>
URL<input type="url" name="urlField"/><br/>

Number_even<input type="number" name="numberField" min="10" max="20"
step="2" /><br/>

Range<input type="range" name="rangeField" min="100" max="200"
step="2"/><br/>
```

```
Telephone<input type="tel" name="telField"/><br/>
Search<input type="search" name="searchField"/><br/>
Date<input type="date" name="dateField"/><br/>
Time<input type="time" name="timeField"/><br/>
Datetime<input type="datetime" name="datetimeField"/><br/>
Month<input type="month" name="monthField"/><br/>
Week<input type="week" name="weekField"/><br/>
Color<input type="color" name="colorField"/><br/>
Country<input type="text" name="comboBoxField" list="comboBoxList"><br/>
<datalist id="comboBoxList">
  <option label="Anna">
  <option label="John">
  <option label="Xavier">
</datalist>

    Focus and Required<input type="text" name="textField" placeholder="Type
in here" autofocus required><br/>

    Pattern<input type="text" name="textField" pattern="[A-Z][0-9]"><br/>
    <input type="submit" value="send"/>
  </form>
</body>
</html>
```

Output

Username

Password

Email

Language Hindi

URL

Number_even

Range

Telephone

Search

Date dd-----yyyy

Time --:-- --

Datetime

Month -----

Week Week --, ----

Color

Country

Focus and Required

Pattern