

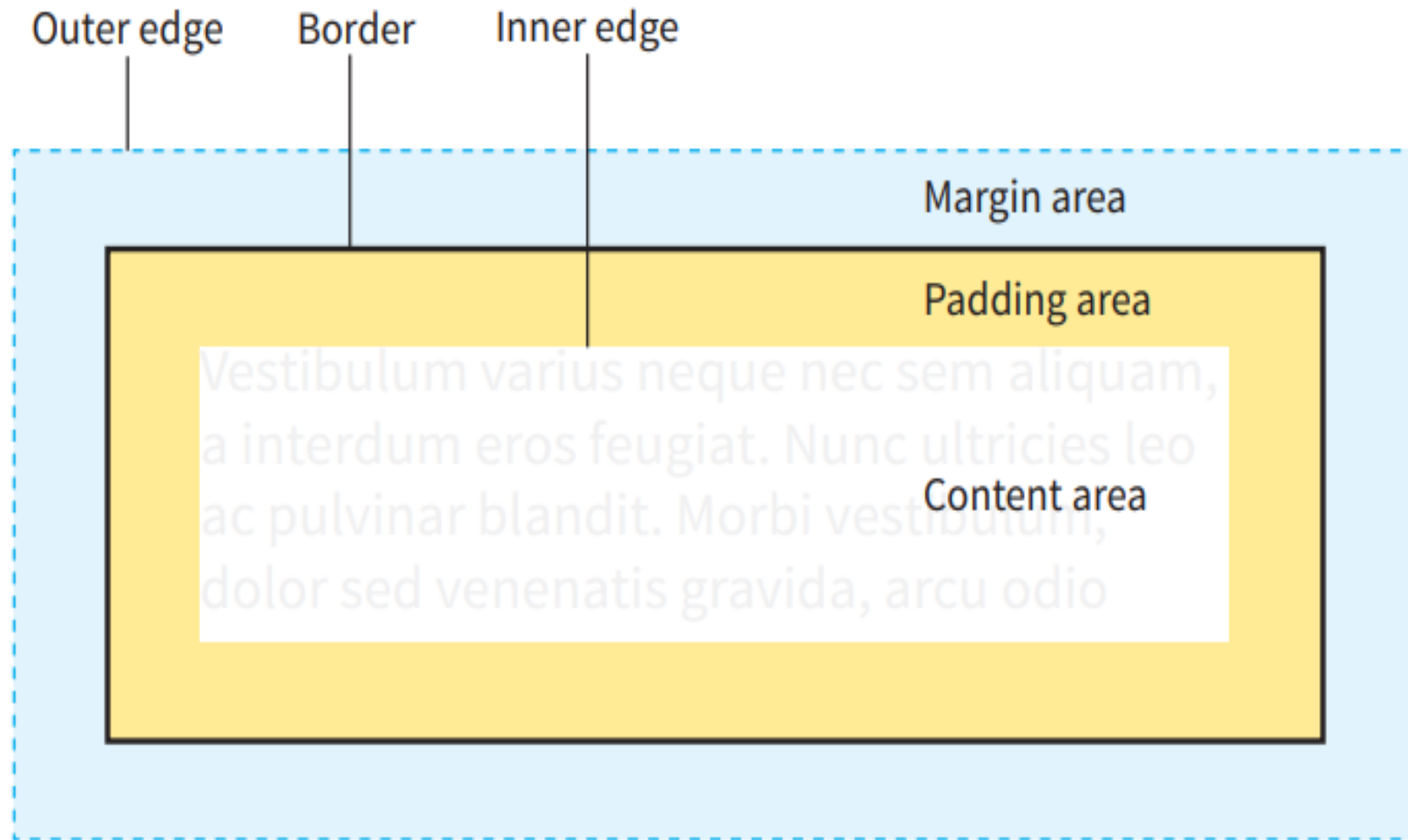
Lecture_7

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The Element Box

- ▶ According to the box model, every element in a document generates a box to which properties such as width, height, padding, borders, and margins can be applied:
 - **Padding**
 - **Borders**
 - **Margins**
 - **Size (width, height)**

The parts of an element box according to the CSS box model.



- ▶ **Content area** :At the core of the element box is the content itself. the content area is indicated by a white box.
- ▶ **Inner edges**: The edges of the content area are referred to as the inner edges of the element box. Although the inner edges are made distinct by a color change in previous figure, in real pages, the edge of the content area is invisible.
- ▶ **Padding** :The padding is the area between the content area and an optional border. In the diagram, the padding area is indicated by a yellow-orange color. Padding is optional.
- ▶ **Border** :The border is a line (or stylized line) that surrounds the element and its padding. Borders are also optional.
- ▶ **Margin** :The margin is an optional amount of space added on the outside of the border. In the diagram, the margin is indicated with light-blue shading, but in reality, margins are always transparent, allowing the background of the parent element to show through.
- ▶ **Outer edge**: The outside edges of the margin area make up the outer edges of the element box. This is the total area the element takes up on the page, and it includes the width of the content area plus the total amount of padding, border, and margins applied to the element. The outer edge in the diagram is indicated with a dotted line, but in real web pages, the edge of the margin is invisible

Specifying box dimensions

width

Values: *length* | *percentage* | auto

Default: auto

Applies to: block-level elements and replaced inline elements (such as images)

Inherits: no

height

Values: *length* | *percentage* | auto

Default: auto

Applies to: block-level elements and replaced inline elements (such as images)

Inherits: no


box-sizing

Values: content-box | border-box

Default: content-box

Applies to: all elements

Inherits: no



- By default, the width and height of a block element are calculated automatically by the browser (thus the default **auto** value). The box will be as wide as the browser window or other containing block element, and as tall as necessary to fit the content. However, you can use the width and height properties to make the content area of an element a specific width or height.

Block-level Elements

- ▶ A block-level element always starts on a new line, and the browsers automatically add some space (a margin) before and after the element.
- ▶ A block-level element always takes up the full width available (stretches out to the left and right as far as it can).
- ▶ Two commonly used block elements are: `<p>` and `<div>`.
- ▶ The `<p>` element defines a paragraph in an HTML document.
- ▶ The `<div>` element defines a division or a section in an HTML document.

```
7 </head>
3 ▼ <body>
9 <p >before Pseudo-element used to insert some content
before the content of an element,before Pseudo-element
used to insert some content before the content of an
element,</p>
9 <div style="background-color:indianred">Block
Element</div>
1 </body>
2 </html>
```

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before Pseudo-element used to insert some content before the content of an element,before
Pseudo-element used to insert some content before the content of an element,

Block Element

Inline Elements

- ▶ An inline element does not start on a new line.
- ▶ An inline element only takes up as much width as necessary.
- ▶ This is a `` element inside a paragraph.

```
</head>
<body>
<p>before Pseudo-element used to insert some content
before the content of an element,before Pseudo-element
used to insert some content before the content of an
element,</p>
    <span style="color:blue;">Hello city </span>
    <span style="color:red;">Hello World</span>
    <span style="color:green;">Hello boys </span>
</body>
</html>
```



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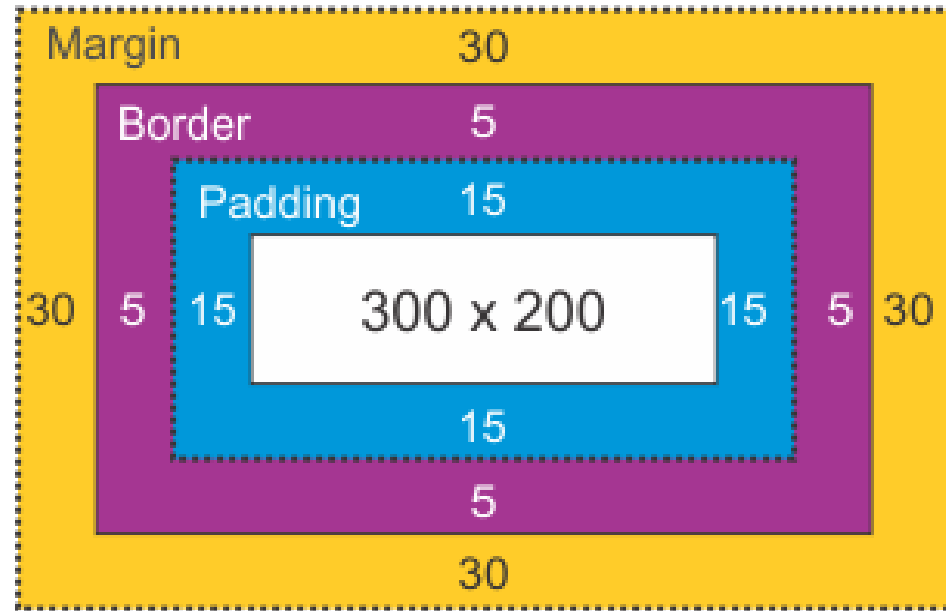
before Pseudo-element used to insert some content before the content of an element, before
Pseudo-element used to insert some content before the content of an element,

Hello city Hello World Hello boys

There are two ways to specify the size of an element.

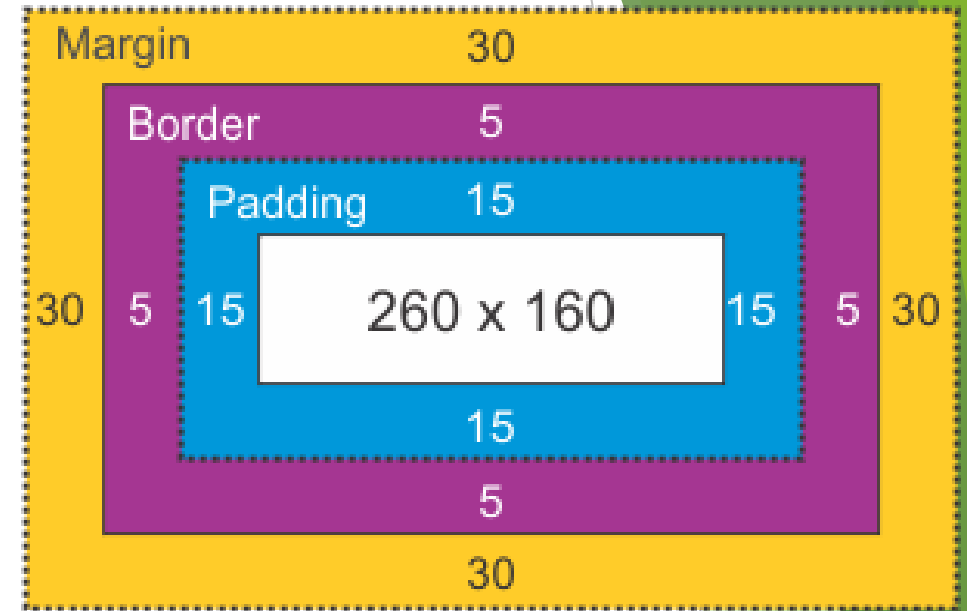
1. **Content Box**: The width and height properties are applied to the content box. That is the way all current browsers interpret width and height values, but you can explicitly specify this behaviour by setting `box-sizing: content-box`.
2. **Border-box Model**: The other way to specify the size of an element is to apply width and height dimensions to the entire visible box, including the padding and border. Because this is not the default browser behaviour, you need to explicitly set `box-sizing: border-box` in the style sheet.

Box Model is content-box



```
div{  
  width: 300px;  
  height: 200px;  
  padding: 15px;  
  border: 5px solid grey;  
  margin: 30px;  
  -moz-box-sizing: content-box;  
  -webkit-box-sizing: content-box;  
  box-sizing: content-box;  
}
```

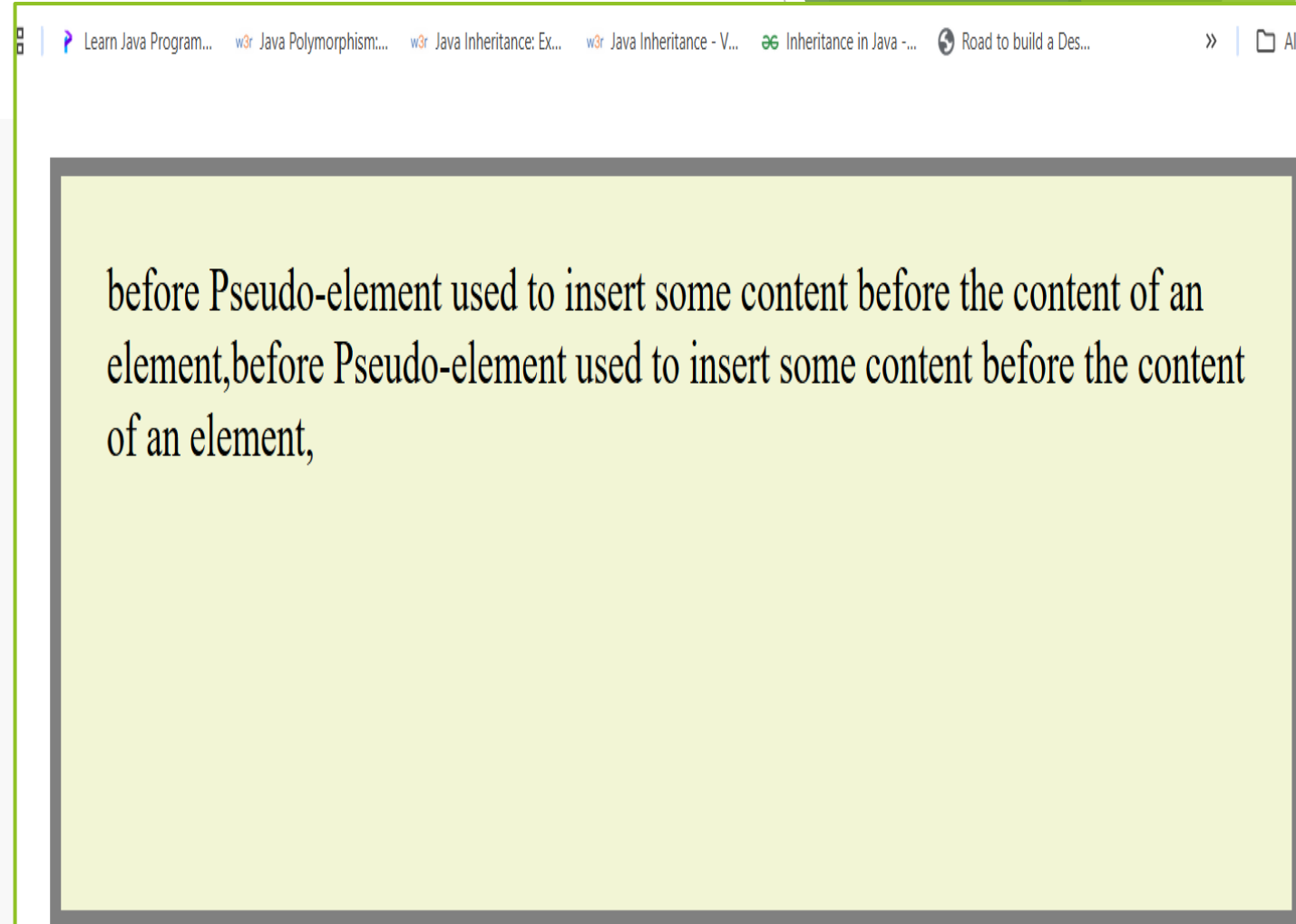
Box Model is border-box



```
div{  
  width: 300px;  
  height: 200px;  
  padding: 15px;  
  border: 5px solid grey;  
  margin: 30px;  
  -moz-box-sizing: border-box;  
  -webkit-box-sizing: border-box;  
  box-sizing: border-box;  
}
```

Content Box Example

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <style>
5 p {
6   background: #f2f5d5;
7   width: 500px;
8   height: 150px;
9   padding: 20px;
10  border: 5px solid gray;
11  margin: 20px;
12
13 }
14 </style>
15 </head>
16 <body>
17 <p>before Pseudo-element used to insert some content
before the content of an element,before Pseudo-element
used to insert some content before the content of an
element,</p>
```



Border-box Model example

```
<!DOCTYPE html>
<html>
<head>
<style>
p {
  background: #f2f5d5;
  width: 500px;
  height: 150px;
  padding: 20px;
  border: 5px solid gray;
  margin: 20px;
  box-sizing: border-box ;
}
</style>
</head>
<body>
<p >before Pseudo-element used to insert some content
before the content of an element,before Pseudo-element
used to insert some content before the content of an
element,</p>
```

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before Pseudo-element used to insert some content before the content of an element,before Pseudo-element used to insert some content before the content of an element,

Padding

- ▶ Padding is the space between the content area and the border (or the place the border would be if one isn't specified). I find it helpful to add padding to elements when using a background color or a border. It gives the content a little breathing room and prevents the border or edge of the background from bumping right up against the text.

`padding-top, padding-right, padding-bottom, padding-left`

Values: *length | percentage*

Default: 0

Applies to: all elements

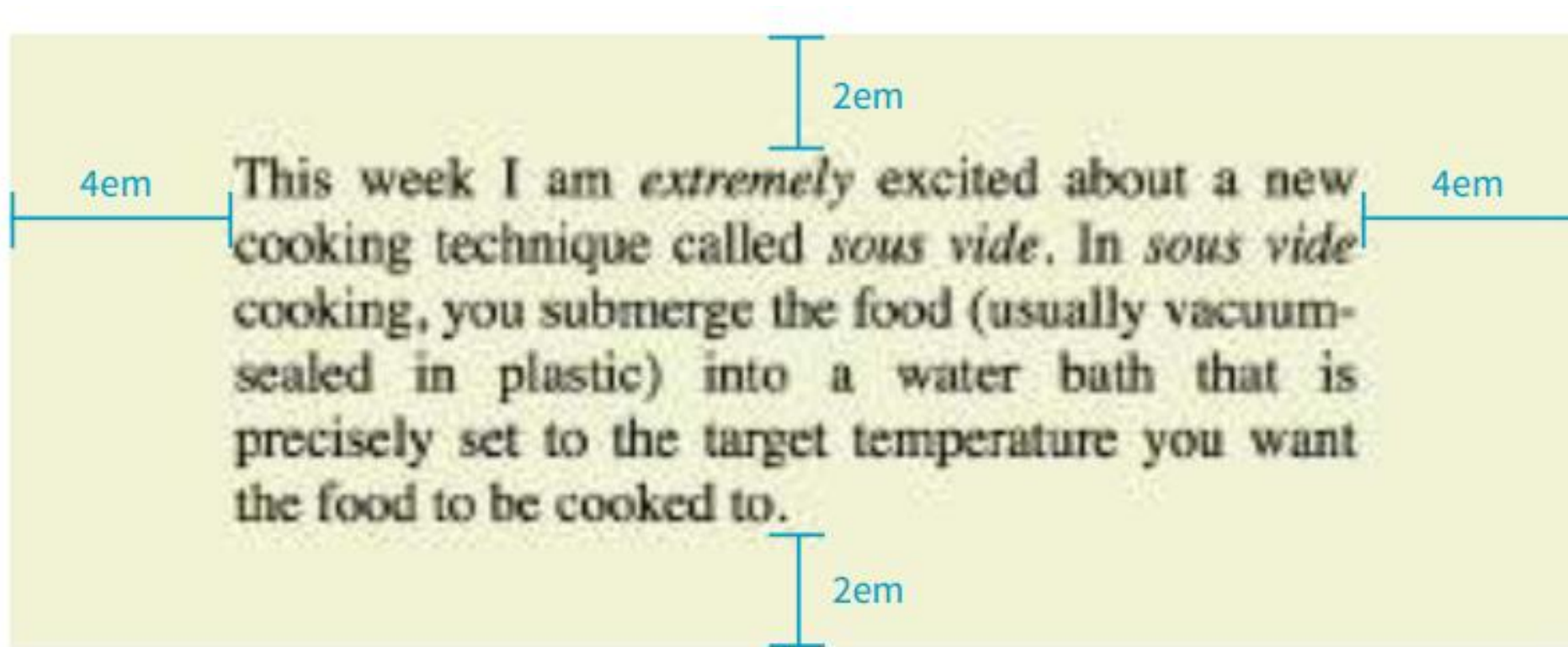
Inherits: no

The padding-top, padding-right, padding-bottom, and padding-left properties specify an amount of padding for each side of an element, as shown in this example

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <style>
5 p {
6   padding-top: 2em;
7   padding-right: 4em;
8   padding-bottom: 2em;
9   padding-left: 4em;
10  background-color: #D098D4; /* light green */
11 }
12 </style>
13 </head>
14 <body>
15 <p >before Pseudo-element used to insert some content
   before the content of an element,before Pseudo-element
   used to insert some content before the content of an
   element,</p>
16
17 </body>
18 </html>
```

before Pseudo-element used to insert some content before the content of an element,before Pseudo-element used to insert some content before the content of an element,

Specify padding in any of the CSS length units (em and px are the most common)



Shorthand Values

1 value

padding: 10px;

Applied to all sides.

2 values

padding: 10px 6px;

First is top and bottom; second is left and right.

3 values

padding: 10px 6px 4px;

First is top; second is left and right; third is bottom.

4 values

padding: 10px 6px 4px 10px;

Applied clockwise to top, right, bottom, and left edges consecutively (TRBL).

BORDERS

- ▶ A border is simply a line drawn around the content area and its (optional) padding. You can choose from eight border styles and make them any width and color you like. Borders can be applied all around the element or just on a particular side or sides. CSS3 introduced properties for rounding the corners or applying images to borders.

Border Style

- Border styles can be applied one side at a time or with the shorthand borderstyle property.

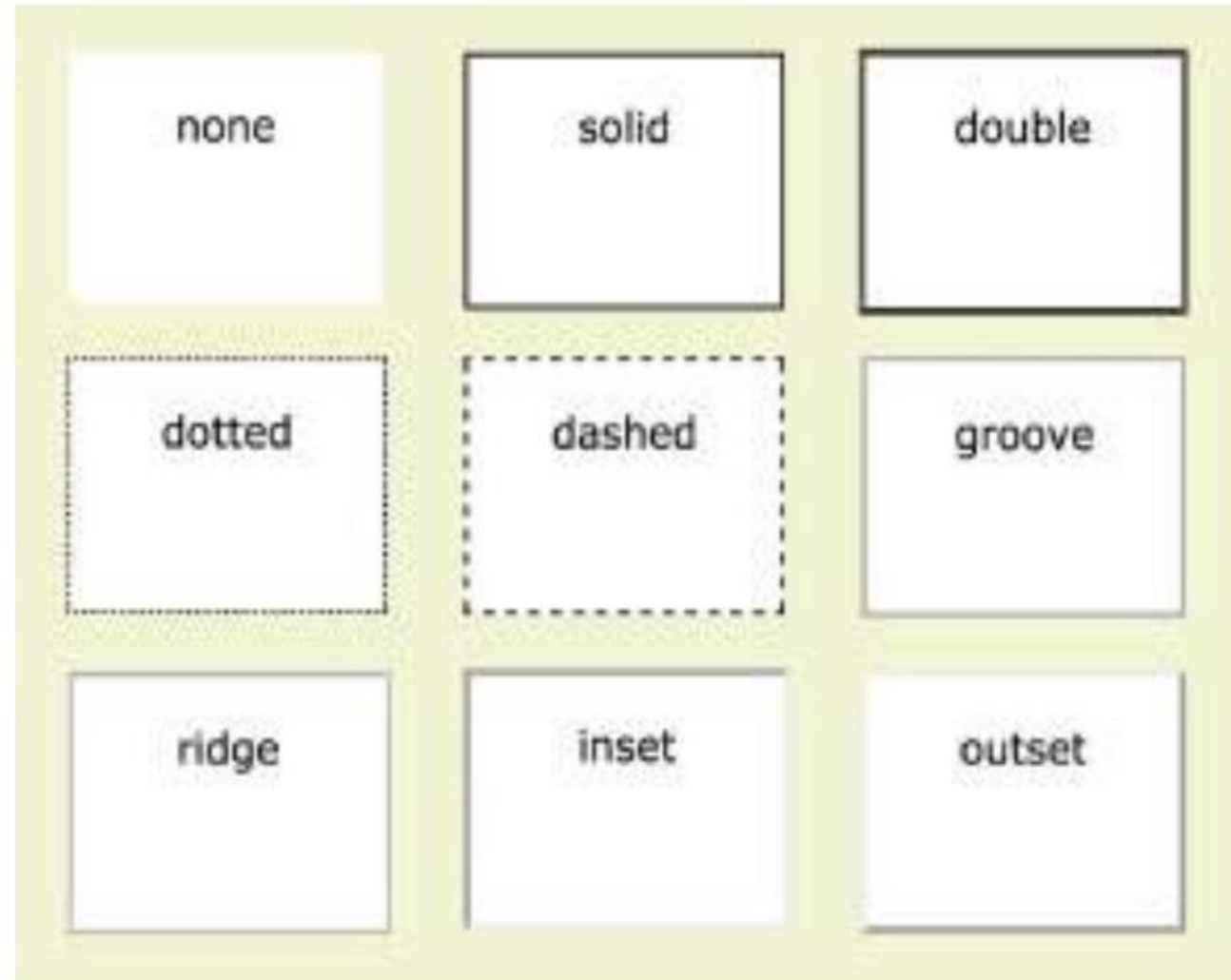
border-style

Values: none | solid | hidden | dotted | dashed | double | groove | ridge | inset | outset

Default: none

Applies to: all elements

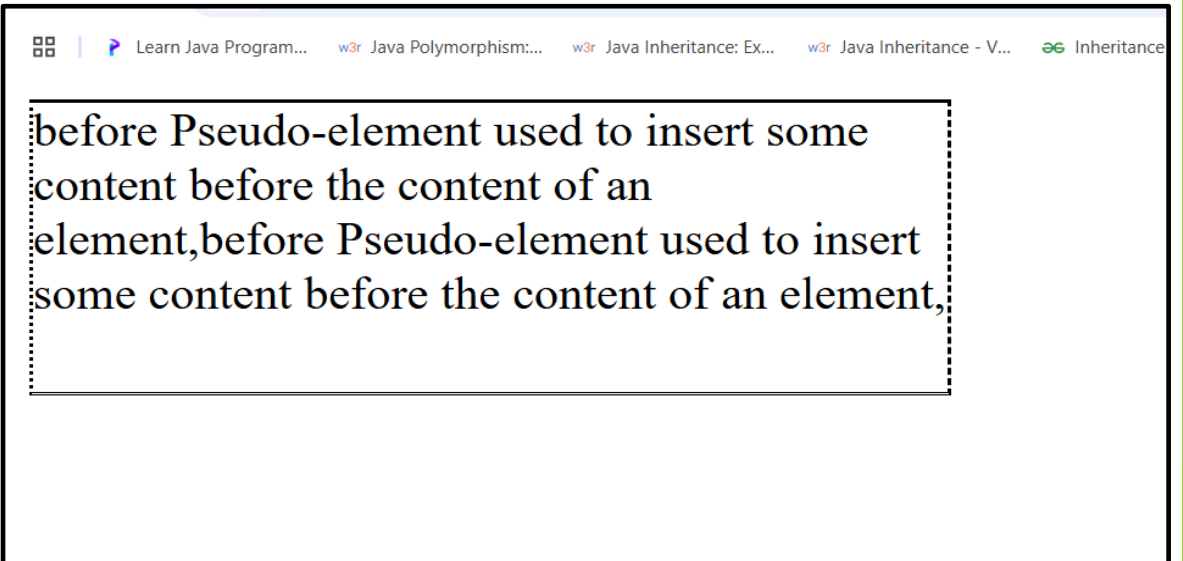
Inherits: no



```

<!DOCTYPE html>
<html>
<head>
<style>
div#silly {
border-top-style: solid;
border-right-style: dashed;
border-bottom-style: double;
border-left-style: dotted;
width: 300px;
height: 100px;
}
</style>
</head>
<body>
<div id="silly" >before Pseudo-element used to insert some
content before the content of an element,before Pseudo-
element used to insert some content before the content of
an element,</div>

```



Border Width (Thickness)

**border-top-width, border-right-width,
border-bottom-width, border-left-width**

Values: `length | thin | medium | thick`

Default: `medium`

Applies to: `all elements`

Inherits: `no`

border-width

Values: `length | thin | medium | thick`

Default: `medium`

Applies to: `all elements`

Inherits: `no`

NOT RENDERED AT ALL.

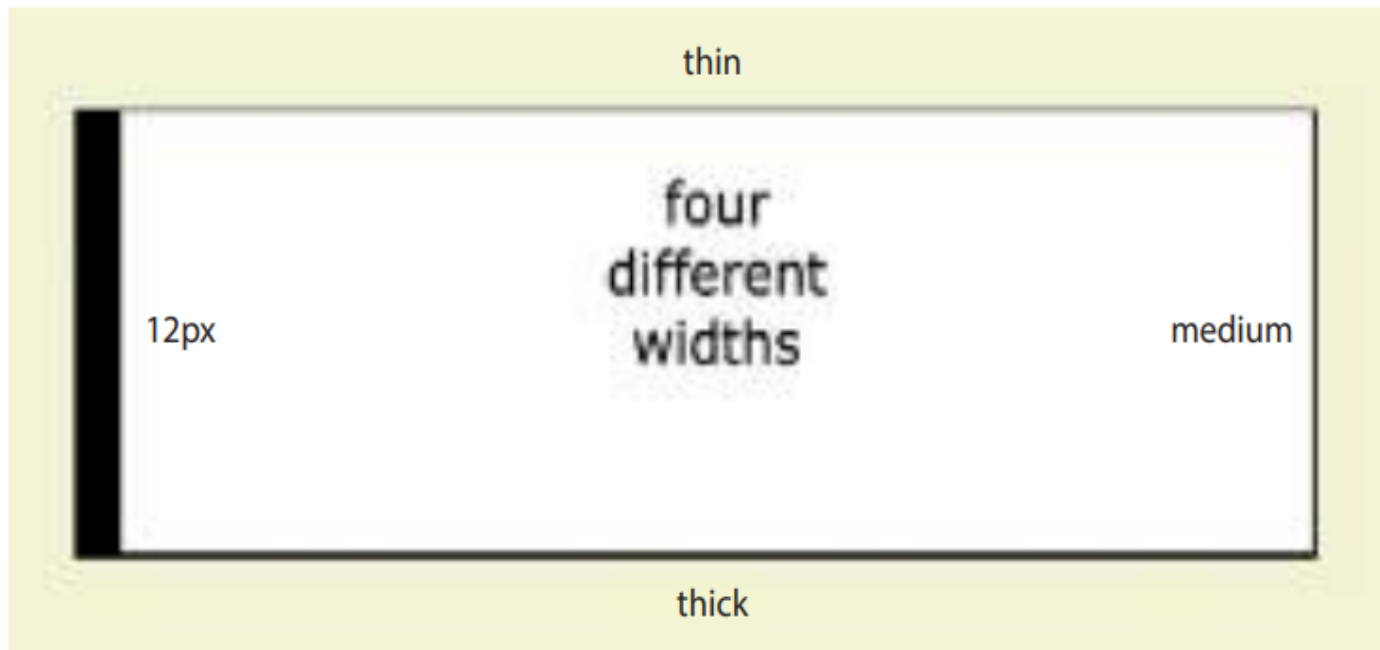


FIGURE 14-10. Specifying the width of borders.

```
div#help {  
  border-top-width: thin;  
  border-right-width: medium;  
  border-bottom-width: thick;  
  border-left-width: 12px;  
  border-style: solid;  
  width: 300px;  
  height: 100px;  
}
```

or:

```
div#help {  
  border-width: thin medium thick 12px;  
  border-style: solid;  
  width: 300px;  
  height: 100px;  
}
```

Border Color

- Border colors are specified in the same way: via the side-specific properties or the border-color shorthand property. When you specify a border color, it overrides the foreground color as set by the color property for the element.

**border-top-color, border-right-color,
border-bottom-color, border-left-color**

Values: *color name or RGB/HSL value* | transparent
Default: the value of the color property for the element
Applies to: all elements
Inherits: no

border-color

Values: *color name or RGB/HSL value* | transparent
Default: the value of the color property for the element
Applies to: all elements
Inherits: no


```
1 <!DOCTYPE html>
2 ▼ <html>
3 ▼ <head>
4 ▼ <style>
5 ▼ div#special {
6   border-color: maroon aqua;
7   border-style: solid;
8   border-width: 6px;
9   width: 300px;
10  height: 100px;
11 }
12 </style>
13 </head>
14 ▼ <body>
15 <div id="special" >before Pseudo-element used to insert
   some content before the content of an element,before
   Pseudo-element used to insert some content before the
   content of an element,</div>
16   </body>
17 </html>
```

before Pseudo-element used to insert some
content before the content of an
element,before Pseudo-element used to insert
some content before the content of an element,

before Pseudo-element used to insert some content before the content of an element, before Pseudo-element used to insert some content before the content of an element,

```
<style>
div#special {
  border-color: maroon aqua red;
  border-style: solid;
  border-width: 6px;
  width: 300px;
  height: 100px;
}
```

Rounded Corners with border-radius

- The border-radius property is for you! There are individual corner properties as well as a border-radius shorthand

`border-top-left-radius`, `border-top-right-radius`,
`border-bottom-right-radius`, `border-bottom-left-radius`

Values: *length | percentage*

Default: 0

Applies to: all elements

Inherits: no

`border-radius`

Values: 1, 2, 3, or 4 *length or percentage values*

Default: 0

Applies to: all elements

Inherits: no

- ▶ To round off the corner of an element, simply apply one of the border-radius properties, but keep in mind that you will see the result only if the element has a border or background color. Values are typically provided in ems or pixels. Percentages are allowed and are nice for keeping the curve proportional to the box should it resize



```
4 <style>
5 div {
6   width: 300px;
7   height: 200px;
8   background: darkorange;
9   border-radius: 2em;
10
11 }
12
13 </style>
14 </head>
15 <body>
16 <div ></div>
17 </body>
```



```
3 ▼ <head>
4 ▼ <style>
5 ▼ div {
6     width: 300px;
7     height: 200px;
8     background: darkorange;
9     border-radius: 50px;
10
11 }
```



```
▼ <style>
▼ div {
    width: 300px;
    height: 200px;
    background: darkorange;
    border-top-right-radius: 50px;

}

</style>
```

```

4 ▼ <style>
5 ▼ img {
6   width: 300px;
7   height: 200px;
8   background: darkorange;
9   border-radius: 50%; |
10 }
11 </style>
12 </head>
13 ▼ <body>
14 
15 </body>
16 </html>

```



```

▼ <style>
▼ img {
  width: 300px;
  height: 200px;
  background: darkorange;
  border-top-left-radius: 1em;
  border-top-right-radius: 2em;
  border-bottom-right-radius: 1em;
  border-bottom-left-radius: 2em;
}
</style>
</head>
▼ <body>


```



MARGINS

- ▶ A margin is an optional amount of space that you can add on the outside of the border. Margins keep elements from bumping into one another or the edge of the browser window or viewport.

`margin-top`, `margin-right`, `margin-bottom`, `margin-left`

Values: `length` | `percentage` | `auto`

Default: `auto`

Applies to: all elements

Inherits: no

`margin`

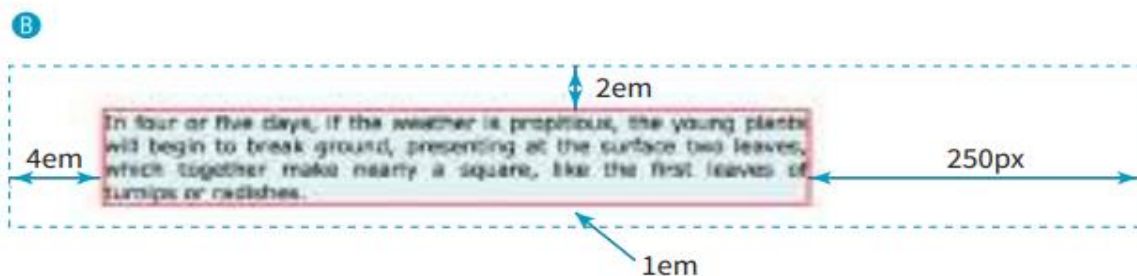
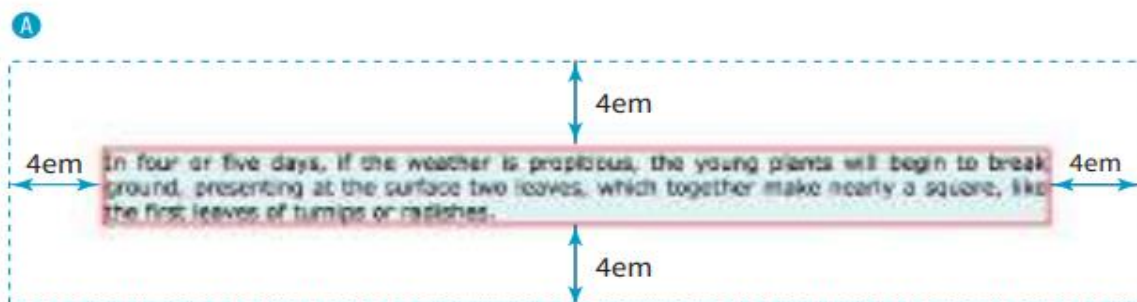
Values: `length` | `percentage` | `auto`

Default: `auto`

Applies to: all elements

Inherits: no

- ▶ The shorthand margin property works the same as the padding shorthand. When you supply four values, they are applied in **clockwise** order (top, right, bottom, left) to the sides of the element. **If you supply three values, the middle value applies to both the left and right sides.** When **two values** are provided, the first is used for the top and bottom, and the **second applies to the left and right edges.** Finally, one value will be applied to all four sides of the element.
- ▶ As with most web measurements, ems, pixels, and percentages are the most common ways to specify margins. Be aware, however, that if you specify a percentage value, it is calculated based on the width of the parent element. If the parent's width changes, so will the margins on all four sides of the child element (padding has this behaviour as well). The **auto** keyword allows the browser to fill in the amount of margin necessary to fit or fill the available space



A

```
p#A {
  margin: 4em;
  border: 2px solid red;
  background: #e2f3f5;
}
```

B

```
p#B {
  margin-top: 2em;
  margin-right: 250px;
  margin-bottom: 1em;
  margin-left: 4em;
  border: 2px solid red;
  background: #e2f3f5;
}
```

C

```
body {
  margin: 0 20%;
  border: 3px solid red;
  background-color: #e2f3f5;
}
```

Centring with auto Margins

- ▶ Setting the margin to auto on the left and right sides of a sized element has the effect of centring the element in its container

```
3 <head>
4 <style>
5 div {
6   width:50%;
7   height: 70px;
8   background: darkorange;
9   margin:0 auto;
10 }
11 </style>
12 </head>
13 <body>
14 <div> margins</div>
15 </body>
16 </html>
```



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All Bookmarks

margins



CSS Shadow Effects

- ▶ With CSS you can add shadow to text and to elements.
- ▶ In these chapters you will learn about the following properties:
 - ✓ CSS `text-shadow` property applies shadow to text
 - ✓ `text-shadow`
 - ✓ `box-shadow`

Specify the horizontal shadow (2px) and the vertical shadow (2px):

```
<!DOCTYPE html>
<html>
<head>
<style>
h1 {
  text-shadow: 2px 2px;
}
</style>
</head>
<body>

<h1>Text-shadow effect!</h1>

</body>
</html>
```

Text-shadow effect!

```
<!DOCTYPE html>
<html>
<head>
<style>
h1 {
  text-shadow: 2px 2px red;
}
</style>
</head>
<body>

<h1>Text-shadow effect!</h1>

</body>
</html>
```

Text-shadow effect!

Add a color to the shadow

```
<!DOCTYPE html>
<html>
<head>
<style>
h1 {
  text-shadow: 2px 2px 15px red;
}
</style>
</head>
<body>

<h1>Text-shadow effect!</h1>

</body>
</html>
```

Text-shadow effect!

Add a blur effect to the shadow

CSS box-shadow Property

- ▶ The CSS box-shadow property is used to apply one or more shadows to an element.
- ▶ Specify a Horizontal and a Vertical Shadow

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 300px;
  height: 100px;
  padding: 15px;
  background-color: coral;
  box-shadow: 10px 30px;
}
</style>
</head>
<body>

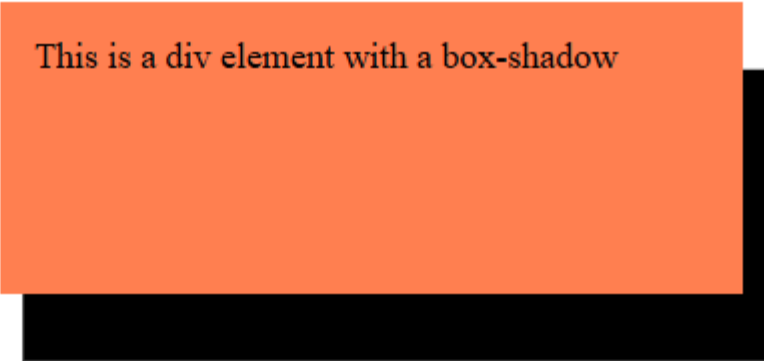
<h1>The box-shadow Property</h1>

<div>This is a div element with a box-shadow</div>

</body>
</html>
```

The box-shadow Property

This is a div element with a box-shadow



Specify a Color for the Shadow

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 300px;
  height: 100px;
  padding: 15px;
  background-color: coral;
  box-shadow: 10px 10px lightblue;
}
</style>
</head>
<body>

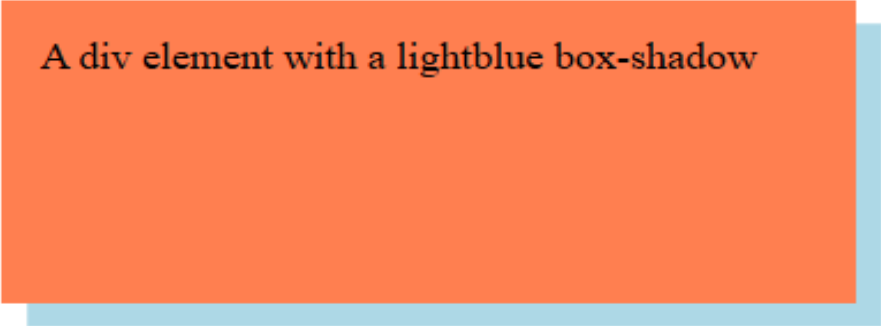
<h1>The box-shadow Property</h1>

<div>A div element with a lightblue box-
shadow</div>

</body>
</html>
```

The box-shadow Property

A div element with a lightblue box-shadow



Add a Blur Effect to the Shadow

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 300px;
  height: 100px;
  padding: 15px;
  background-color: coral;
  box-shadow: 10px 10px 5px lightblue;
}
</style>
</head>
<body>

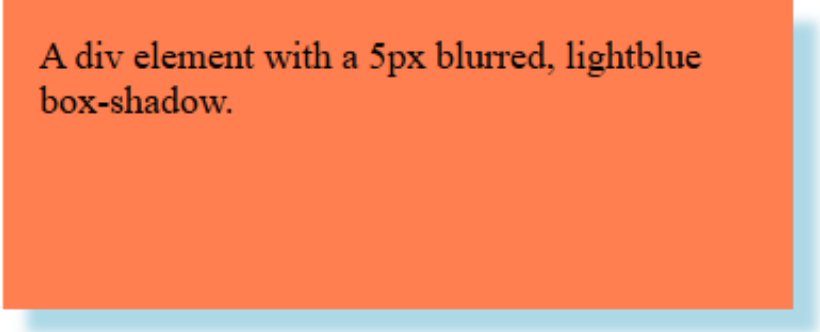
<h1>The box-shadow Property</h1>

<div>A div element with a 5px blurred, lightblue box-shadow.</div>

</body>
</html>
```

The box-shadow Property

A div element with a 5px blurred, lightblue box-shadow.



Property	Description
<code>border-image-width</code>	The width of the space the border image should occupy
<code>border-radius</code>	Shorthand property for rounding the corners of the visible element box
<code>border-top-left-radius</code> <code>border-top-right-radius</code> <code>border-bottom-right-radius</code> <code>border-bottom-left-radius</code>	Specifies the radius curve for each individual corner
<code>border-style</code>	Shorthand property for specifying the style of borders
<code>border-top-style</code> <code>border-right-style</code> <code>border-bottom-style</code> <code>border-left-style</code>	Specifies the border style for each side of the element
<code>border-width</code>	Shorthand property for specifying the width of borders
<code>border-top-width</code> <code>border-right-width</code> <code>border-bottom-width</code> <code>border-left-width</code>	Specifies the border width for each side of the element
<code>box-sizing</code>	Specifies whether width and height dimensions apply to the content box or the border box
<code>box-shadow</code>	Adds a drop shadow around the visible element box
<code>display</code>	Defines the type of element box an element generates
<code>height</code>	Specifies the height of the element's content box or border box
<code>margin</code>	Shorthand property for specifying margin space around an element
<code>margin-top</code> <code>margin-right</code> <code>margin-bottom</code> <code>margin-left</code>	Specifies the margin amount for each side of the element

References

- ▶ Jennifer Niederst Robbins, LEARNING WEB DESIGN A BEGINNER'S GUIDE TO HTML, CSS, JAVASCRIPT, AND WEB GRAPHICS, y O'Reilly Media, Inc., 1005 Gravenstein Highway North, Sebastopol, CA 95472.2018.
- ▶ https://www.w3schools.com/css/css3_shadows_box.asp

Thank you