

CSS

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Credits: [w3schools.com](https://www.w3schools.com)

What CSS Does

CSS stands for Cascading Style Sheets

Describes how HTML elements are to be displayed on screen, paper, or in other media

Saves a lot of work.

Can control the layout of multiple web pages all at once

Why CSS?

HTML: NEVER intended to contain tags for formatting

HTML: created to describe the content of a web page, like:

`<h1>This is a heading</h1>`

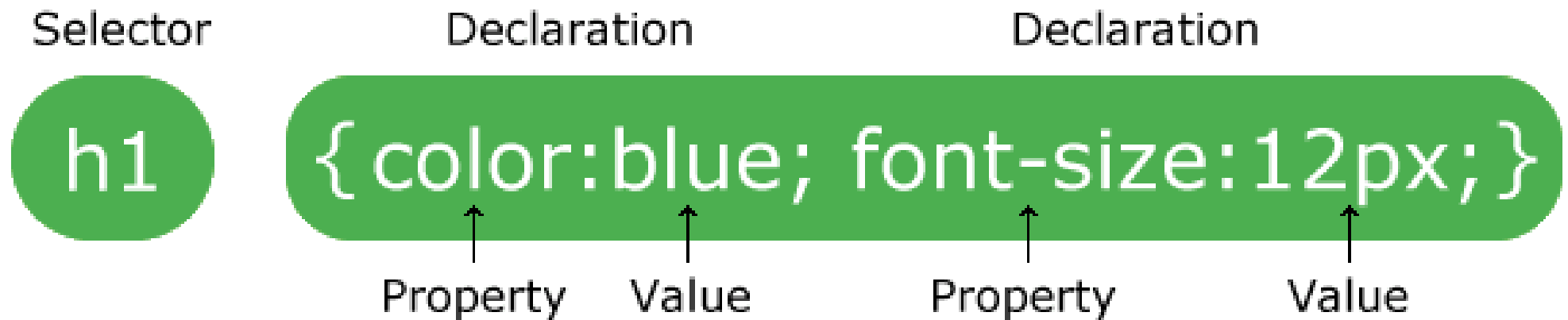
`<p>This is a paragraph.</p>`

Tags like ``, and color attributes: nightmare!

Fonts, colors on many pages: long and expensive process.

CSS removed the style formatting from the HTML page!

Syntax



In the following example all `<p>` elements will be center-aligned, with a red text color

```
p {  
  color:red;  
  text-align:center;  
}
```

CSS Selectors

The element Selector

```
p {  
  text-align: center;  
  color: red;  
}
```

The id Selector

```
#para1 {  
  text-align: center;  
  color: red;  
}
```

The class Selector

```
.center {  
  text-align: center;  
  color: red;  
}
```

In the example below, only <p> elements with class="center" will be center-aligned:

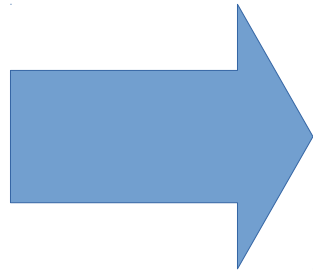
```
p.center {  
  text-align: center;  
  color: red;  
}
```

Grouping Selectors

```
h1 {  
  text-align: center;  
  color: red;  
}
```

```
h2 {  
  text-align: center;  
  color: red;  
}
```

```
p {  
  text-align: center;  
  color: red;  
}
```



```
h1, h2, p {  
  text-align: center;  
  color: red;  
}
```

CSS Comments

```
p {  
  color: red;  
  /* This is a single-line comment */  
  text-align: center;  
}
```

```
/* This is  
a multi-line  
comment */
```

Ways to Insert CSS: External file

```
<head>  
<link rel="stylesheet" type="text/css" href="mystyle.css">  
</head>
```

Here is how the "mystyle.css" looks:

```
body {  
    background-color: lightblue;  
}  
h1 {  
    color: navy;  
    margin-left: 20px;  
}
```


Ways to insert CSS: Internal style sheet

```
<head> <style>
body {
  background-color: linen;
}
h1 {
  color: maroon;
  margin-left: 40px;
}
</style> </head>
```

Inline Styles

to apply a unique style for a single element.

```
<h1 style="color:blue;margin-left:30px;">This is a heading</h1>
```

Cascading

What if there is more than one style specified for an HTML element?

All the styles will "cascade" into a new "virtual" style sheet by the following rules, where number one has the highest priority:

1. **Inline style (inside an HTML element)**
2. **External and internal style sheets (in the head section)**
3. **Browser default**

If this order does not apply, then the style declared first is taken

Colors

140 color names supported by HTML

```
<h1 style="color:Tomato;">Hello World</h1>
```

```
<p style="color:DodgerBlue;">Lorem ipsum...</p>
```

```
<p style="color:MediumSeaGreen;">Ut wisi enim...</p>
```

```
<h1 style="border:2px solid Tomato;">Hello World</h1>
```

```
<h1 style="border:2px solid DodgerBlue;">Hello  
World</h1>
```

```
<h1 style="border:2px solid Violet;">Hello World</h1>
```

Color values

In HTML, colors can also be specified using RGB values, HEX values, HSL values, RGBA values, and HSLA values:

```
<h1 style="background-color:rgb(255, 99, 71);">...</h1>  
<h1 style="background-color:#ff6347;">...</h1>  
<h1 style="background-color:hsl(9, 100%, 64%);">...</h1>  
<h1 style="background-color:rgba(255, 99, 71,  
0.5);">...</h1>  
<h1 style="background-color:hsla(9, 100%, 64%,  
0.5);">...</h1>
```

Background properties

```
body {  
  background-color: lightblue;  
}
```

```
body {  
  background-image:  
  url("paper.gif");  
}
```



```
body {  
  background-image:  
  url("gradient_bg.png");  
  background-repeat: repeat-x;  
}
```



Hello World!

Strange background image...

Hello World!

Here, a background image is repeated only horizontally!

Background ...

```
body {  
    background-image:  
url("img_tree.png");  
    background-repeat: no-  
repeat;  
    background-position:  
right top;  
}
```

ld!

nd no-repeat, set position

image is only shown once,
from the text.

ave also added a margin
the background image will
t.



Background image fixed

```
body {  
    background-image: url("img_tree.png");  
    background-repeat: no-repeat;  
    background-position: right top;  
    background-attachment: fixed;  
}
```

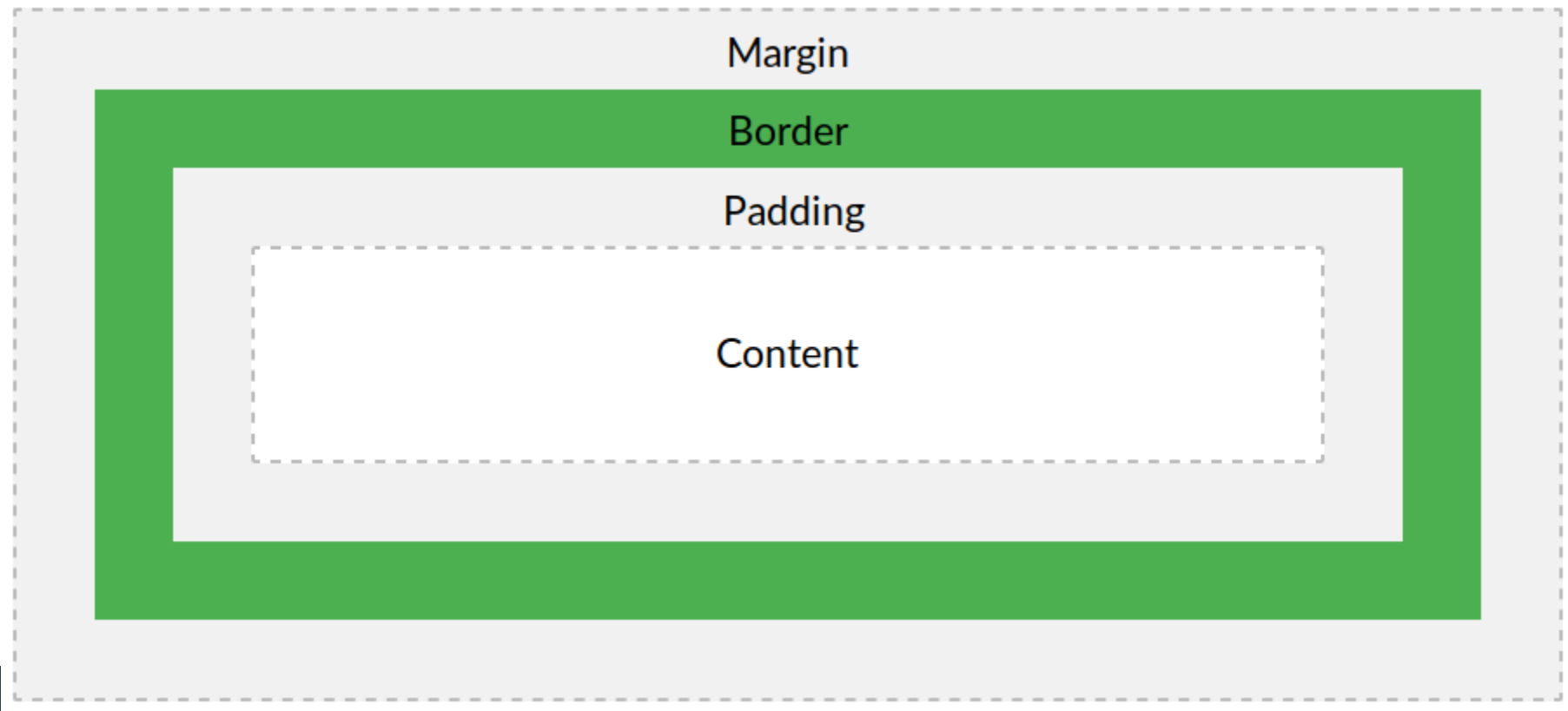
<http://127.0.0.1/wst/lectures/css-demo/background-attachment-fixed.html>

CSS Box Model: Very crucial !

All HTML elements can be considered as boxes.

Box that wraps around every HTML element.

Consists of: margins, borders, padding, and the actual content.



Box Model

```
div {  
  width: 320px;  
  padding: 10px;  
  border: 5px solid  
  gray;  
  margin: 0;  
}
```

Here is the calculation:

320px (width)
+ 20px (left + right padding)
+ 10px (left + right border)
+ 0px (left + right margin)
= 350px


The total width of an element should be calculated like this:

Total element width =
width + left padding +
right padding + left
border + right border +
left margin + right margin

Similarly total height

Borders


```
p.one {  
  border-style: solid;  
  border-width: 5px;  
}
```



Some text.

An arrow points from the 'border-width: 5px;' property in the CSS code to the thick border of this box.


```
p.two {  
  border-style: solid;  
  border-width: medium;  
}
```



Some text.

An arrow points from the 'border-width: medium;' property in the CSS code to the medium-thick border of this box.

```
p.three {  
  border-style: solid;  
  border-width: 2px 10px 4px 20px;  
}
```




Some text.

An arrow points from the 'border-width: 2px 10px 4px 20px;' property in the CSS code to the border of this box.

Border colors


```
p.one {  
  border-style: solid;  
  border-color: red;  
}
```

A solid red border




```
p.two {  
  border-style: solid;  
  border-color: green;  
}
```

A solid green border



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

A solid multicolor border



border radius

Normal border

Round border

Rounder border

Roudest border

```
p.normal {  
  border: 2px solid red;  
}
```

```
p.round1 {  
  border: 2px solid red;  
  border-radius: 5px;  
}
```

```
p.round2 {  
  border: 2px solid red;  
  border-radius: 8px;  
}
```

```
p.round3 {  
  border: 2px solid red;  
  border-radius: 12px;  
}
```

Margins

Specifying four margins

```
p {  
  margin-top: 100px;  
  margin-bottom: 100px;  
  margin-right: 150px;  
  margin-left: 80px;  
}
```

```
p {  
  margin: 25px 50px 75px  
  100px;  
}
```

top margin is 25px

right margin is 50px

bottom margin is 75px

left margin is 100px

Specifying margins

```
p {  
  margin: 25px 50px  
  75px;  
}
```

top margin is 25px

right and left margins
are 50px

bottom margin is 75px

```
p {  
  margin: 25px 50px;  
}
```

top and bottom margins are
25px

right and left margins are 50px

```
p {  
  margin: 25px;  
}
```

all four margins are 25px

Auto Margin

The element will then take up the specified width, and the remaining space will be split equally between the left and right margins:

```
div {  
  width: 300px;  
  margin: auto;  
  border: 1px solid red;  
}
```

<div>

This div will be horizontally centered because it has margin: auto;

</div>

This div will be horizontally centered because it has margin: auto;

top-bottom margin collapse (not possible with left-right)

```
h1 {  
  margin: 0 0 50px 0;  
}  
h2 {  
  margin: 20px 0 0 0;  
}
```

In this example the h1 element has a bottom margin of 50px and the h2 element has a top margin of 20px. Then, the vertical margin between h1 and h2 should have been 70px (50px + 20px). However, due to margin collapse, the actual margin ends up being 50px.

<h1>Heading 1</h1>

<h2>Heading 2</h2>

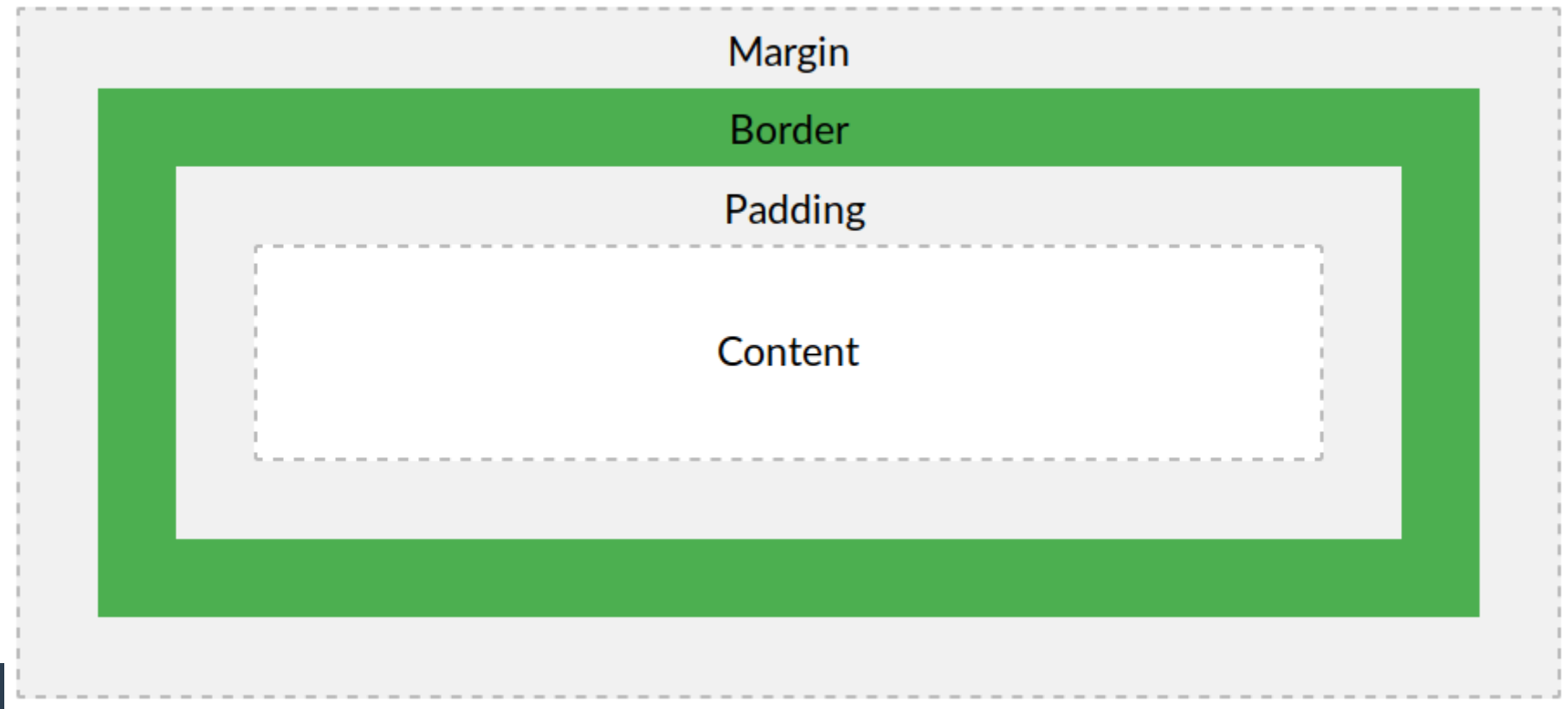
In this example the h1 element has a bottom margin of 50px and the h2 element has a top margin of 20px. Then, the vertical margin between h1 and h2 should have been 70px. However, due to margin collapse, the actual margin ends up being 50px.

Heading 1

Heading 2

Padding

This element has a padding of 70px.



Padding

```
div {  
  padding-top: 50px;  
  padding-right: 30px;  
  padding-bottom: 50px;  
  padding-left: 80px;  
}
```

```
div {  
  padding: 25px 50px 75px  
  100px;  
}
```

right and left paddings are 50px

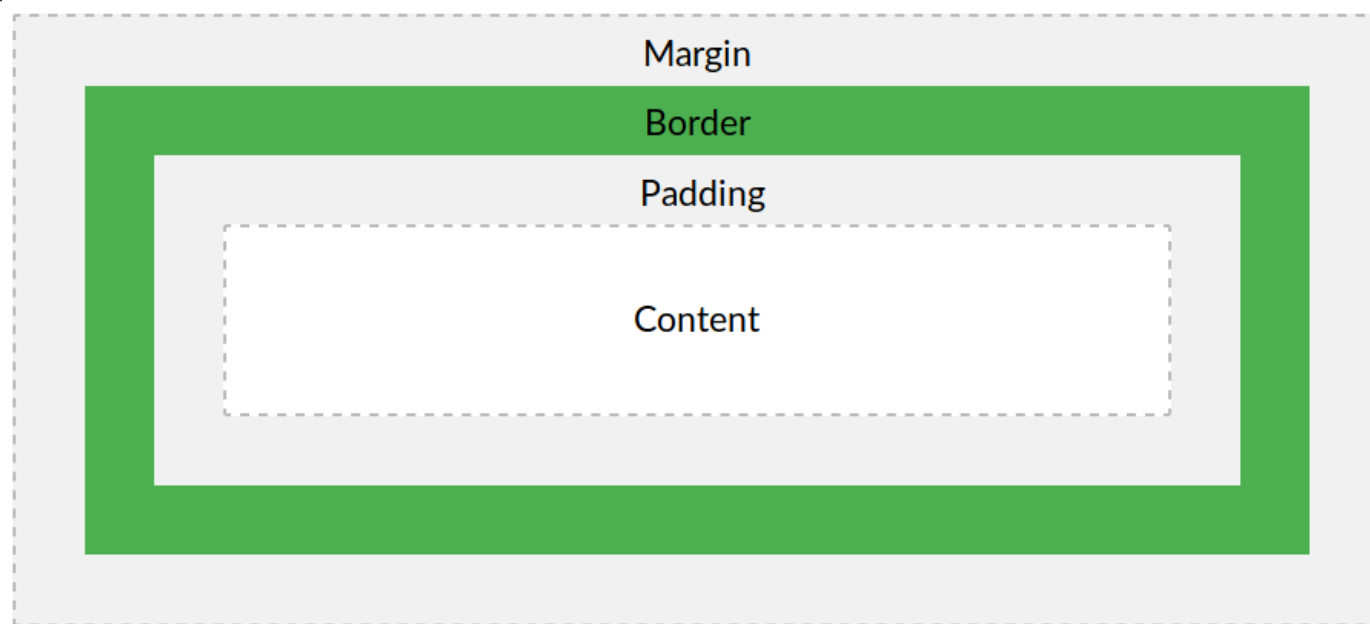
```
div {  
  padding: 25px 50px 75px;  
}
```

top and bottom paddings : 25px

right and left paddings: 50px

```
div {  
  padding: 25px 50px;  
}
```

Padding and Element Width



Width: width of the element's content area.

Portion inside the padding, border, and margin of an element padding added to element will be added to the total width often an undesirable result.

Width: example

<div> element is given a width of 300px.

However actual rendered width of the <div> element will be 350px

300px + 25px of left padding +
25px of right padding

```
div {  
  width: 300px;  
  padding: 25px;  
}
```

To keep the width at 300px
Use the box-sizing property.
If you increase the padding,
the available content space
will decrease

```
div {  
  width: 300px;  
  padding: 25px;  
  box-sizing: border-box;  
}
```

<http://127.0.0.1/wst/lectures/css-demo/width-box-sizing.htm>

Width: example

<div> element is given a width of 300px.

However actual rendered width of the <div> element will be 350px

300px + 25px of left padding +
25px of right padding

```
div {  
  width: 300px;  
  padding: 25px;  
}
```

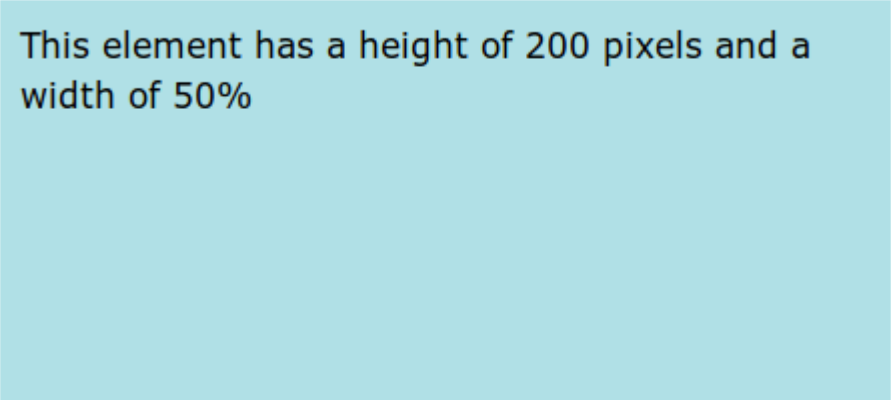
To keep the width at 300px
Use the box-sizing property.
If you increase the padding,
the available content space
will decrease

```
div {  
  width: 300px;  
  padding: 25px;  
  box-sizing: border-box;  
}
```

<http://127.0.0.1/wst/lectures/css-demo/width-box-sizing.htm>

Width, Height

This element has a height of 200 pixels and a width of 50%



The height and width properties do not include padding, borders, or margins

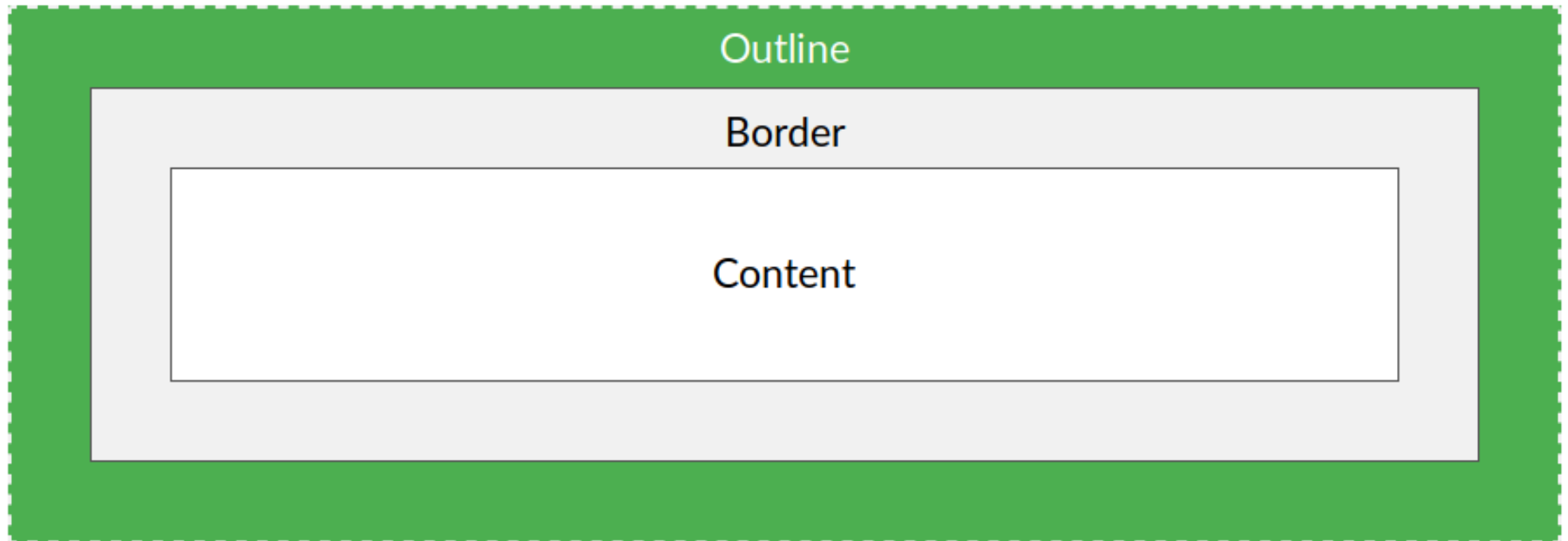
```
div {  
    height: 200px;  
    width: 50%;  
    background-color:  
    powderblue;  
}
```

Width, Height

This element has a height of 100 pixels and a width of 500 pixels.

```
div {  
  height: 100px;  
  width: 500px;  
  background-color: powderblue;  
}
```


Outline



This element has a black border and a green outline with a width of 10px.

Outline

CSS has the following outline properties:

outline-style

outline-color

outline-width

outline-offset

outline

Outline: examples

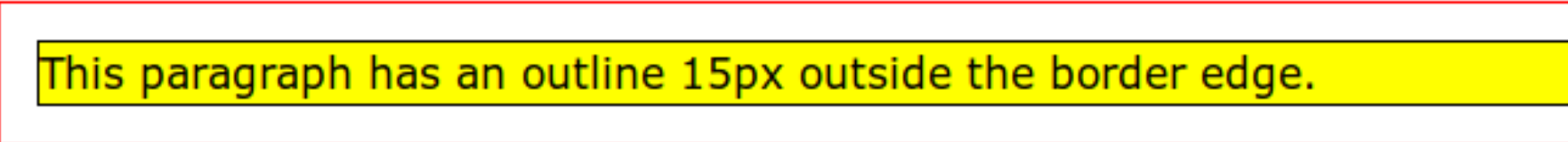
```
p.dotted {outline-style: dotted;}
p.dashed {outline-style: dashed;}
p.solid {outline-style: solid;}
p.double {outline-style: double;}
p.groove {outline-style: groove;}
p.ridge {outline-style: ridge;}
p.inset {outline-style: inset;}
p.outset {outline-style: outset;}
```

```
p.ex1 {
    border: 1px solid
black;
    outline-style: solid;
    outline-color: red;
    outline-width: thin;
}
```

Shortcut notation

```
p.ex1 {outline: dashed;}
p.ex2 {outline: dotted
red;}
p.ex3 {outline: 5px solid
yellow;}
p.ex4 {outline: thick ridge
pink;}
```

Outline offset



This paragraph has an outline 15px outside the border edge.

```
p {  
  margin: 30px;  
  background: yellow;  
  border: 1px solid black;  
  outline: 1px solid red;  
  outline-offset: 15px;  
}
```

Text Formatting

text-color

This is heading 1

This is an ordinary paragraph. Notice that this text is blue. The default text color for a page is defined in the body selector.

The **color** property is used to set the color of the text. The color is specified by:

```
body {  
  color: blue;  
}  
  
h1 {  
  color: green;  
}
```

<h1>This is heading 1</h1>

<p>This is an ordinary paragraph. Notice that this text is blue. The default text color for a page is defined in the body selector.</p>

text-align

Heading 1 (center)

Heading 2 (left)

Heading 3 (right)

The three headings above are aligned center, left and right.

The `text-align` property is used to set the horizontal alignment of a text.

```
h1 {  
  text-align: center;  
}
```

```
h2 {  
  text-align: left;  
}
```

```
h3 {  
  text-align: right;  
}
```

```
<h1>Heading 1 (center)</h1>
```

```
<h2>Heading 2 (left)</h2>
```

```
<h3>Heading 3 (right)</h3>
```

text-align

```
div {  
    border: 1px solid  
black;  
    padding: 10px;  
    width: 200px;  
    height: 200px;  
    text-align: justify;  
}
```

In my younger and
more vulnerable
years my father gave
me some advice that
I've been turning
over in my mind ever
since. 'Whenever you
feel like criticizing
anyone,' he told me,
'just remember that

<div>

In my younger and more vulnerable years
my father gave me some advice that I've
been turning over in my mind ever since.
'Whenever you feel like criticizing anyone,'
he told me, 'just remember that all the
people in this world haven't had the
advantages that you've had.'

</div>

text-decoration

The `text-decoration` property is used to set or remove decorations from text.

```
h1 {  
  text-decoration: overline;  
}
```

```
h2 {  
  text-decoration: line-through;  
}
```

```
h3 {  
  text-decoration: underline;  
}
```

This is heading 1

~~This is heading 2~~

This is heading 3

text-transform

The `text-transform` property is used to specify uppercase and lowercase letters in a text.

```
p.uppercase {  
  text-transform: uppercase;  
}  
p.lowercase {  
  text-transform: lowercase;  
}  
p.capitalize {  
  text-transform: capitalize;  
}
```

THIS IS SOME TEXT.

this is some text.

This Is Some Text.

```
<p class="uppercase">This is some text.</p>  
<p class="lowercase">This is some text.</p>  
<p class="capitalize">This is some text.</p>
```

text-indent

In my younger and more vulnerable years my father gave me some advice that I've been turning over in my mind ever since. 'Whenever you feel like criticizing anyone,' he told me, 'just remember that all the people in this world haven't had the advantages that you've had.'

The `text-indent` property is used to specify the indentation of the first line of a text:

```
p{  
  text-indent: 50px;  
}
```

<p>In my younger and more vulnerable years my father gave me some advice that I've been turning over in my mind ever since. 'Whenever you feel like criticizing anyone,' he told me, 'just remember that all the people in this world haven't had the advantages that you've had.'</p>

Text Formatting: letter-spacing

The `letter-spacing` property is used to specify the space between the characters in a text.

```
h1 {  
    letter-spacing: 3px;  
}
```

```
h2 {  
    letter-spacing: -3px;  
}
```

This is heading 1

This is heading 2

line height

This is a paragraph with a standard line-height.
The default line height in most browsers is about 1

This is a paragraph with a smaller line-height.
This is a paragraph with a smaller line-height.

This is a paragraph with a bigger line-height.
This is a paragraph with a bigger line-height.

The **line-height** property is used to
specify the space between lines:

```
p.small {  
  line-height: 0.8;  
}
```

```
p.big {  
  line-height: 1.8;  
}
```

<p> This is a paragraph with
a standard line-height.

The default line height in
most browsers is about
110% to 120%.

</p> <p class="small">

This is a paragraph with a
smaller line-height.

This is a paragraph with a
smaller line-height.

</p> <p class="big">

This is a paragraph with a
bigger line-height.

This is a paragraph with a
bigger line-height.

</p>

text-direction

This is the default text direction.

.noitcerid txet tfel-ot-thgir si sihT

The `direction` property is used to change the text direction of an element:

```
p.ex1 {  
  direction: rtl;  
}
```

`<p>This is the default text direction.</p>`

`<p class="ex1"><bdo dir="rtl">This is right-to-left text direction.</bdo></p>`

word-spacing

The `word-spacing` property is used to specify the space between the words in a text.

```
h1 {  
  word-spacing: 10px;  
}
```

```
h2 {  
  word-spacing: -5px;  
}
```

`<h1>This is heading 1</h1>`

`<h2>This is heading 2</h2>`

This is heading 1

This is heading 2

text-shadow

The `text-shadow` property adds shadow to text.

```
h1 {  
  text-shadow: 3px 2px red;  
}  
<h1>Text-shadow effect</h1>
```

Text-shadow effect

vertical-align



```
img.top {  
    vertical-align: text-top;  
}
```

```
img.bottom {
```

```
    vertical-align: text-  
bottom;  
}
```

```
<p>An  image with a default  
alignment.</p>
```

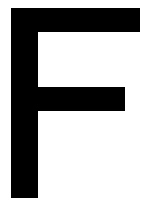
```
<p>An  image with a  
text-top alignment.</p>
```

```
<p>An  image with a  
text-bottom alignment.</p>
```

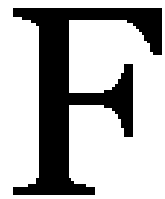
CSS: Fonts

Serif Vs Sans-Serif

Difference Between Serif and Sans-serif Fonts



Sans-serif



Serif



Serif
(red serifs)

Generic Family; Font Family

Generic family	Font family	Description
Serif	Times New Roman Georgia	Serif fonts have small lines at the ends on some characters
Sans-serif	Arial Verdana	"Sans" means without - these fonts do not have the lines at the ends of characters
Monospace	Courier New Lucida Console	All monospace characters have the same width

font-family

The `font-family` property should hold several font names as a "fallback" system. If the browser does not support the first font, it tries the next font, and so on.

```
p {  
  font-family: "Times New Roman", Times, serif;  
}
```

font-style

The `font-style` property is mostly used to specify italic text.

```
p.normal {  
    font-style: normal;  
}
```

```
p.italic {  
    font-style: italic;  
}
```

font-size

```
h1 { font-size: 40px; } h1 { font-size: 2.5em; /* 40px/16=2.5em */  
h2 { font-size: 30px; } }  
p { font-size: 14px; } h2 { font-size: 1.875em;  
/* 30px/16=1.875em */ }  
p { font-size: 0.875em; /*  
14px/16=0.875em */ }
```

The `font-size` property sets the size of the text.

Should not use font size adjustments to make paragraphs look like headings, or headings look like paragraphs.

Always use the proper HTML tags, like `<h1>` - `<h6>` for headings and `<p>` for paragraphs.

Note: If you do not specify a font size, the default size for normal text, like paragraphs, is 16px (16px=1em).

Combination of em and %

The solution that works in all browsers, is to set a default font-size in percent for the `<body>` element:

```
body {  
    font-size: 100%;  
}  
h1 {  
    font-size: 2.5em;  
}
```

```
h2 {  
    font-size: 1.875em;  
}
```

```
p {  
    font-size: 0.875em;  
}
```


Responsive text: viewport width

Responsive Text

Resize the browser window to see how the text size scales.

Viewport is the browser window size. 1vw = 1% of viewport width. If the viewport is 50cm wide, 1vw is 0.5cm.

```
<h1 style="font-size:10vw;">Responsive Text</h1>
```

```
<p style="font-size:5vw;">Resize the browser window to see how the text size scales.</p>
```

```
<p>Viewport is the browser window size. 1vw = 1% of viewport width. If the viewport is 50cm wide, 1vw is 0.5cm.</p>
```

https://www.w3schools.com/css/tryit.asp?filename=trycss_font_responsive

font-variant

```
p.normal {
```

```
    font-variant: normal;
```

```
}
```

```
p.small {
```

```
    font-variant: small-caps;
```

```
}
```

```
p.caps {
```

```
    text-transform: uppercase;
```

```
}
```

```
<p class="normal">My name is Hege  
Refsnes.</p>
```

```
<p class="small">My name is Hege  
Refsnes.</p>
```

```
<p class="caps">My name is Hege  
Refsnes.</p>
```

My name is Hege Refsnes.

MY NAME IS HEGE REFSNES.

MY NAME IS HEGE REFSNES.

Many font properties in one place

```
p.ex1 {
```

```
  font: 15px arial, sans-serif;
```

```
}
```

```
p.ex2 {
```

```
  font: italic bold 12px/30px Georgia, serif;
```

```
}
```

What is 12px/30px ? 30 px is line spacing