

Lesson:

Margin, Padding, Border, Outline and CSS Box Model



Topics Covered

- Margin
- Padding
- Border
- Outline
- CSS box model

Note: In the examples, we will mostly use a CSS unit called "**pixel**" which is represented by "**px**". However, we can use other units depending on the example. In the upcoming section, we will explore different units of CSS (absolute and relative) with examples.

Margin

The **margin** property defines the space around an HTML element. It is possible to use negative values to overlap content.

We have the following properties to set an element margin:

The **margin** specifies a shorthand property for setting the margin.

The **margin-bottom** specifies the bottom margin of an element.

The **margin-top** specifies the top margin of an element.

The **margin-left** specifies the left margin of an element.

The **margin-right** specifies the right margin of an element.

Margin - shorthand property

Using the **margin**, we can specify all the margin properties in one property.

Margin property with four values

Note: We will use the same HTML code for all the margin examples.

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="/style.css" />
    <title>Document</title>
  </head>
  <body>
    <div class ="elementOne">Element 1</div>
    <div class ="elementTwo">Element 2</div>
    <div class ="elementThree">Element 3</div>
  </body>
</html>
```

style.css:

```
.elementTwo {
    margin: 10px 20px 30px 40px;
}
```

Browser output:



The **first value** is for the **top margin**, the **second value** is for the **right margin**, the **third value** is for the **bottom margin**, and the **fourth value** is for the **left margin**.

Margin property with three values.

style.css:

```
.elementTwo {
    margin: 20px 40px 30px
}
```

Browser output:



The **first value** is for the **top margin**, the **second value** is for the **right margin** and the **left margin**, and the **third value** is for the **bottom margin**.

Margin property with two values

style.css:

```
.elementTwo {  
margin: 20px 40px  
}
```

Browser Output:-



Element 1

Element 3

The first value is for the **top margin and bottom margin** and the second value is for the **right margin and left margin**.

Margin property with only one value

Style.css

```
.elementOne{  
margin: 10px  
}
```

Browser Output:-

Element 1

div.elementTwo | 187.8 × 18.4

margin top 20px

margin
left
20px

margin
right
20px

Element 2

margin bottom 20px

Element 3

All sides of an element have the same margin value.

Margin - Individual Sides

We can specify the margin for each side of an element.

style.css

```
.elementTwo{  
    margin-top: 10px;  
    margin-right: 20px;  
    margin-bottom: 30px;  
    margin-left: 40px; }
```

Browser Output:-

Element 1

div.elementTwo | 167.8 × 18.4

margin top 10px

margin
left 40px

margin
right
20px

Element 2

margin bottom 30px

Element 3

margin collapse

The top and bottom margins of elements are sometimes collapsed into a single margin that is equal to the largest of the two margins.

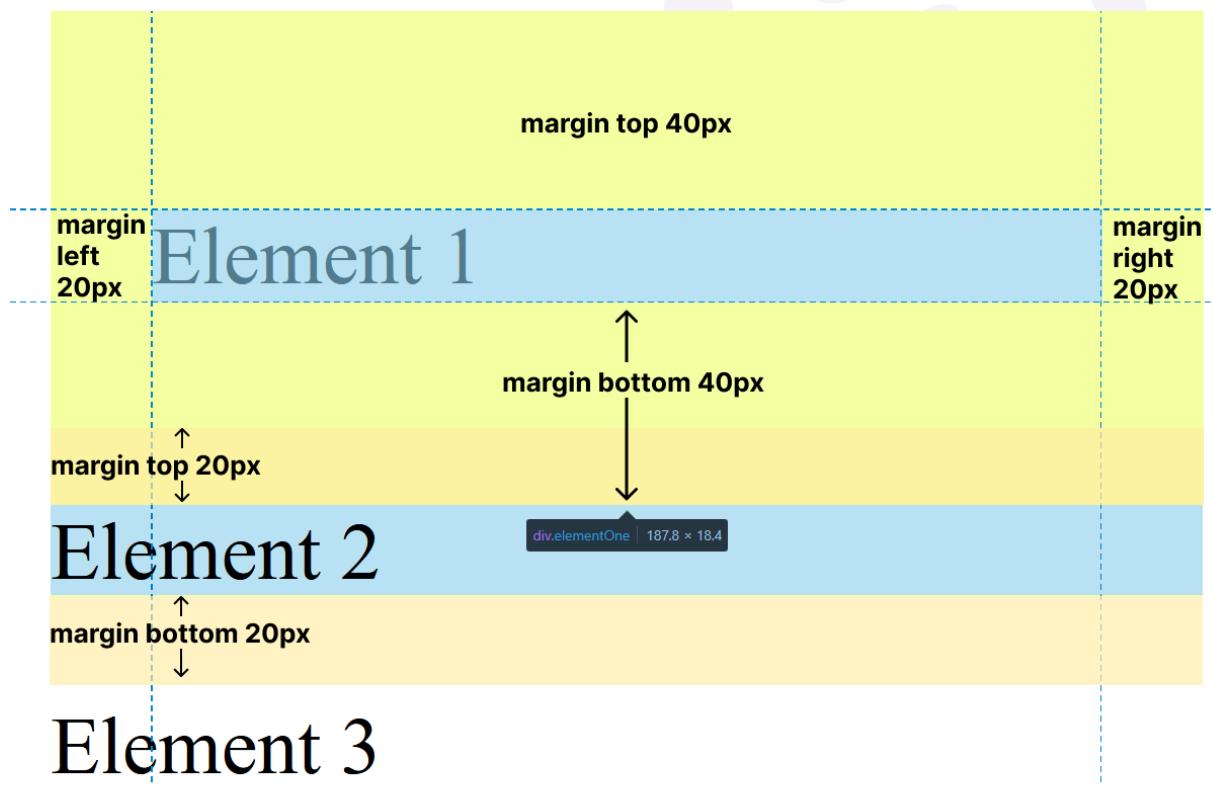
This does not happen on the left and right margins. only top and bottom margins.

style.css:

```
.elementOne {
  margin: 40px 20px
}

.elementTwo {
  margin: 20px 0px
}
```

Browser Output:-



Padding

The **padding** property allows you to specify how much space should appear between the content of an element and its border.

The **padding** specifies a shorthand property for setting the margin.

The **padding-bottom** specifies the bottom margin of an element.

The **padding-top** specifies the top margin of an element.

The **padding-left** specifies the left margin of an element.

The **padding-right** specifies the right margin of an element.

Padding - Shorthand Property

Using **padding**, we can specify all the padding properties in one property.

Padding property with four values

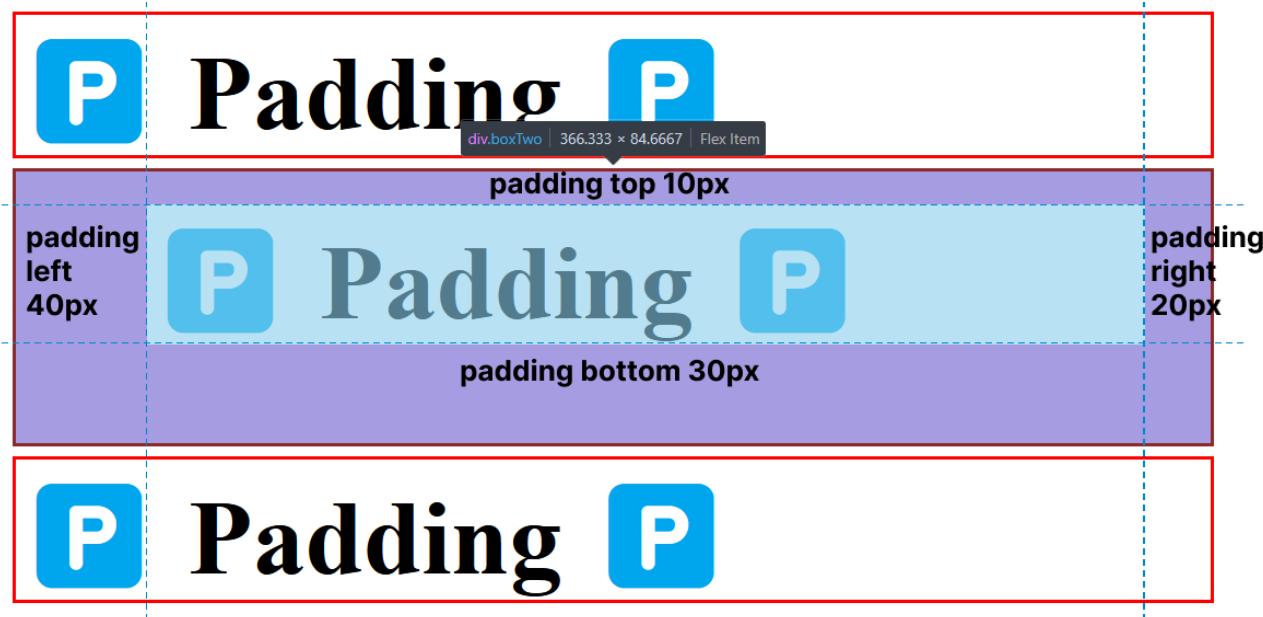
index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="/style.css" />
    <title>Document</title>
  </head>
  <body>
    <div class="boxOne">
      <h1 class="heading" >P Padding P </h1>
    </div>
    <div class="boxTwo">
      <h1 class="heading" >P Padding P </h1>
    </div>
    <div class="boxThree">
      <h1 class="heading" >P Padding P </h1>
    </div>
  </body>
</html>
```

style.css:

```
.boxTwo{
  padding: 10px 20px 30px 40px;
}
```

Browser Output:



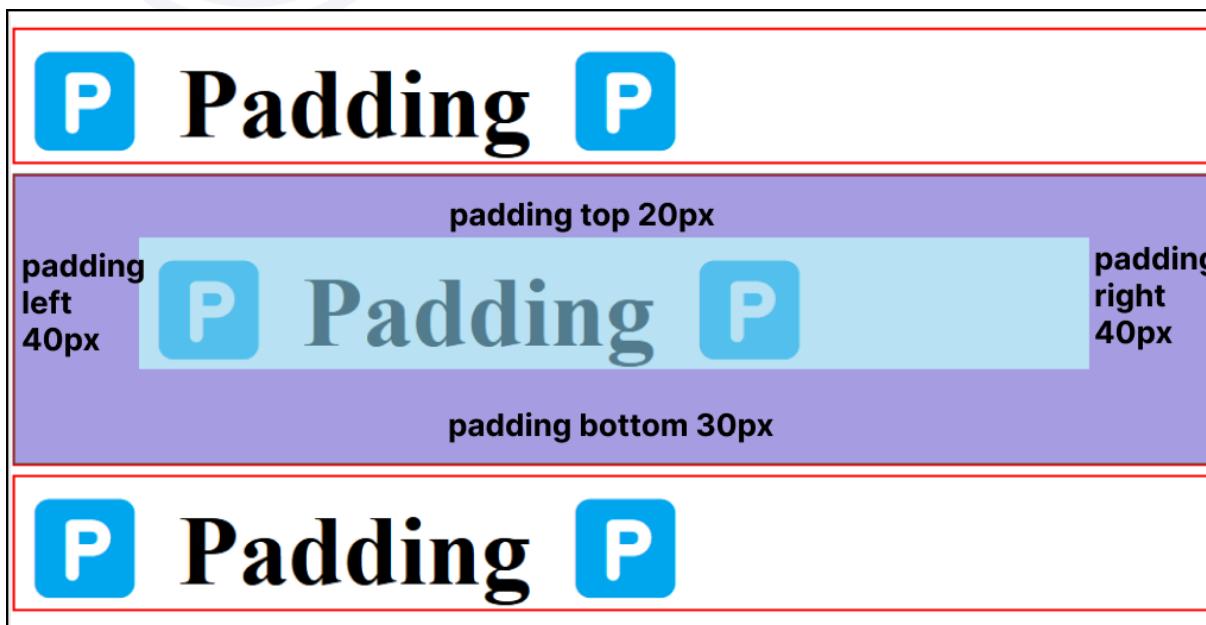
padding property with three values.

style.css:

```
.boxTwo {
  padding: 20px 40px 30px;
}
```

The first value is for top padding, the second value is for left and right padding and the third value is for bottom padding.

Browser output:

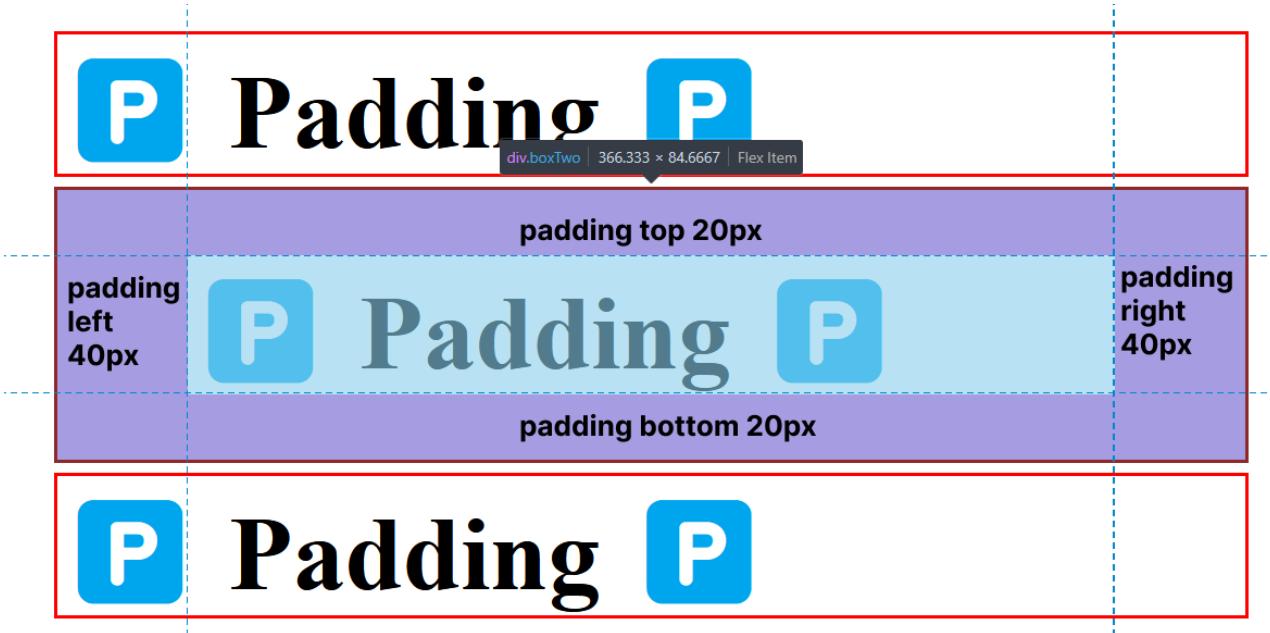


padding property with two values

style.css:

```
.boxTwo {
  padding: 20px 40px;
}
```

Browser output:



The first value is for the **padding-top** and **padding-bottom** and the second value is for the **padding-right** and **padding-left**.

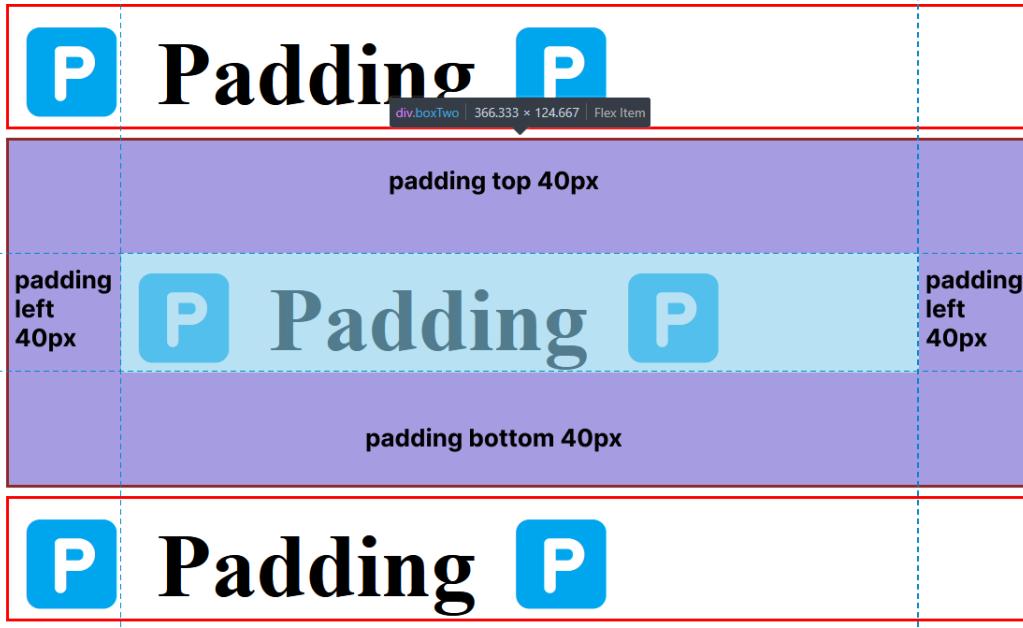
padding property with only one value

style.css

```
div {
  border: solid 2px black;
}

.elementTwo {
  padding: 40px;
}
```

Browser output:



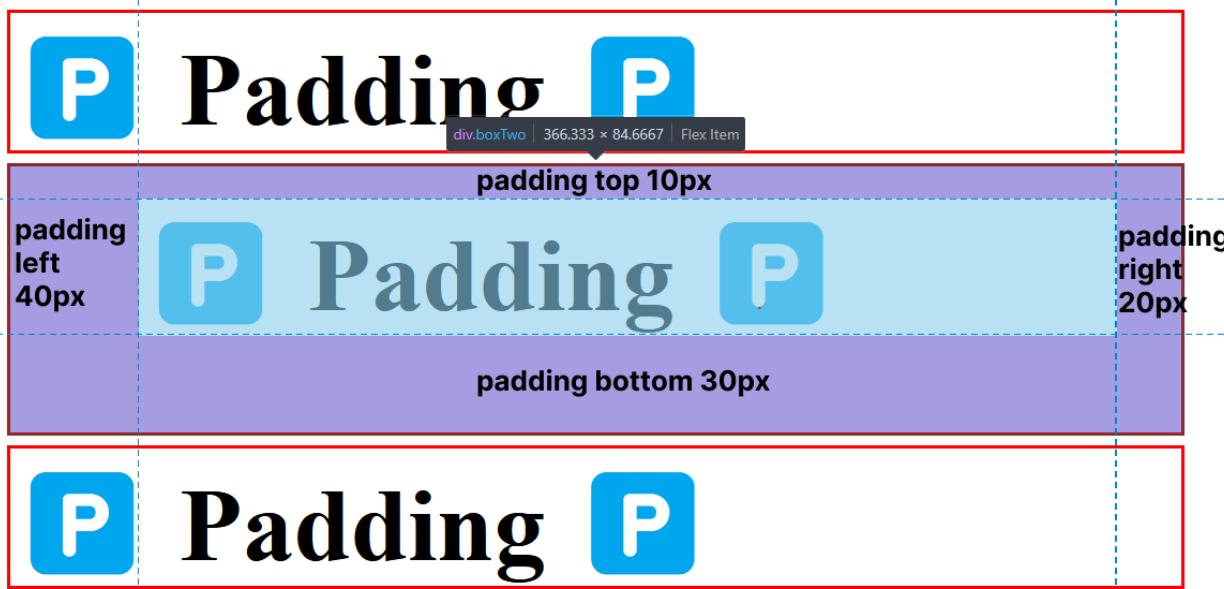
padding - Individual Sides

We can specify the padding for each side of an element.

style.css

```
.boxTwo{
  padding-top: 10px;
  padding-right: 20px;
  padding-bottom: 30px;
  padding-left: 40px; }
```

Browser output:



Border

The border properties allow you to specify how the border of the box representing an element should look. There are three properties of a border you can change.

The **border-style** specifies the style of a border (solid, dashed line, double, groove, ridge, inset, outset)

The **border-color** specifies the color of a border.

The **border-width** specifies the width of a border(border-left width, border-right width, border-bottom width, border-top width).

The **border-radius** specifies the radius of a border.

border-style:

The border-style property allows you to select one of the following styles of border.

- “**none**” – no border.
- “**solid**” – the border is a single solid line.
- “**dotted**” – the border is a single dotted line.
- “**dashed**” – the border is a single dashed line.
- “**double**” – the border is two solid lines.
- “**groove**” – the border looks like it is carved into a page.
- “**ridge**” – the border makes.
- “**inset**” – The border makes the box look like it is embedded in the page.
- “**Outset**” – The border makes the box look like it is coming out of the canvas.

We can also **individually change the border style** of the **left, right, bottom, and top** borders of an element by using **border-left-style, border-right-style, border-top-style, and border-bottom style**.

Index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="./style.css" />
    <title>Document</title>
  </head>
  <body>
    <div class="none">none</div>
    <div class="solid">solid</div>
    <div class="dotted">dotted</div>
```

```
<div class="dashed">dashed</div>
  <div class="double">double</div>
  <div class="groove">groove</div>
  <div class="ridge">ridge</div>
  <div class="inset">inset</div>
  <div class="outset">outset</div>
  <div class="mixup">dashed, dotted, solid, and inset</div>
</body>
</html>
```

style.css

```
.none {
  border-style: none;
}
.solid {
  border-style: solid;
}
.dotted {
  border-style: dotted;
}
.double {
  border-style: double;
}
.dashed {
  border-style: dashed;
}
.groove {
  border-style: groove;
}
.ridge {
  border-style: ridge;
}
.inset {
  border-style: inset;
}
```

```
.outset {
    border-style: outset;
}
.mixup{
    border-top-style: dashed;
    border-right-style: dotted;
    border-bottom-style: solid;
    border-left-style: inset
}
```

Browser output:

none

 solid

 dotted

 dashed

 double

 groove

 ridge

 inset

 outset

 dashed, dotted, solid, and inset

border-width:

The border-width **property allows you to set the width of an element's border.** The value of this property could be either a length in **px**, **pt**, or **cm**, or it should be set to **thin**, **medium**, or **thick**.

We can also **individually set the border width** of the **left**, **right**, **bottom**, and **top sides** of an element by using **border-left-width**, **border-right-width**, **border-top-width**, and **border-bottom-width**.

[html.css](#)

```
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
    <link rel="stylesheet" href="./style.css" />
    <title>Document</title>
  </head>
  <body>
    <div class="thin">thin</div>
    <div class="medium">medium</div>
    <div class="thick">thick</div>
    <div class="unitValue">set border width individually</
div>
  </body>
</html>
```

Style.css

```
.thin {
  border-style: solid;
  border-width: thin;
}

.medium {
  border-style: solid;
  border-width: medium;
}

.thick {
  border-style: solid;
  border-width: thick;
}

.unitValue {
  border-style: solid;
  border-top-width: 2px;
  border-right-width: 2pt;
  border-bottom-width: 0.3cm;
  border-left-width: 5px;
}
```

Browser output:

thin

medium

thick

set border width individually

border-color:

The border color property allows us to change the border color, we can also change the border-bottom-color, border-top-color, border-right-color, and border-left-color of an element individually.

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
    <link rel="stylesheet" href="./style.css" />
    <title>border color</title>
  </head>
  <body>
    <div class="boxOne">box One</div>
    <div class="boxTwo">box Two</div>
  </body>
</html>
```

Style.css

```
.boxOne {
  border-color: black;
  border-style: solid;
}

.boxTwo {
  border-style: solid;
  border-color: red blue green yellow;
}
```

Browser output:

box One

box Two

Border radius

Using the border-radius property, we can set the rounded borders and provide the rounded corners around an element, tag, or div. The border-radius defines the radius of the corners of an element.

Border radius - shorthand property

We can specify all the border-radius properties in one property.

Border radius with four values

Note: We will use the same HTML code for all the border-radius examples.

Index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
    <link rel="stylesheet" href="./style.css" />
    <title>Document</title>
  </head>
  <body>
    <div class="box">border radius</div>
  </body>
</html>
```

style.css

```
.box {
  border-style: solid;
  border-radius: 20px 70px 40px 10px;
}
```

Browser output:

border-top-left-radius 20px border-top-right-radius 70px

border radius

border bottom left radius 10px border-bottom-right-radius 40px

Border radius with two values**Style.css:**

```
.box {  
    border-style: solid;  
    border-radius: 20px 40px ;  
}
```

Browser output:

border-top-left-radius 20px border-top-right-radius 40px

border radius

border-bottom-left-radius 40px border-bottom-left-radius 20px

Border radius with one value**Style.css:**

```
.box {  
    border-style: solid;  
    border-radius: 20px;  
}
```

Browser output:

border-top-left-radius 20px border-top-right-radius 20px

border radius

border-bottom-left-radius 20px border-bottom-right-radius 20px

Border radius - individual side**Style.css:**

```
.box {
    border-style: solid;
    border-top-left-radius: 20px;
    border-top-right-radius: 70px;
    border-bottom-right-radius: 40px;
    border-bottom-left-radius: 10px;
}
```

Browser output:

border-top-left-radius 20px border-top-right-radius 70px

border radius

border bottom left radius 10px border-bottom-right-radius 40px

Border – shorthand property

To shorten the code, it is also possible to specify all the individual border properties in one property **except border-radius**.

The border property is a shorthand property for the following individual border properties:

- border-width
- border-style (required)
- border-color

Index.html

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8" />
        <meta http-equiv="X-UA-Compatible" content="IE=edge" />
        <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
        <link rel="stylesheet" href=".//style.css" />
        <title>Document</title>
    </head>
    <body>
        <div class="box">border radius</div>
    </body>
</html>
```

style.css

```
.box {
    border: solid 5px purple;
}
```

Browser output:

border radius

Outline

The CSS outline properties allow you to define an outline area around an element's box.

An outline is a line that is drawn just outside the border edge of the elements. Outlines are generally used to indicate the focus or active states of elements such as buttons, links, form fields, etc.



You can set the following outline properties using CSS.

- outline-style
- outline-color
- outline-width
- outline-offset
- Outline

Outline style

You can set the style of an outline using the outline-style property. The outline-style property accepts a range of values that determine the style of the outline. Here are some common outline styles you can use in CSS:

- “**solid**” – creates a solid line around the element.
- “**dotted**” – creates a dotted line around the element.
- “**dashed**” – creates a dashed line around the element.
- “**double**” – creates a double line around the element.
- “**groove**” – creates a 3D groove effect around the element.

- “**ridge**” - creates a 3D ridge effect around the element.
- “**inset**” - creates a 3D inset effect around the element.
- “**outset**” - creates a 3D outset effect around the element.
- “**none**” - removes the outline from the element.

Here's an example of how to set the outline-style property:

Index.html

```
<div class="solid">outline solid</div>
<div class="dotted">outline dotted</div>
<div class="dashed">outline dashed</div>
<div class="double">outline double</div>
<div class="groove">outline groove</div>
<div class="ridge">outline ridge</div>
<div class="inset">outline inset</div>
<div class="outset">outline outset</div>
<div class="none">outline none</div>
```

Style.css

```
.solid { outline-style: solid; }
.dotted { outline-style: dotted; }
.dashed { outline-style: dashed; }
.double { outline-style: double; }
.groove { outline-style: groove; }
.ridge { outline-style: ridge; }
.inset { outline-style: inset; }
.outset { outline-style: outset; }
.none { outline-style: none; }
```

Browser output:

outline solid
outline dotted
outline dashed
outline double
outline groove
outline ridge
outline inset
outline outset
outline none

Outline color

you can set the color of an outline using the outline-color property.

Here's an example of how to set the outline-color property:

Index.html

```
<div class= "outlineColor> outline color</div>
```

style.css

```
.outlineColor {  
    outline-style: solid;  
    outline-color: blue;  
}
```

Browser output:



outline color

Outline-weight

The outline-width property specifies the width of the outline and can have one of the following values:

- thin (typically 1px)
- medium (typically 3px)
- thick (typically 5px)
- A specific size (in px, pt, cm, em, etc)

Here's an example of how to set the outline-width property:

index.html

```
<div class="thin">outline thin</div>  
<div class="thick">outline thick</div>  
<div class="medium">outline medium</div>  
<div class="specificSize">unit value</div>
```

style.css:

```
.thin {  
    outline-style: solid;  
    outline-width: thin;  
}
```

```
.medium {
  outline-style: solid;
  outline-width: medium;
}

.thick {
  outline-style: solid;
  outline-width: thick;
}

.specificSize {
  outline-style: solid;
  outline-width: 6px;
}
```

Browser output:

outline thin

outline thick

outline medium

specific Size

Outline offset

The outline-offset property adds space between an outline and the edge/border of an element. The space between an element and its outline is transparent.

Here's an example of how to set the outline-offset property:

Index.html

```
<div class="offset">outline offset</div>
```

style.css:

```
.offset {
  margin: 3rem;
  outline-offset: 10px;
  outline-style: solid;
  outline-color: green;
  border-style: solid;

}
```

Browser output:

outline offset

Outline shorthand property

The outline property is a shorthand property for setting the following individual outline properties:

- outline-width
- outline-style (required)
- outline-color

```
outline: [outline-style] [outline-width] [outline-color];
```

Where outline-style, outline-width, and outline-color are optional values that can be specified in any order. Here are some examples:

index.html

```
<div class="three">outline shorthand</div>
<div class="two">outline shorthand</div>
<div class="one">outline shorthand</div>
```

style.css:

```
.three{ outline: solid 2px blue; }
.two{ outline: solid red; }
.one{ outline: solid }
```

Browser output:

outline shorthand

outline shorthand

outline shorthand

we can also use the outline shorthand property to set individual outline properties, by omitting one or more of the values.

Example:

index.html

```
<div class="outline">outline</div>
```

style.css

```
.outline{
    outline: dotted;
}
```

Browser output:

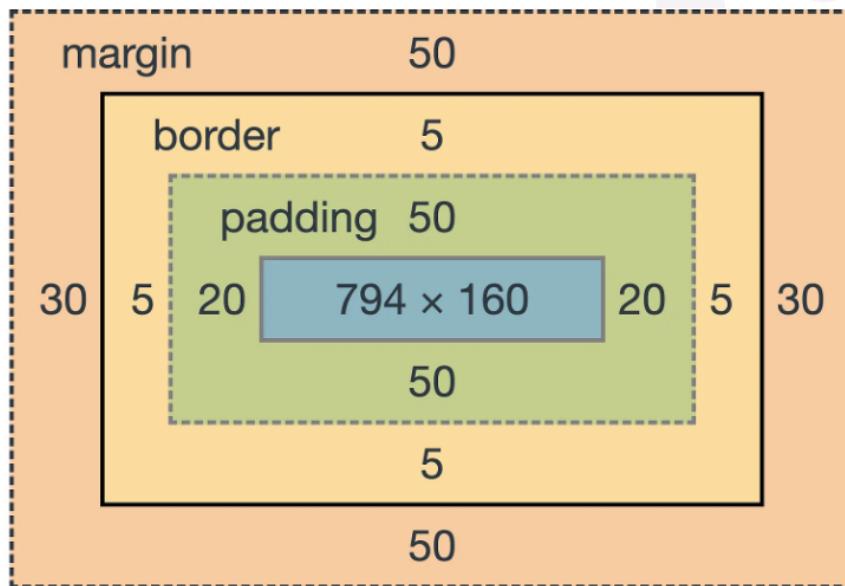


Note: It's important to note that the outline property is different from the border property. While the border affects the element's layout and size, an outline does not.

Box model

The CSS box model is a container that contains multiple properties, including borders, margins, padding, and the content itself. It is used to create the design and layout of web pages. According to the CSS box model, the web browser supplies each element as a square prism.

The following diagram illustrates the box model.



Properties of the box model

Content

The content area consists of content like images, text, or other forms of media content, the height and width properties help to modify the box dimensions.

Padding

The padding area is the space around the content area and within the border box. It can be applied to all sides of the box or to the specific, selected side(s) - top, right, bottom, and/or left.

Margin

The margin area consists of space between the border and the margin, the margin does not possess its own background color and is completely transparent, it shows the background color of the element, like the body element.

Border

The border area surrounds the padding and the content, and can be applied to all the sides of the box or to selected sides/side top, right, bottom, and left.