CSS - Units

## **CSS Units**

CSS has several units for different units such as width, margin, padding, font-size, border-width, etc.length indicates by using numerical value followed by length units such as px,dp,em,etc. It does not allow white spaces in between numerical values and length units.Length units has divided as follows −

* relative units
* absolute

## **Relative units**

A length is relatively each others to another length property is called as relative length units.

|  |  |
| --- | --- |
| **Units** | **Abbreviation** |
| Pixels | Px |
| Points | Pt |
| Inches | In |
| Centimeters | Cm |
| Picas | Pc |

## **Relative Units**

In relative units, the length value is fixed and it appears the exact size of element

|  |  |
| --- | --- |
| **Units** | **Abbreviation** |
| Percent | % |
| Em | Em |
| Ex | ex |
| Root em | rem |
| Viewport width | vw |
| Viewport width | vh |
| Viewport width | vm |
| character | ch |
| Grid | gd |

# CSS Cursor

It is used to define the type of mouse cursor when the mouse pointer is on the element. It allows us to specify the cursor type, which will be displayed to the user. When a user hovers on the link, then by default, the cursor transforms into the hand from a pointer.

Let's understand the property values of the cursor.

1. **<html>**
2. **<head>**
3. **</head>**
4. **<style>**
5. body{
6. background-color: lightblue;
7. color:green;
8. text-align: center;
9. font-size: 20px;
10. }
12. **</style>**
14. **<body>**
15. **<p>**Move your mouse over the below words for the cursor change.**</p>**
16. **<div** style = "cursor:alias"**>**alias Value**</div>**
17. **<div** style = "cursor:auto"**>**auto Value**</div>**
18. **<div** style = "cursor:all-scroll"**>**all-scroll value**</div>**
19. **<div** style = "cursor:col-resize"**>**col-resize value**</div>**
20. **<div** style = "cursor:crosshair"**>**Crosshair**</div>**
21. **<div** style = "cursor:default"**>**Default value**</div>**
22. **<div** style = "cursor:copy"**>**copy value**</div>**
23. **<div** style = "cursor:pointer"**>**Pointer**</div>**
24. **<div** style = "cursor:move"**>**Move**</div>**
25. **<div** style = "cursor:e-resize"**>**e-resize**</div>**
26. **<div** style = "cursor:ew-resize"**>**ew-resize**</div>**
27. **<div** style = "cursor:ne-resize"**>**ne-resize**</div>**
28. **<div** style = "cursor:nw-resize"**>**nw-resize**</div>**
29. **<div** style = "cursor:n-resize"**>**n-resize**</div>**
30. **<div** style = "cursor:se-resize"**>**se-resize**</div>**
31. **<div** style = "cursor:sw-resize"**>**sw-resize**</div>**
32. **<div** style = "cursor:s-resize"**>**s-resize**</div>**
33. **<div** style = "cursor:w-resize"**>**w-resize**</div>**
34. **<div** style = "cursor:text"**>**text**</div>**
35. **<div** style = "cursor:wait"**>**wait**</div>**
36. **<div** style = "cursor:help"**>**help**</div>**
37. **<div** style = "cursor:progress"**>**Progress**</div>**
38. **<div** style = "cursor:no-drop"**>**no-drop**</div>**
39. **<div** style = "cursor:not-allowed"**>**not-allowed**</div>**
40. **<div** style = "cursor:vertical-text"**>**vertical-text**</div>**
41. **<div** style = "cursor:zoom-in"**>**Zoom-in**</div>**
42. **<div** style = "cursor:zoom-out"**>**Zoom-out**</div>**
43. **</body>**
44. **</html>**

# CSS Padding

**CSS Padding property** is used to define the space between the element content and the element border.

It is different from CSS margin in the way that CSS margin defines the space around elements. CSS padding is affected by the background colors. It clears an area around the content.

Top, bottom, left and right padding can be changed independently using separate properties. You can also change all properties at once by using shorthand padding property.

## **CSS Padding Properties**

|  |  |
| --- | --- |
| **Property** | **Description** |
| padding | It is used to set all the padding properties in one declaration. |
| padding-left | It is used to set left padding of an element. |
| padding-right | It is used to set right padding of an element. |
| padding-top | It is used to set top padding of an element. |
| padding-bottom | It is used to set bottom padding of an element. |

## **CSS Padding Values**

|  |  |
| --- | --- |
| **Value** | **Description** |
| length | It is used to define fixed padding in pt, px, em etc. |
| % | It defines padding in % of containing element. |

## **CSS Padding Example**

1. <!DOCTYPE html**>**
2. **<html>**
3. **<head>**
4. **<style>**
5. p {
6. background-color: pink;
7. }
8. p.padding {
9. padding-top: 50px;
10. padding-right: 100px;
11. padding-bottom: 150px;
12. padding-left: 200px;
13. }
14. **</style>**
15. **</head>**
16. **<body>**
17. **<p>**This is a paragraph with no specified padding.**</p>**
18. **<p** class="padding"**>**This is a paragraph with specified paddings.**</p>**
19. **</body>**
20. **</html>**

# CSS Positioning Elements

The **position** property in CSS tells about the method of positioning for an element or an HTML entity. There are five different types of position property available in CSS:

* Fixed
* Static
* Relative
* Absolute
* Sticky

The positioning of an element can be done using the *top*, *right*, *bottom*, and *left* properties. These specify the distance of an HTML element from the edge of the viewport. To set the position by these four properties, we have to declare the positioning method. Let’s understand each of these position methods in detail:

**Fixed:**Any HTML element with **position: fixed** property will be positioned relative to the viewport. An element with fixed positioning allows it to remain at the same position even we scroll the page. We can set the position of the element using the top, right, bottom, left.

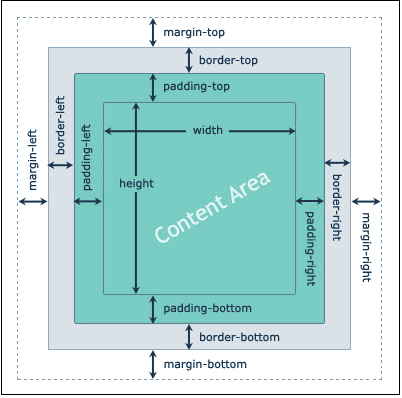
**Example:**The below example illustrates the CSS positioning element by using the *position: fixed* property.

# CSS Box Model

The components that can be depicted on the web page consist of one or more than one rectangular box.

A CSS box model is a compartment that includes numerous assets, such as edge, border, padding and material. It is used to develop the design and structure of a web page. It can be used as a set of tools to personalize the layout of different components. According to the CSS box model, the web browser supplies each element as a square prism.

The following diagram illustrates how the CSS properties of [width](https://www.javatpoint.com/css-width), [height](https://www.javatpoint.com/css-height-property), [padding](https://www.javatpoint.com/css-padding), [border](https://www.javatpoint.com/css-border) and [margin](https://www.javatpoint.com/css-margin) dictate that how much space an attribute will occupy on a web page.



The [CSS](https://www.javatpoint.com/css-tutorial) box model contains the different properties in CSS. These are listed below.

* **Border**
* **Margin**
* **Padding**
* **Content**

Now, we are going to determine the properties one by one in detail.

**Border Field**

It is a region between the padding-box and the margin. Its proportions are determined by the width and height of the boundary.

**Margin Field**

This segment consists of the area between the boundary and the edge of the border.

The proportion of the margin region is equal to the margin-box width and height. It is better to separate the product from its neighbor nodes.

**Padding Field**

This field requires the padding of the component. In essence, this area is the space around the subject area and inside the border-box. The height and the width of the padding box decide its proportions.

1. <!DOCTYPE html**>**
2. **<head>**
3. **<style>**
4. .main
5. {
6. font-size:30px;
7. font-weight:bold;
8. text-align:left;
9. }
10. #box
11. {
12. padding-top:30px;
13. width: 300px;
14. height: 100px;
15. border: 40px solid red;
16. margin: 30px;
17. text-align:center;
18. font-size:32px;
19. font-weight:bold;
20. }
21. **</style>**
22. **</head>**
23. **<body>**
24. **<div** class="main"**>**CSS Box-Model Property**</div>**
25. **<div** id="box"**>**JavaTpoint**</div>**
26. **</body>**
27. **</html>**

BootStrap:

Bootstrap is a powerful front-end framework for faster and easier web development. It includes HTML and CSS based design templates for creating common user interface components like forms, buttons, navigations, dropdowns, alerts, modals, tabs, accordions, carousels, tooltips, and so on.

<div class="container-fluid"> <h1>This is a heading</h1> <p>This is a paragraph of text.</p> </div>

<div class="container-sm">100% wide until screen size less than 576px</div> <div class="container-md">100% wide until screen size less than 768px</div> <div class="container-lg">100% wide until screen size less than 992px</div> <div class="container-xl">100% wide until screen size less than 1200px</div>

Example:

<!-- Container with dark background and white text color --> <div class="container bg-dark text-white"> <h1>This is a heading</h1> <p>This is a paragraph of text.</p> </div> <!-- Container with light background --> <div class="container bg-light"> <h1>This is a heading</h1> <p>This is a paragraph of text.</p> </div> <!-- Container with border --> <div class="container border"> <h1>This is a heading</h1> <p>This is a paragraph of text.</p> </div>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Column Wrapping</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

<style>

/\* Some custom styles to beautify this example \*/

.demo-content{

padding: 15px;

font-size: 18px;

background: #dbdfe5;

margin-bottom: 15px;

}

.demo-content.bg-alt{

background: #abb1b8;

}

</style>

</head>

<body>

<h2 class="text-center mt-3">Bootstrap Column Wrapping</h2>

<div class="text-center my-3">Open the output in a new blank tab (Click the arrow next to "Show Output" button) and resize the browser window to understand how the Bootstrap column wrapping works.</div>

<div class="container">

<div class="row">

<div class="col-md-4 col-lg-3">

<div class="demo-content">.col-md-4 .col-lg-3</div>

</div>

<div class="col-md-8 col-lg-6">

<div class="demo-content bg-alt">.col-md-8 .col-lg-6</div>

</div>

<div class="col-md-12 col-lg-3">

<div class="demo-content">.col-md-12 .col-lg-3</div>

</div>

</div>

</div>

</body>

</html>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Grid Layouts for Large Devices</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

<style>

/\* Some custom styles to beautify this example \*/

p{

padding: 50px;

font-size: 32px;

font-weight: bold;

text-align: center;

background: #dbdfe5;

}

</style>

</head>

<body>

<h2 class="text-center mt-3">Bootstrap Responsive Layout</h2>

<div class="text-center my-3">Open the output in a new blank tab (Click the arrow next to "Show Output" button) and resize the browser window to understand how the Bootstrap responsive grid system works.</div>

<div class="container-lg">

<div class="row">

<div class="col-xl-4"><p>Box 1</p></div>

<div class="col-xl-4"><p>Box 2</p></div>

<div class="col-xl-4"><p>Box 3</p></div>

<div class="col-xl-4"><p>Box 4</p></div>

<div class="col-xl-4"><p>Box 5</p></div>

<div class="col-xl-4"><p>Box 6</p></div>

<div class="col-xl-4"><p>Box 7</p></div>

<div class="col-xl-4"><p>Box 8</p></div>

<div class="col-xl-4"><p>Box 9</p></div>

<div class="col-xl-4"><p>Box 10</p></div>

<div class="col-xl-4"><p>Box 11</p></div>

<div class="col-xl-4"><p>Box 12</p></div>

</div>

</div>

</body>

</html>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Grid Layouts for All Devices</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

<style>

/\* Some custom styles to beautify this example \*/

p{

padding: 50px;

font-size: 32px;

font-weight: bold;

text-align: center;

background: #dbdfe5;

}

</style>

</head>

<body>

<h2 class="text-center mt-3">Bootstrap Responsive Layout</h2>

<div class="text-center my-3">Open the output in a new blank tab (Click the arrow next to "Show Output" button) and resize the browser window to understand how the Bootstrap responsive grid system works.</div>

<div class="container-lg">

<div class="row">

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 1</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 2</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 3</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 4</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 5</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 6</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 7</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 8</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 9</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 10</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 11</p></div>

<div class="col-xl-4 col-md-6 col-xxl-3"><p>Box 12</p></div>

</div>

</div>

</body>

</html>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Vertical Form Layout</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

</head>

<body>

<div class="m-4">

<form action="/examples/actions/confirmation.php" method="post">

<div class="mb-3">

<label class="form-label" for="inputEmail">Email</label>

<input type="email" class="form-control" id="inputEmail" placeholder="Email" required>

</div>

<div class="mb-3">

<label class="form-label" for="inputPassword">Password</label>

<input type="password" class="form-control" id="inputPassword" placeholder="Password" required>

</div>

<div class="mb-3">

<div class="form-check">

<input class="form-check-input" type="checkbox" id="checkRemember">

<label class="form-check-label" for="checkRemember">Remember me</label>

</div>

</div>

<button type="submit" class="btn btn-primary">Sign in</button>

</form>

</div>

</body>

</html>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Horizontal Form Layout</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

</head>

<body>

<div class="m-4">

<form action="/examples/actions/confirmation.php" method="post">

<div class="row mb-3">

<label for="inputEmail" class="col-sm-2 col-form-label">Email</label>

<div class="col-sm-10">

<input type="email" class="form-control" id="inputEmail" placeholder="Email" required>

</div>

</div>

<div class="row mb-3">

<label for="inputPassword" class="col-sm-2 col-form-label">Password</label>

<div class="col-sm-10">

<input type="password" class="form-control" id="inputPassword" placeholder="Password" required>

</div>

</div>

<div class="row mb-3">

<div class="col-sm-10 offset-sm-2">

<div class="form-check">

<input class="form-check-input" type="checkbox" id="checkRemember">

<label class="form-check-label" for="checkRemember">Remember me</label>

</div>

</div>

</div>

<div class="row">

<div class="col-sm-10 offset-sm-2">

<button type="submit" class="btn btn-primary">Sign in</button>

</div>

</div>

</form>

</div>

</body>

</html>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Form Validation</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

</head>

<body>

<div class="m-4">

<form action="/examples/actions/confirmation.php" class="needs-validation" method="post" novalidate>

<div class="mb-3">

<label class="form-label" for="inputEmail">Email</label>

<input type="email" class="form-control" id="inputEmail" placeholder="Email" required>

<div class="invalid-feedback">Please enter a valid email address.</div>

</div>

<div class="mb-3">

<label class="form-label" for="inputPassword">Password</label>

<input type="password" class="form-control" id="inputPassword" placeholder="Password" required>

<div class="invalid-feedback">Please enter your password to continue.</div>

</div>

<div class="mb-3">

<div class="form-check">

<input class="form-check-input" type="checkbox" id="checkRemember">

<label class="form-check-label" for="checkRemember">Remember me</label>

</div>

</div>

<button type="submit" class="btn btn-primary">Sign in</button>

</form>

<!-- JavaScript for disabling form submissions if there are invalid fields -->

<script>

// Self-executing function

(function() {

'use strict';

window.addEventListener('load', function() {

// Fetch all the forms we want to apply custom Bootstrap validation styles to

var forms = document.getElementsByClassName('needs-validation');

// Loop over them and prevent submission

var validation = Array.prototype.filter.call(forms, function(form) {

form.addEventListener('submit', function(event) {

if (form.checkValidity() === false) {

event.preventDefault();

event.stopPropagation();

}

form.classList.add('was-validated');

}, false);

});

}, false);

})();

</script>

</div>

</body>

</html>

Example:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap Custom Select Sizing</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

</head>

<body>

<div class="m-4">

<form>

<select class="form-select form-select-lg">

<option selected>Large custom select menu</option>

<option value="1">One</option>

<option value="2">Two</option>

<option value="3">Three</option>

</select>

<select class="form-select mt-3">

<option selected>Default custom select menu</option>

<option value="1">One</option>

<option value="2">Two</option>

<option value="3">Three</option>

</select>

<select class="form-select form-select-sm mt-3">

<option selected>Small custom select menu</option>

<option value="1">One</option>

<option value="2">Two</option>

<option value="3">Three</option>

</select>

</form>

</div>

</body>

</html>