How CSS works

❑ The key is to imagine there is an invisible box around every HTML element.

How CSS works

❑ CSS works by associating rules with HTML elements.

❑ These rules govern how the content of specified elements should be displayed.

❑ A CSS rule contains two parts:

- ▪ a **selector** and
- ▪ a **declaration**


```
SELECTOR

p {
    font-family: Arial;}

DECLARATION
```

How CSS works

❑ **Selectors** indicate which element the rule applies to.

 ▪ The same rule can apply to more than one element if you separate the element names with commas.

❑ **Declarations** indicate how the elements referred to in the selector should be styled.

 ▪ Declarations are split into two parts (a **property** and a **value**), and are separated by a colon.

```
SELECTOR

p {
    font-family: Arial;}

        DECLARATION
```

```
h1, h2, h3 {
        font-family: Arial;
        color: yellow;}

        PROPERTY    VALUE
```

Three types to insert CSS (1/3)

❏ External style sheet

- ▪ An external style sheet is ideal when the style is applied to many pages.

- ▪ With an external style sheet, you can change the look of an entire Web site by changing one file.

- ▪ Each page must link to the style sheet using the <link> tag. The <link> tag goes inside the head section:

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

The <link> element

❑ Tells the browser where to find the CSS file used to style the page. It should use three attributes:

- **href**
  - ÷ This specifies the path to the CSS file

- **type**
  - ÷ specifies the type of document being linked to. The value should be text/css.

- **rel**
  - ÷ specifies the relationship between the HTML page and the file it is linked to. The value should be stylesheet when linking to a CSS file.

❑ **An HTML page can use more than one CSS style sheet.**

- **To do this it could have a <link> element for every CSS file it uses**

Three types to insert CSS (2/3)

❑ Internal style sheet

- An internal style sheet should be used when a single document has a unique style.

- You define internal styles in the head section of an HTML page, by using the <style> tag

- The **<style>** element should use the **type** attribute to indicate that the styles are specified in CSS. The value should be **text/CSS**.

```
<head>
  <style >
     hr {color:sienna;}
     p {margin-left:20px;}
     body {background-image:url("images/background.gif");}
  </style>
</head>
```

Three types to insert CSS (3/3)

❑ Inline Style Sheet

- ▪ An inline style loses many of the advantages of style sheets by mixing content with presentation. Use this method sparingly!

- ▪ To use inline styles you use the style attribute in the relevant tag.

- ▪ The style attribute can contain any CSS property

```
<p style="color:blue;margin-left:20px;">This is a paragraph.</p>
```

What style will be used in case of more than one style specified for an HTML element?

❑ Browser default

❑ External style sheet

❑ Internal style sheet (in the head section)

❑ Inline style (inside an HTML element)

An inline style has the **highest priority**, which means that it will **override** a style defined inside the <head> tag, or in an external style sheet, or in a browser (a default value).

CSS Selectors

❑ There are many different types of CSS selector that allow you to target rules to specific elements in an HTML document.

SELECTOR	MEANING	EXAMPLE
UNIVERSAL SELECTOR	Applies to all elements in the document	`* {}` Targets all elements on the page
TYPE SELECTOR	Matches element names	`h1, h2, h3 {}` Targets the <h1>, <h2> and <h3> elements

CLASS SELECTOR	Matches an element whose class attribute has a value that matches the one specified after the period (or full stop) symbol	`.note {}`
		Targets any element whose class attribute has a value of note
		`p.note {}`
		Targets only <p> elements whose class attribute has a value of note

ID SELECTOR	Matches an element whose id attribute has a value that matches the one specified after the pound or hash symbol	`#introduction {}` Targets the element whose id attribute has a value of introduction
CHILD SELECTOR	Matches an element that is a direct child of another	`li>a {}` Targets any <a> elements that are children of an element (but not other <a> elements in the page)

SELECTOR	MEANING	EXAMPLE
CHILD SELECTOR	Matches an element that is a direct child of another	`li>a {}` Targets any `<a>` elements that are children of an `<li>` element (but not other `<a>` elements in the page)
DESCENDANT SELECTOR	Matches an element that is a descendent of another specified element (not just a direct child of that element)	`p a {}` Targets any `<a>` elements that sit inside a `<p>` element, even if there are other elements nested between them
ADJACENT SIBLING SELECTOR	Matches an element that is the next sibling of another	`h1+p {}` Targets the first `<p>` element after any `<h1>` element (but not other `<p>` elements)
GENERAL SIBLING SELECTOR	Matches an element that is a sibling of another, although it does not have to be the directly preceding element	`h1~p {}` If you had two `<p>` elements that are siblings of an `<h1>` element, this rule would apply to both

How rules cascade

- ❏ **LAST RULE**
  - ▪ If the two selectors are identical, the latter of the two will take precedence.
- ❏ **SPECIFICITY**
  - ▪ If one selector is more specific than the others, the more specific rule will take precedence over more general ones.
- ❏ **IMPORTANT**
  - ▪ You can add **!important** after any property value to indicate that it should be considered more important than other rules that apply to the same element.

```css
* {
  font-family: Arial, Verdana, sans-serif;}
h1 {
  font-family: "Courier New", monospace;}
i {
  color: green;}
i {
  color: red;}
b {
  color: pink;}
p b {
  color: blue !important;}
p b {
  color: violet;}
p#intro {
  font-size: 100%;}
p {
  font-size: 75%;}
```

Inheritance

- If you specify the `font-family` or `color` properties on the `<body>` element, they will apply to most child elements.

  - This is because the value of the `font-family` property is inherited by child elements. It saves you from having to apply these properties to as many elements.

  - You can force a lot of properties to inherit values from their parent elements by using inherit for the value of the properties.

```
<div class="page">
  <h1>Potatoes</h1>
  <p>There are dozens of different potato
     varieties.</p>
  <p>They are usually described as early, second
     early and maincrop potatoes.</p>
</div>
```

```
body {
  font-family: Arial, Verdana, sans-serif;
  color: #665544;
  padding: 10px;}
.page {
  border: 1px solid #665544;
  background-color: #efefef;
  padding: inherit;}
```

RESULT

Potatoes

There are dozens of different potato varieties.

They are usually described as early, second early and maincrop potatoes.

How browsers deal with CSS?

Still working…

❑ CSS1 was released in 1996

❑ CSS2 was released in 1998.

❑ Work on CSS3 has been ongoing but the major browsers have already started to implement it.

❑ Some browsers display a few of the CSS properties in an unexpected way.

❑ But finding and squashing those bugs is easy when you know how...

Testing a new site

❏ Before launching any new site, it is important to test it in more than one browser

❏ slight differences may appear on how browsers display the pages

❏ Testing sites:

- BrowserCam.com

- BrowserLab.Adobe.com

- BrowserShots.org

- CrossBrowserTesting.com

Color

Color **can** **bring** **pages** **to** **life**

Foreground color

☐ color

Allows you to specify the color of text inside an element.

- **rgb values**
  - ÷ Example: rgb(100,100,90)
- **hex codes**
  - ÷ preceded by a pound or hash # sign
  - ÷ Example: #ee3e80
- **color names**
  - ÷ There are 147 predefined color names that are recognized by browsers.
  - ÷ Example: DarkCyan

Background color

❑background-color

- CSS treats each element as if it appears in a box, and the `background-color` property sets the color of the background for that box.

- If you do not specify a background color, then the background is transparent.

```
<style>
    body {
        background-color: rgb(200,200,200);
        font-family: Verdana; }
    h1 {
        background-color: DarkCyan;}
    h2 {
        background-color: #ee3e80;}
    p {
        background-color: white;}
</style>

<body>
    <h1>A strange Day</h1>
    <h2>When strange things happen </h2>
    <p>
        Too cultivated use solicitude frequently. Dashwood likewise up
        consider continue entrance ladyship oh. Wrong guest given purse
        power is no. Friendship to connection an am considered difficulty.
        Country met pursuit lasting moments why calling certain the.
        Middletons boisterous our way understood law. Among state cease how
        and sight since shall. Material did pleasure breeding our humanity
        she contempt had. So ye really mutual no cousin piqued summer result
    </p>
</body>
```

A strange Day

When strange things happen

Too cultivated use solicitude frequently. Dashwood likewise up consider continue entrance ladyship oh. Wrong guest given purse power is no. Friendship to connection an am considered difficulty. Country met pursuit lasting moments why calling certain the. Middletons boisterous our way understood law. Among state cease how and sight since shall. Material did pleasure breeding our humanity she contempt had. So ye really mutual no cousin piqued summer result.

CSS 3: Opacity

opacity

- allows you to specify the opacity of an element and <u>any of its child elements</u>.
  - ÷ The value is a number between 0.0 and 1.0

rgba

- The CSS3 rgba property allows you to specify a color, just like you would with an RGB value, but adds a fourth value to indicate opacity.
  - ÷ This value is known as an alpha value and is a number between 0.0 and 1.0
  - ÷ The rgba value <u>will only affect the element</u> on which it is applied (<u>not child elements</u>).

```css
CSS

p.one {
    background-color: rgb(0,0,0);
    opacity: 0.5;}
p.two {
    background-color: rgb(0,0,0);
    background-color: rgba(0,0,0,0.5);}
```

Create Fallbacks

RESULT

RESULT IN OLDER BROWSER

CSS 3: HSL Colors

❑ CSS3 introduces a new way to specify colors using hue, saturation, and lightness values.

- **hue**
  - ÷ Hue is the colloquial idea of color. In HSL colors, hue is represented as a color circle where the angle represents the color, although it may also be shown as a slider with values from 0 to 360.

- **saturation**
  - ÷ the amount of gray in a color. It is represented as a percentage. 100% is full saturation and 0% is a shade of gray.

- **lightness** (or luminosity)
  - ÷ is the amount of white (lightness) or black (darkness) in a color. It is is represented as a percentage. 0% lightness is black, 100% lightness is white, and 50% lightness is normal.

CSS3: `hsl,hsla`

❑ **hsl**

- Hue (between 0 and 360 degrees),
- saturation (percentage),
- lightness (percentage with 0% being white, 50% being normal, and 100% being black)

❑ **hsla** property adds a fourth value

- represents transparency (just like the rgba property).
- It is a number between 0 and 1.0.

```css
body {
    background-color: #C8C8C8;
    background-color: hsl(0,0%,78%);}
p {
    background-color: #ffffff;
    background-color: hsla(0,100%,100%,0.5);}
```

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Color</title>
    <style type="text/css">
      body {
        background-color: silver;
        color: white;
        padding: 20px;
        font-family: Arial, Verdana, sans-serif;}
      h1 {
        background-color: #ffffff;
        background-color: hsla(0,100%,100%,0.5);
        color: #64645A;
        padding: inherit;}
      p {
        padding: 5px;
        margin: 0px;}
      p.zero {
        background-color: rgb(238,62,128);}
      p.one {
        background-color: rgb(244,90,139);}
      p.two {
        background-color: rgb(243,106,152);}
      p.three {
        background-color: rgb(244,123,166);}
      p.four {
        background-color: rgb(245,140,178);}
      p.five {
        background-color: rgb(246,159,192);}
      p.six {
        background-color: rgb(245,176,204);}
      p.seven {
        background-color: rgb(0,187,136);}
      p.eight {
        background-color: rgb(140,202,242);}
      p.nine {
        background-color: rgb(114,193,240);}
      p.ten {
        background-color: rgb(84,182,237);}
      p.eleven {
        background-color: rgb(48,170,233);}
      p.twelve {
        background-color: rgb(0,160,230);}
      p.thirteen {
        background-color: rgb(0,149,226);}
      p.fourteen {
        background-color: rgb(0,136,221);}
    </style>
  </head>
  <body>
    <h1>pH Scale</h1>
    <p class="fourteen">14.0 VERY ALKALINE</p>
    <p class="thirteen">13.0</p>
    <p class="twelve">12.0</p>
    <p class="eleven">11.0</p>
    <p class="ten">10.0</p>
    <p class="nine">9.0</p>
    <p class="eight">8.0</p>
    <p class="seven">7.0 NEUTRAL</p>
    <p class="six">6.0</p>
    <p class="five">5.0</p>
    <p class="four">4.0</p>
    <p class="three">3.0</p>
    <p class="two">2.0</p>
    <p class="one">1.0</p>
    <p class="zero">0.0 VERY ACID</p>
  </body>
</html>
```

pH Scale

14.0 VERY ALKALINE	
13.0	
12.0	
11.0	
10.0	
9.0	
8.0	
7.0 NEUTRAL	
6.0	
5.0	
4.0	
3.0	
2.0	
1.0	
0.0 VERY ACID	

Text

Typeface Terminology

Serif

Serif fonts have extra details on the ends of the main strokes of the letters. These details are known as serifs.

hello

In print, serif fonts were traditionally used for long passages of text because they were considered easier to read.

Georgia, Times, Times New Roman

Sans-Serif

Sans-serif fonts have straight ends to letters, and therefore have a much cleaner design.

hello

Screens have a lower resolution than print. So, if the text is small, sans-serif fonts can be clearer to read.

Arial, Verdana, Helvetica

Monospace

Every letter in a monospace (or fixed-width) font is the same width.

hello

Monospace fonts are commonly used for code because they align nicely, making the text easier to follow.

Courier, Courier New

A Wider Choice of Typefaces

FONT-FAMILY	FONT-FACE	SERVICE-BASED FONT-FACE
The user's computer needs the typeface installed. CSS is used to specify the typeface.	CSS specifies where a font can be downloaded from if it is not installed on the computer.	Commercial services give users access to a wider range of fonts using `@font-face`.
ISSUES		
There is a limited choice of typefaces that most users have installed.	The user has to download the font file, which can slow down loading of the web page.	There is an ongoing fee to cover licenses paid to font foundries.
LICENSING		
You are not distributing the typeface, so there is no licensing issue.	The license to use the font must permit its distribution using `@font-face`.	The service takes care of the licensing issues with the people who made the font.
CHOICE OF TYPEFACES		
There is a limited choice because the font needs to be installed on users' computers.	Choice is limited because few typefaces can be freely distributed this way.	Each service offers a different choice of fonts based on their agreements with font foundries.

font-family

❑ It allows you to specify the typeface that should be used for any text inside the element(s) to which a CSS rule applies.

❑ The <u>value of this property</u> is the <u>name of the typeface</u> you want to use.

❑ The people who are visiting your site <u>need the typeface installed</u> on their computer in order for it to be displayed.

❑ You can specify a list of fonts separated by commas.

▪ **Note**: If a font name is made up of more than one word, it should be put in double quotes.

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Font Family</title>
    <style type="text/css">
      body {
        font-family: Georgia, Times, serif;}
      h1, h2 {
        font-family: Arial, Verdana, sans-serif;}
      .credits {
        font-family: "Courier New", Courier,
          monospace;}
    </style>
  </head>
  <body>
    <h1>Briards</h1>
    <p class="credits">by Ivy Duckett</p>
    <p class="intro">The <a class="breed"
      href="http://en.wikipedia.org/wiki/
      Briard">briard</a>, or berger de brie, is
      a large breed of dog traditionally used as
```

Briards

by Ivy Duckett

The [briard](#), or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep...

font-size

- Enables you to specify a size for the font.
  - pixels
    - ÷ commonly used as they allow designers precise control over the space their text takes up
  - percentages
    - ÷ The default size of text in browsers is 16px.
      - A size of 75% would be the equivalent of 12px, and 200% would be 32px.
      - If you create a rule to make all text inside the <body> element to be 75% of the default size make it 12px), and then specify another rule that indicates the content of an element inside the <body> element should be 75% size, it will be 9px (75% of the 12px font size).
  - ems
    - ÷ an em is equivalent to the width of a letter m

Units of type size

PIXELS

TWELVE PIXEL SCALE

h1	24px
h2	18px
h3	14px
body	12px

SIXTEEN PIXEL SCALE

h1	32px
h2	24px
h3	18px
body	16px

PERCENTAGES

h1	200%
h2	150%
h3	117%
body	75%

h1	200%
h2	150%
h3	133%
body	100%

EMS

h1	1.5em
h2	1.3em
h3	1.17em
body	100%
p	0.75em

h1	2em
h2	1.5em
h3	1.125em
body	100%
p	1em

@font-face

❑ allows you to use a font, even if it is not installed on the computer, by allowing you to specify a path to a copy of the font

▪ The font will be downloaded if it is not on the user's machine.

❑ You add the font to your style sheet using the **@font-face** rule

▪ `font-family:` name of the font

▪ `src`: location of the font

▪ `format`: font format

```css
@font-face {
    font-family: 'ChunkFiveRegular';
    src: url('fonts/chunkfive.eot');}
h1, h2 {
    font-family: ChunkFiveRegular, Georgia, serif;}
```

Different browsers different formats

☐ You need to supply the font in several variations to reach all browsers

BROWSER	FORMAT			
	eot	woff	ttf / otf	svg
Chrome (all)				●
Chrome 6+		●	●	●
Firefox 3.5			●	
Firefox 3.6+		●	●	
IE 5 - 8	●			
IE 9+	●	●	◖	
Opera 10+			●	●
Safari 3.1+			●	●
iOS <4.2				●
iOS 4.2+			●	●

font-weight

❑ allows you to create bold text. Value can be:

- **normal**: Defines normal characters
- **bold**: Defines thick characters
- **bolder**: Defines thicker characters
- **lighter**: Defines lighter characters
- 100, 200, 300, **400**, 500, 600, **700**, 800, 900: Defines from thin to thick characters.
  - ÷ 400 is the same as normal, and 700 is the same as bold

font-style

❑ Changes the style of text. It can have the values:

- ▪ `normal`: browser displays a normal font style.
- ▪ `italic`: browser displays an italic font style
- ▪ `oblique`: browser displays an oblique font style
- ▪ `initial`: sets this property to its default value.
- ▪ `inherit`: inherits this property from its parent element.

text-transform

- this property is used to change the case of text giving it one of the following values:
  - **uppercase**
    - ÷ This causes the text to appear uppercase.
  - **lowercase**
    - ÷ This causes the text to appear lowercase.
  - **capitalize**
    - ÷ This causes the first letter of each word to appear capitalized.

Underline and strike

❑ **text-decoration** allows you to specify the following values:

- ▪ **none**: removes any decoration already applied to the text
- ▪ **underline**: adds a line underneath the text
- ▪ **overline**: adds a line over the top of the text
- ▪ **line-through**: adds a line through words
- ▪ **blink**: animates the text to make it flash on and off
  - ÷ Avoid it, it is very annoying

Leading: line-height

- sets the height of an entire line of text
- Increasing the line-height makes the vertical gap between lines of text larger.

letter-spacing, word-spacing

- ❏ Kerning is the term typographers use for the space between each letter. You can control the space between each letter with the `letter-spacing` property.
  - ▪ helpful to increase the kerning when your heading or sentence is all in uppercase.
- ❏ `word-spacing` property controls the gap between words
- ❏ When you specify a value for these properties, it should be given in **ems**, and it will be added on top of the default value specified by the font.
  - ▪ The default gap between words is set by the typeface (often around 0.25em), and it is unlikely that you would need to change this property regularly.

```css
h1, h2 {
    text-transform: uppercase;
    letter-spacing: 0.2em;}
.credits {
    font-weight: bold;
    word-spacing: 1em;}
```

text-align

❑ allows you to control the alignment of text. The property can take one of four values:

- ▪ `left`: indicates that the text should be left-aligned
- ▪ `right`: indicates that the text should be right-aligned
- ▪ `center`: allows you to center text
- ▪ `justify`: indicates that every line in a paragraph, except the last line, should be set to take up the full width of the containing box.

```
h1 {
  text-align: left;}
p {
  text-align: justify;}
```

Briards

by Ivy Duckett

The briard, or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep...or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep

vertical-align

❑ It is more commonly used with inline elements such as <img>, <em>, or <strong> elements.

- It is not intended to vertically align text in the middle of block level elements such as <p> and <div

❑ Values:

- baseline
- sub
- super
- top
- text-top
- middle
- bottom
- text-bottom

text-indent

- allows you to indent the first line of text within an element
  - Usually in pixels or ems

text-shadow

- Has become commonly used despite lacking support in all browsers
- It is used to create a drop shadow, which is a dark version of the word just behind it and slightly offset.

text-shadow

❏ The value of this property is quite complicated because it can take three lengths and a color for the drop shadow.

- ▪ The <u>first length</u> indicates <u>how far to the left or right</u> the shadow should fall.
- ▪ The second value indicates the <u>distance to the top or bottom</u> that the shadow should fall.
- ▪ The <u>third value</u> is optional and <u>specifies the amount of blur</u> that should be applied to the drop shadow.
- ▪ The <u>fourth value</u> is the <u>color of the drop shadow</u>.

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Font Family</title>
        <style type="text/css">
            p.one {
                background-color: #eeeeee;
                color: #666666;
                text-shadow: 1px 1px 0px #000000;}
            p.two {
                background-color: #dddddd;
                color: #666666;
                text-shadow: 1px 1px 3px #666666;}
            p.three {
                background-color: #cccccc;
                color: #ffffff;
                text-shadow: 2px 2px 7px #111111;}
            p.four {
                background-color: #bbbbbb;
                color: #cccccc;
                text-shadow: -1px -2px #666666;}
            p.five {
                background-color: #aaaaaa;
                color: #ffffff;
                text-shadow: -1px -1px #666666;}
        </style>
    </head>
    <body>
        <h1>Shadows</h1>
        <p class="one">Just testing this thing</p>
        <p class="two">Just testing this thing</p>
        <p class="three">Just testing this thing</p>
        <p class="four">Just testing this thing</p>
        <p class="five">Just testing this thing</p>

    </body>
</html>
```

Shadows

Just testing this thing

Just testing this thing

Just testing this thing

Just testing this thing

Just testing this thing

:first-letter, :first-line

- You can specify different values for the first letter or first line of text inside an element using `:first-letter` and `:first-line`.
  - Technically these are not properties. They are known as **pseudo-elements**.
- You specify the pseudo-element at the end of the selector, and then specify the declarations as you would normally for any other element.

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            p.intro:first-letter {
                font-size: 200%;}
            p.intro:first-line {
                font-weight: bold;}
        </style>
    </head>
    <body>
        <h1>Briards</h1>
        <p class="intro">The briard, or berger de brie, is a large breed of dog
        traditionally used as a herder and guardian of sheep...or berger de brie,
        is a large breed of dog traditionally used as a herder and guardian of sheep
        or berger de brie, is a large breed of dog traditionally used as a herder and
        guardian of sheep or berger de brie, is a large breed of dog traditionally used
        as a herder and guardian of sheep</p>
    </body>
</html>
```

Briards

The briard, or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep...or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep or berger de brie, is a large breed of dog traditionally used as a herder and guardian of sheep

Styling Links

❑ Browsers tend to show links in blue with an underline by default, and they will change the color of links that have been visited to help users know which pages they have been to.

❑ In CSS, there are two **pseudoclasses** that allow you to set different styles for links that have and have not yet been visited.

:link, :visited

❑ **:link**

- This allows you to set styles for links that have not yet been visited.

❑ **:visited**

- This allows you to set styles for links that have been clicked on.

Responding to Users

❏ **:hover**

- ▪ This is applied when a user hovers over an element with a pointing device such as a mouse.

❏ **:active**

- ▪ This is applied when an element is being activated by a user; for example, when a button is being pressed or a link being clicked.

❏ **:focus**

- ▪ This is applied when an element has focus. Any element that you can interact with, such as a link you can click on or any form control can have focus.

Attribute Selectors

SELECTOR	MEANING	EXAMPLE
EXISTENCE	`[]` Matches a specific attribute (whatever its value)	`p[class]` Targets any `<p>` element with an attribute called `class`
EQUALITY	`[=]` Matches a specific attribute with a specific value	`p[class="dog"]` Targets any `<p>` element with an attribute called `class` whose value is `dog`
SPACE	`[~=]` Matches a specific attribute whose value appears in a space-separated list of words	`p[class~="dog"]` Targets any `<p>` element with an attribute called `class` whose value is a list of space-separated words, one of which is `dog`
PREFIX	`[^=]` Matches a specific attribute whose value begins with a specific string	`p[attr^"d"]` Targets any `<p>` element with an attribute whose value begins with the letter "d"
SUBSTRING	`[*=]` Matches a specific attribute whose value contains a specific substring	`p[attr*"do"]` Targets any `<p>` element with an attribute whose value contains the letters "do"
SUFFIX	`[$=]` Matches a specific attribute whose value ends with a specific string	`p[attr$"g"]` Targets any `<p>` element with an attribute whose value ends with the letter "g"

Lets get our hands dirty

Boxes

width, height

- ❑ By default a box is sized just big enough to hold its contents.
- ❑ To **set your own dimensions for a box** you can use the **height** and **width** properties.
- ❑ The most popular ways to specify the size of a box are to use pixels, percentages, or ems.
  - ▪ Traditionally, pixels have been the most popular method because they allow designers to accurately control their size.
  - ▪ When you use percentages, the size of the box is relative to the size of the browser window or, if the box is encased within another box, it is a percentage of the size of the containing box.
  - ▪ When you use ems, the size of the box is based on the size of text within it.
- ❑ **Note:** Designers have recently started to use percentages and ems more for measurements as they try to create designs that are flexible across devices which have different-sized screens.

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            div.box {
                height: 300px;
                width: 300px;
                background-color: #d64cc1; }
            p {
                height: 75%;
                width: 75%;
                background-color: #bbbbaa;}
        </style>
    </head>
    <body>
        <div class="box">
            <p>
                The Moog company pioneered the commercial manufacture of modular
                voltage-controlled analog synthesizer systems in the early
                1950s.
            </p>
        </div>
    </body>
</html>
```

The Moog company pioneered the commercial manufacture of modular voltage-controlled analog synthesizer systems in the early 1950s.

min-width, max-width

❑ Some page designs expand and shrink to fit the size of the user's screen.

❑ In such designs:

- the **min-width property** specifies the smallest size a box can be displayed at when the browser window is narrow

- The **max-width property** indicates the maximum width a box can stretch to when the browser window is wide

min-height, max-height

- Similar to min-width, max-width

overflow

❑ The overflow property tells the browser what to do if the content contained within a box is larger than the box itself. It can have one of two values:

- **hidden**
  - This property simply hides any extra content that does not fit in the box.

- **scroll**
  - This property adds a scrollbar to the box so that users can scroll to see the missing content.

Border, Margin & Padding

❑ Every box has three available properties that can be adjusted to control its appearance:

- **border** : Every box has a border.

- **margin**: Margins sit outside the edge of the border. You can set the width of a margin to create a gap between the borders of two adjacent boxes.

- **padding**: Padding is the space between the border of a box and any content contained within it.
  - ÷ Adding padding can increase the readability of its contents.

Margin

Border

Padding

hello

WITHOUT MARGIN & PADDING

Moog

Moog synthesisers were created by Dr. Robert Moog under the company name Moog Music. Popular models include the Moog Modular, Minimoog, Micromoog, Moog Rogue, and Moog Source.

ARP

ARP Instruments Inc. was set up by Alan Peralman, and was the main competitor for Moog during the 1970'x. Popular models include the Arp 2600 and the ARP Odyssey.

Sequential Circuits

Sequential Circuits Inc was founded by Dave Smith, and the company was pivotal in the creation of MIDI. Famous models include the Prophet 5, Prophet 600, and Pro-One.

WITH MARGIN & PADDING

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border-width

❑ The **border-width** property is used to control the width of a border.

❑ The value of this property can either be given in pixels or using one of the following values:

- **thin**
- **medium**
- **thick**

`border-width`

❑ You can control the individual size of borders using four separate properties:

- **`border-top-width`**

- **`border-right-width`**

- **`border-bottom-width`**

- **`border-left-width`**

❑ You can also specify different widths for the four border values in one property, like so:

- **`border-width: 2px 1px 1px 2px;`**

- The values here appear in clockwise order: top, right, bottom, left.

border-style

❑ This property can take the following values:

- **solid** a single solid line
- **dotted** a series of square dots
    - ÷ (if your border is 2px wide, then the dots are 2px squared with a 2px gap between each dot)
- **dashed** a series of short lines
- **double** two solid lines (the value of the **border-width** property creates the sum of the two lines)
- **groove** appears to be carved into the page
- **ridge** appears to stick out from the page
- **inset** appears embedded into the page
- **outset** looks like it is coming out of the screen
- **hidden / none** no border is shown

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            p.one {border-style: solid;}
            p.two {border-style: dotted;}
            p.three {border-style: dashed;}
            p.four {border-style: double;}
            p.five {border-style: groove;}
            p.six {border-style: ridge;}
            p.seven {border-style: inset;}
            p.eight {border-style: outset;}
        </style>
    </head>
    <body>
        <p class="one">Border example Solid</p>
        <p class="two">Border example Dotted</p>
        <p class="three">Border example Dashed</p>
        <p class="four">Border example Double</p>
        <p class="five">Border example Groove</p>
        <p class="six">Border example Ridge</p>
        <p class="seven">Border example Inset</p>
        <p class="eight">Border example Outset</p>

    </body>
</html>
```

Border example Solid

Border example Dotted

Border example Dashed

Border example Double

Border example Groove

Border example Ridge

Border example Inset

Border example Outset

border-color

- Allows you to specify the color of a border using either RGB values, hex codes, CSS color names and HSL values (do not work in all browsers)

- You can control the colors of the borders on different sides of a box using:
  - `border-top-color`
  - `border-right-color`
  - `border-bottom-color`
  - `border-left-color`

- You can use a shorthand to control all four border colors in the one property:
  - `border-color: darkcyan deeppink darkcyan deeppink;`
  - The values appear in clockwise order: top, right, bottom, left.

border

- The **border** property allows you to specify the `width`, style and color of a border in one property
  - **Important**: the values should be coded in that specific order)

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            p {
                width: 250px;
                border: 3px dotted #0088dd;}
        </style>
    </head>
    <body>
        <p>Border all in one.</p>
    </body>
</html>
```

Border all in one.

padding

- ❑ Allows you to specify how much space should appear between the content of an element and its border.
  - ▪ **Note**: If a width is specified for a box, padding is added onto the width of the box.
- ❑ You can specify different values for each side of a box using:
  - ▪ padding-top
  - ▪ padding-right
  - ▪ padding-bottom
  - ▪ padding-left
- ❑ Or you can use a shorthand (where the values are in clockwise order: top, right, bottom, left):
  - ▪ padding: 10px 5px 3px 1px;

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            p {
                width: 275px;
                border: 2px solid #0088dd;}
            p.example {
                padding: 10px;}
        </style>
    </head>
    <body>
        <p>
            Analog synths produce a wave sound, whereas the
            sounds stored on a digital synth have been
            sampled and then turned into numbers.
        </p>
        <p class="example">
            Analog synths produce a wave
            sound, whereas the sounds stored on a digital
            synth have been sampled and then ...
        </p>
    </body>
</html>
```

Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then turned into numbers.

Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then ...

margin

- ❑ Controls the gap between boxes.
    - ÷ If one box sits on top of another, margins are collapsed , which means the larger of the two margins will be used and the smaller will be disregarded.
- ❑ Note: If the width of a box is specified then the margin is added to the width of the box.
- ❑ You can specify values for each side of a box using:
    - ▪ `margin-top`
    - ▪ `margin-right`
    - ▪ `margin-bottom`
    - ▪ `margin-left`
- ❑ You can use the shorthand (clockwise order: top, right, bottom, left):
    - ▪ `margin: 1px 2px 3px 4px;`
- ❑ Another shorthand: `margin: 10px 20px;`
    - ▪ It means that the left and right margins should be 10 pixels and the top and bottom margins should be 20 pixels

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            p {
                width: 200px;
                border: 2px solid #0088dd;
                padding: 10px;}
            p.example {
                margin: 20px;}
        </style>
    </head>
    <body>
        <p>
            Analog synths produce a wave sound, whereas the
            sounds stored on a digital synth have been
            sampled and then turned into numbers.
        </p>
        <p class="example">
        Analog synths produce a wave
        sound, whereas the sounds stored on a digital
        synth have been sampled and then ...
        </p>
    </body>
</html>
```

Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then turned into numbers.

Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then ...

Centering Content

❑ In order to center a box on the page, you need to set a width for the box (otherwise it will take up the full width of the page).

- setting the left and right margins to auto will make the browser put an equal gap on each side of the box.
- This centers the box on the page (or within the element that the box sits inside).
  - ÷ In order for this to work in older browsers (particularly IE6), the element that the box sits inside should have a text-align property with its value set to center.

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            body {
                text-align: center;}
            p {
                width: 300px;
                padding: 50px;
                border: 20px solid #0088dd;}
            p.example {
                margin: 10px auto 10px auto;
                text-align: left;}
        </style>
    </head>
    <body>
        <p>
            Analog synths produce a wave sound, whereas the
            sounds stored on a digital synth have been
            sampled and then turned into numbers.
        </p>
        <p class="example">
        Analog synths produce a wave
        sound, whereas the sounds stored on a digital
        synth have been sampled and then ...
        </p>
    </body>
</html>
```

Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then turned into numbers.

Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then ...

display property

- ❏ allows you to turn an inline element into a block-level element or vice versa
- ❏ inline
  - ▪ This causes a block-level element to act like an inline element.
- ❏ block
  - ▪ This causes an inline element to act like a block-level element.
- ❏ inline-block
  - ▪ This causes a block-level element to flow like an inline element, while **retaining other features of a block-level element**
- ❏ none
  - ▪ This hides an element from the page.
    - ÷ the element acts as though it is not on the page at all

```
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            li {
                display: inline;
                margin-right: 10px;}
            li.coming-soon {
                display: none;}
        </style>
    </head>
    <body>
        <ul>
            <li>Home</li>
            <li>Products</li>
            <li class="coming-soon">Services</li>
            <li>About</li>
            <li>Contact</li>
        </ul>
    </body>
</html>
```

- Home
- Products
- Services
- About
- Contact

Home   Products   About   Contact

visibility

❑ Allows you to hide boxes from users but It leaves a space where the element would have been.

❑ This property can take two values:

- **hidden**
  - ÷ This hides the element.
- **visible**
  - ÷ This shows the element.

❑ If the visibility of an element is set to hidden, a blank space will appear in its place.

❑ If you do not want a blank space to appear, then you should use the display property with a value of none instead

```html
<!DOCTYPE html>
<html>
    <head>
        <title>First Line</title>
        <style type="text/css">
            li {
                display: inline;
                margin-right: 10px;}
            li.coming-soon {
                visibility: hidden;}
        </style>
    </head>
    <body>
        <ul>
            <li>Home</li>
            <li>Products</li>
            <li class="coming-soon">Services</li>
        <li>About</li>
        <li>Contact</li>
        </ul>
    </body>
</html>
```
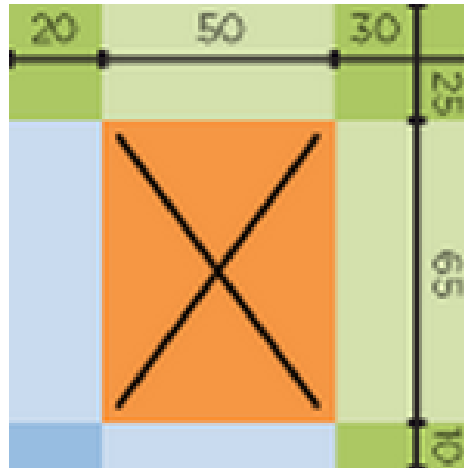
Home   Products   About   Contact

CSS3-Border Images

- The **border-image** property applies an image to the border of any box. It takes a background image and slices it into nine pieces.
- The corner slices are always placed in the four corners of the box, but we have a choice whether the sides are stretched or repeated.
- This property requires three pieces of information:
  - 1: The URL of the image
  - 2: Where to slice the image
  - 3: What to do with the straight edges; the possible values are:
    - ÷ stretch stretches the image
    - ÷ repeat repeats the image
    - ÷ round like repeat but if the tiles do not fit exactly, scales the tile image so they will
- The box must also have a border width for the image to be shown.
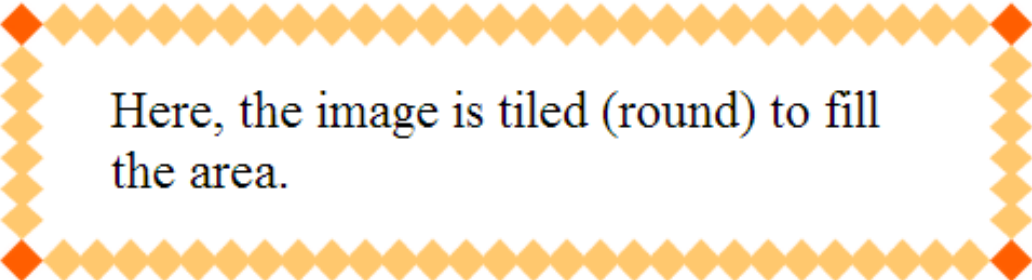
top, right, bottom, left

CSS

```
border-image: url(my-image.gif) 25% 30% 10% 20% repeat;
border-image: url(my-image.gif) 25 30 10 20 repeat;
```
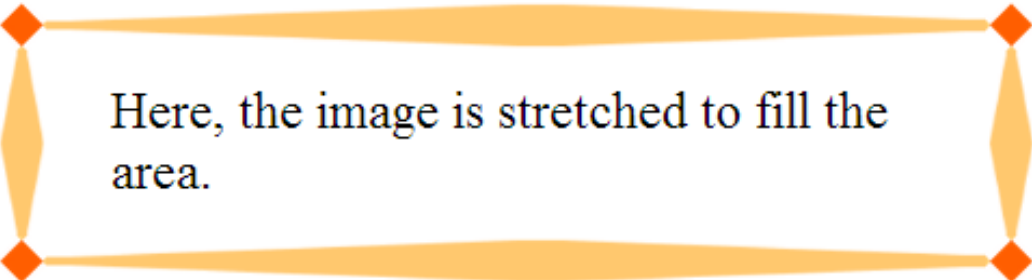
```css
#round
{
-webkit-border-image:url(border.png) 30 30 round; /* Safari 5 */
-o-border-image:url(border.png) 30 30 round; /* Opera */
border-image:url(border.png) 30 30 round;
}

#stretch
{
-webkit-border-image:url(border.png) 30 30 stretch; /* Safari 5 */
-o-border-image:url(border.png) 30 30 stretch; /* Opera */
border-image:url(border.png) 30 30 stretch;
}
#repeat
{
-webkit-border-image:url(border.png) 30 30 repeat; /* Safari 5 */
-o-border-image:url(border.png) 30 30 repeat; /* Opera */
border-image:url(border.png) 30 30 repeat;
}
```
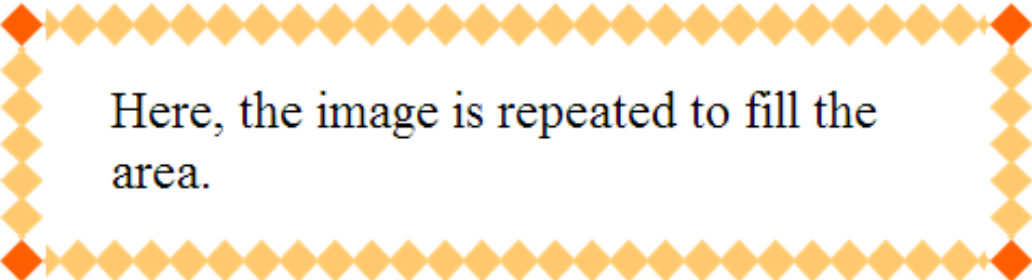
Here, the image is tiled (round) to fill the area.

Here, the image is stretched to fill the area.

Here, the image is repeated to fill the area.

CSS3: Box shadows

❑ The `box-shadow` property allows you to add a drop shadow around a box.

❑ It must use at least the first of these two values as well as a color:

- `Horizontal offset`
  - ÷ Negative values position the shadow to the left of the box.
- `Vertical offset`
  - ÷ Negative values position the shadow to the top of the box.
- `Blur distance`
  - ÷ If omitted, the shadow is a solid line like a border.
- `Spread of shadow`
  - ÷ If used, a positive value will cause the shadow to expand in all directions, and a negative value will make it contract.

❑ The `inset` keyword can also be used before these values to create an inner-shadow.

Chrome and Firefox

❑ Chrome andf Firefox were quick to support this property using the `-moz-box-shadow` and `-webkit-box-shadow` properties. These are not in the CSS specification but using them can help this style to work in these browsers.

CSS3: Rounded Corners

❑ **border-radius**

- ability to create rounded corners on any box, using a property called border-radius.
- The value indicates the size of the radius in pixels.
- You can specify individual values for each corner of a box using:
  - ÷ **border-top-right-radius**
  - ÷ **border-bottom-right-radius**
  - ÷ **border-bottom-left-radius**
  - ÷ **border-top-left-radius**

❑ You can also use a shorthand of these four properties (in clockwise order: top, right, bottom, left).

- **border-radius: 5px, 10px, 5px, 10px;**

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            p {
                border: 5px solid #cccccc;
                padding: 20px;
                width: 275px;
                text-align: center;
                border-radius: 10px;
                -moz-border-radius: 10px;
                -webkit-border-radius: 10px;}
        </style>
    </head>
    <body>
        <p>Pet Sounds featured a number of unconventional
            instruments such as bicycle bells, buzzing
            organs, harpsichords, flutes, Electro-Theremin,
            dog whistles, trains, Hawaiian-sounding string
            instruments, Coca-Cola cans and barking dogs.</p>
    </body>
</html>
```

Pet Sounds featured a number of unconventional instruments such as bicycle bells, buzzing organs, harpsichords, flutes, Electro-Theremin, dog whistles, trains, Hawaiian-sounding string instruments, Coca-Cola cans and barking dogs.

CSS3: Elliptical Shapes

❑ **border-radius**

- To create more complex shapes, you can specify different distances for the horizontal and the vertical parts of the rounded corners.

- For example, this will create a radius that is wider than it is tall: `border-radius: 80px 50px;`

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            p {
                border: 5px solid #cccccc;
                padding: 100px;
                width: 100px;
                text-align: center;
            }
            p.one {
                border-top-left-radius: 80px 50px;
                -moz-border-radius-top-left: 80px 50px;
                -webkit-border-radius-top-left: 80px 50px;}
            p.two {
                border-radius: 1em 4em 1em 4em / 2em 1em 2em 1em;
                -moz-border-radius: 1em 4em 1em 4em / 2em 1em 2em 1em;
                -webkit-border-radius: 1em 4em 1em 4em / 2em 1em 2em 1em;}
            p.three {

                border-radius: 100px;
                -moz-border-radius: 100px;
                -webkit-border-radius: 100px;}
        </style>
    </head>
    <body>
        <p class="one"></p>
        <p class="two"></p>
        <p class="three"></p>
    </body>
</html>
```

Lets get our hands dirty

Lists

list-style-type

- allows you to control the shape or style of a bullet point
- It can be used on rules that apply to the **<ol>**, **<ul>**, and **<li>** elements.
  - Unordered Lists
    - **none**
    - **disc** ●
    - **circle** ○
    - **square** ■
  - Ordered Lists
    - **decimal** (1 2 3)
    - **decimal-leading-zero** (01 02 03)
    - **lower-alpha** (a b c)
    - **upper-alpha** (A B C)
    - **lower-roman** (i. ii. iii.)
    - **upper-roman** (I II III)

```html
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            ul {
                list-style-type: square;}
        </style>
    </head>
    <body>
        <h1>The Complete Poems</h1>
        <h2>Emily Dickinson</h2>
        <ul>
            <li>Life</li>
            <li>Nature</li>
            <li>Love</li>
            <li>Time and Eternity</li>
            <li>The Single Hound</li>
        </ul>
    </body>
</html>
```

The Complete Poems

Emily Dickinson

- Life
- Nature
- Love
- Time and Eternity
- The Single Hound

list-style-image

❑ specify an image to act as a bullet point using the **list-style-image** property.

❑ This property can be used on rules that apply to the **<ul>** and **<li>** elements.

 ▪ The value starts with the letters url and is followed by a pair of parentheses. Inside the parentheses, the path to the image is given inside double quotes.

```
ul {
list-style-image: url("images/star.png");}
```

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            ul {
                list-style-image: url("images/star.png");}
            li {
                margin: 10px 0px 0px 0px;}
        </style>
    </head>
    <body>
        <h1>The Complete Poems</h1>
        <h2>Emily Dickinson</h2>
        <ul>
            <li>Life</li>
            <li>Nature</li>
            <li>Love</li>
            <li>Time and Eternity</li>
            <li>The Single Hound</li>
        </ul>
    </body>
</html>
```

The Complete Poems

Emily Dickinson

- ★ Life
- ★ Nature
- ★ Love
- ★ Time and Eternity
- ★ The Single Hound

list-style-position

- Indicates whether the marker should appear on the inside or the outside of the box containing the main points.

  - **outside**
    - ÷ The marker sits to the left of the block of text.
  - **inside**
    - ÷ The marker sits inside the box of text (which is indented)

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            ul {
                width: 150px;}
            li {
                margin: 10px;}
            ul.illuminations {
                list-style-position: outside;
                border: 1px solid #000000;}
            ul.season {
                list-style-position: inside;
                border: 1px solid #000000;}
        </style>
    </head>
    <body>
        <ul class="illuminations">
        <li>That idol, black eyes and ...</li>
        <li>Gracious son of Pan! ...</li>
        <li>When the world is reduced ...</li>
        </ul>
        <ul class="season">
            <li>Once, if my memory serves ...</li>
            <li>Hadn't I once a youth ...</li>
            <li>Autumn already! ...</li>
        </ul>
    </body>
</html>
```

- That idol, black eyes and ...

- Gracious son of Pan! ...

- When the world is reduced ...

- Once, if my memory serves ...

- Hadn't I once a youth ...

- Autumn already!
  ...

list-style (shorthand)

❑ allows you to express the markers' style, image and position properties in any order.

```
ul {
    list-style: inside circle;
    width: 300px;}
li {
    margin: 10px 0px 0px 0px;}
```

Tables

Properties for tables

- ❑ **width** to set the width of the table
- ❑ **padding** to set the space between the border of each table cell and its content
- ❑ **text-transform** to convert the content of the table headers to uppercase
- ❑ **letter-spacing**, **font-size** to add additional styling to the content of the table headers
- ❑ **border-top**, **border-bottom** to set borders above and below the table headers
- ❑ **text-align** to align the writing to the left of some table cells and to the right of the others
- ❑ **background-color** to change the background color of the alternating table rows
- ❑ **:hover** to highlight a table row when a user's mouse goes over it

Tips and Guidelines

- ❑ **Give cells padding**
  - ▪ If the text in a table cell either touches a border (or another cell), it becomes much harder to read. Adding padding helps to improve readability.

- ❑ **Distinguish headings**
  - ▪ Putting all table headings in bold makes them easier to read. You can also add a background color or an underline to clearly distinguish them from content.

- ❑ **Shade alternate rows**
  - ▪ Shading every other row can help users follow along the lines. Use a subtle distinction from the normal color of the rows to keep the table looking clean.

- ❑ **Align numerals**
  - ▪ You can use the text-align property to align the content of any column that contains numbers to the right, so that large numbers are clearly distinguished from smaller ones.

empty-cells

- Specifies whether or not their borders should be shown.

- It can take one of three values:

  - **show**
    - ÷ This shows the borders of any empty cells.

  - **hide**
    - ÷ This hides the borders of any empty cells.

  - **inherit**
    - ÷ If you have one table nested inside another, the **inherit** value instructs the table cells to obey the rules of the containing table.

border-spacing, border-collapse

- **border-spacing** property allows you to control the distance between adjacent cells

- **Border-collapse:**
    - **collapse**: Borders are collapsed into a single border where possible.
        - **border-spacing** will be ignored and cells pushed together, and **empty-cells** properties will be ignored
    - **separate**: Borders are detached from each other
        - **border-spacing** and **empty-cells** will be obeyed

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            td {
                background-color: #0088dd;
                padding: 15px;
                border: 2px solid #000000;}
            table.one {
                border-spacing: 5px 15px;}
            table.two {
                border-collapse: collapse;}
            table.three {
                border-collapse: separate;}
        </style>
    </head>
    <body>
        <table class="one">
        <tr>
            <td>1</td>
            <td>2</td>
        </tr>
        <tr>
            <td>3</td>
            <td>4</td>
        </tr>
    </table>
        <table class="two">
        <tr>
            <td>1</td>
            <td>2</td>
        </tr>
        <tr>
            <td>3</td>
            <td>4</td>
        </tr>
```

Lets get our hands dirty

Forms

What to style?

❑ It is most common to style:

- Text inputs and text areas
- Submit buttons
- Labels on forms, to get the form controls to align nicely

Styling Text Inputs

- ❑ **font-size** sets the size of the text entered by the user
- ❑ **color** sets the text color
- ❑ **background-color** sets the background color of the input.
- ❑ **border** adds a border around the edge of the input box, and
- ❑ **border-radius** can be used to create rounded corners (for browsers that support this property).
- ❑ **:focus** pseudo-class is used to change the background color of the text input when it is being used
- ❑ **:hover** psuedo-class applies the same styles when the user hovers over them
- ❑ **background-image** adds a background image to the box

Styling Submit Buttons

❑ **color** is used to change the color of the text on the button

❑ **text-shadow** can give a 3D look to the text in browsers that support this property

❑ **border-bottom** has been used to make the bottom border of the button slightly thicker, which gives it a more 3D feel

❑ **background-color** can make the submit button stand out from other items around it

❑ **:hover** pseudo-class has been used to change the appearance of the button when the user hovers over it.

Styling Fieldsets & Legends

- ❑ **width** is used to control the width of the fieldset
- ❑ **color** is used to control the color of text
- ❑ **background-color** is used to change the color behind these items
- ❑ **border** is used to control the appearance of the border around the fieldset and/or legend
- ❑ **border-radius** is used to soften the edges of these elements in browsers that support this property
- ❑ **padding** can be used to add space inside these elements

cursor

- **auto**
- **crosshair**
- **default**
- **pointer**
- **move**
- **text**
- **wait**
- **help**
- **url("cursor.gif");**
  - You should only use these values to add helpful information for users in places they would expect to see that cursor.

Images

Sizes of images in css

- width
- height

```
img.large {
  width: 500px;
  height: 500px;}
img.medium {
  width: 250px;
  height: 250px;}
img.small {
  width: 100px;
  height: 100px;}
```

Aligning Images

❑**Float**

- 1: The **float** property is added to the class that was created to represent the size of the image
- 2: New classes are created with names such as **align-left** or **align-right** to align the images to the left or right of the page.

```css
img.align-left {
  float: left;
  margin-right: 10px;}
img.align-right {
  float: right;
  margin-left: 10px;}
img.medium {
  width: 250px;
  height: 250px;}
```


Magnolia is a large genus that contains over 200 flowering plant species. It is named after French botanist Pierre Magnol, and having evolved before bees appeared the flowers were developed to encourage pollination by beetles.

Some magnolias, such as *Magnolia stellata* and *Magnolia soulangeana*, flower quite early in the spring before the leaves open. Others flower in late spring or early summer, such as *Magnolia grandiflora*.

```html
<p><img src="images/magnolia-medium.jpg"
    alt="Magnolia" class="align-left medium" />
    <b><i>Magnolia</i></b> is a large genus that
    contains over 200 flowering plant species...</p>
<p><img src="images/magnolia-medium.jpg"
    alt="Magnolia" class="align-right medium" />
    Some magnolias, such as <i>Magnolia stellata</i>
    and <i>Magnolia soulangeana</i>, flower quite
    early in the spring before the leaves open...</p>
```

Centering images

❑ By default, images are inline elements.

❑ In order to center an image, it should be turned into a blocklevel element using the **display** property with a value of **block**.

❑ Two ways to horizontally center an image:

  ▪ 1: On the containing element, you can use the **text-align** property with a value of **center**.

  ▪ 2: On the image itself, you can use the use the **margin** property and set the values of the left and right margins to **auto**.

background-image

- allows you to place an image behind any HTML element.

- This could be the entire page or just part of the page.

- By default, a background image will repeat to fill the entire box.

  - **Note:** Background images are often the last thing on the page to load (which can make a website seem slow to load). As with any images you use online, if the size of the file is large it will take longer to download.

```
body {
background-image: url("images/pattern.gif");}
p {
background-image: url("images/pattern.gif");}
```

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred cultivars have been bred and marketed commercially. The timber is hard and heavy, and

Planting Guide

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background-repeat

❑The `background-repeat` property can have four values:

- ▪ `repeat`: The background image is repeated both horizontally and vertically
- ▪ `repeat-x` : The image is repeated horizontally only
- ▪ `repeat-y`: The image is repeated vertically only
- ▪ `no-repeat`: The image is only shown once

background-attachment

- The property specifies whether a background image should stay in one position or move as the user scrolls up and down the page. It can have one of two values:

  - `fixed`: The background image stays in the same position on the page

  - `scroll`: The background image moves up and down as the user scrolls up and down the page

background-position

❑ When an image is not being repeated, you can use the background-position property to specify where in the browser window the background image should be placed.

❑ This property usually has a pair of values. The first represents the horizontal position and the second represents the vertical.

background-position

left top

left center

left bottom

center top

center center

center bottom

right top

right center

right bottom

If you only specify one value, the second value will default to center.

```
body {
    background-image: url("images/tulip.gif")
    background-repeat: no-repeat;
    background-position: 50% 50%;}
```

background

- ❏ The **background** property acts like a shorthand for all of the other background properties and the **background-color** property.

- ❏ The properties must be specified in the following order, but you can miss any value if you do not want to specify it.

  1. **background-color**
  2. **background-image**
  3. **background-repeat**
  4. **background-attachment**
  5. **background-position**

Image Rollovers & Sprites

❑ Using CSS, it is possible to create a link or button that changes to a second style when a user moves their mouse over it and a third style when they click on it.

❑ This is achieved by setting a background image for the link or button that has three different styles of the same button (but only allows enough space to show one of them at a time).

❑ When the user moves their mouse over the element, or clicks on it, the position of the background image is moved to show the relevant image.

❑ When a single image is used for several different parts of an interface, it is known as a **sprite**.

❑ The advantage of using sprites is that the web browser only needs to request one image rather than many images, which can make the web page load faster.

```html
<a class="button" id="add-to-basket">
    Add to basket</a>
<a class="button" id="framing-options">
    Framing options</a>
```

```css
a.button {
    height: 36px;
    background-image: url("images/button-sprite.jpg");
    text-indent: -9999px;
    display: inline-block;}
a#add-to-basket {
    width: 174px;
    background-position: 0px 0px;}
a#framing-options {
    width: 210px;
    background-position: -175px 0px;}
a#add-to-basket:hover {
    background-position: 0px -40px;}
a#framing-options:hover {
    background-position: -175px -40px;}
a#add-to-basket:active {
    background-position: 0px -80px;}
a#framing-options:active {
    background-position: -175px -80px;}
```

COMPLETE IMAGE SPRITE

ADD TO BASKET ⊕ FRAMING OPTIONS

ADD TO BASKET ⊕ FRAMING OPTIONS

ADD TO BASKET ⊕ FRAMING OPTIONS

RESULT

ADD TO BASKET ⊕ FRAMING OPTIONS

CSS3: Gradients

❑ **background-image**

- ability to specify a gradient for the background of a box

- Not supported by all browsers
    - ÷ Specify a background image for the box first (which would represent the gradient) and then provide the CSS alternatives for browsers that support gradients.

```
#gradient {
  /* fallback color */
  background-color: #66cccc;
  /* fallback image */
  background-image: url(images/fallback-image.png);
  /* Firefox 3.6+ */
  background-image: -moz-linear-gradient(#336666,
    #66cccc);
  /* Safari 4+, Chrome 1+ */
  background-image: -webkit-gradient(linear, 0% 0%,
    0% 100%, from(#66cccc), to(#336666));
  /* Safari 5.1+, Chrome 10+ */
  background-image: -webkit-linear-gradient(#336666,
    #66cccc);
  /* Opera 11.10+ */
  background-image: -o-linear-gradient(#336666,
    #66cccc);
  height: 150px;
  width: 300px;}
```

Lets get our hands dirty

Layout

Controlling the *position* of elements

Block level elements

<address>
Contact information.

<article> `HTML5`
Article content.

<aside> `HTML5`
Aside content.

<audio> `HTML5`
Audio player.

<blockquote>
Long ("block") quotation.

<canvas> `HTML5`
Drawing canvas.

<dd>
Definition description.

<div>
Document division.

<dl>
Definition list.

<fieldset>
Field set label.

<figcaption> `HTML5`
Figure caption.

<figure> `HTML5`
Groups media content with a caption (see <figcaption>).

<footer> `HTML5`
Section or page footer.

<form>
Input form.

<h1>, <h2>, <h3>, <h4>, <h5>, <h6>
Heading levels 1-6.

<header> `HTML5`
Section or page header.

<hgroup> `HTML5`
Groups header information.

<hr>
Horizontal rule (dividing line).

<noscript>
Content to use if scripting is not supported or turned off.

<ol>
Ordered list.

<output> `HTML5`
Form output.

<p>
Paragraph.

<pre>
Preformatted text.

<section> `HTML5`
Section of a web page.

<table>
Table.

<tfoot>
Table footer.

<ul>
Unordered list.

<video> `HTML5`
Video player.

Inline Elements

- small, cite, em, strong, a, br, img, q, script, span, sub, sup
- button, input, label, select, textarea

Containing Elements

❑ If one block-level element sits inside another block-level element then the outer box is known as the **containing** or **parent** element.

❑ It is common to group a number of elements together inside a `<div>` (or other block-level) element.

- For example, you might group together all of the elements that form the header of a site (such as the logo and the main navigation).

- The `<div>` element that contains this group of elements is then referred to as the **containing** element.

Lorem Ipsum

Lorem • Ipsum • Dolor • Consectetur

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Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

Controlling the Position of Elements

❑ CSS has the following positioning schemes that allow you to control the layout of a page:

- normal flow
- relative positioning
- absolute positioning

❑ You specify the positioning scheme using the position property in CSS.

❑ You can also float elements using the float property.

Normal flow

❑ Every block-level element appears on a new line, causing each item to appear lower down the page than the previous one.

▪ Even if you specify the width of the boxes and there is space for two elements to sit side-byside, they will not appear next to each other.

▪ This is the default behavior (unless you tell the browser to do something else).

Lorem Ipsum

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Duis aute irure dolor in reprehenderit in voluptate velit.

Normal Flow

❑ position: static

- Since this is the default way in which browsers treat HTML elements, you do not need a CSS property to indicate that elements should appear in normal flow

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            body {
                width: 750px;
                font-family: Arial, Verdana, sans-serif;
                color: #665544;}
            h1 {
                background-color: #efefef;
                padding: 10px;}
            p {
                width: 450px;}
        </style>
    </head>
    <body>
        <h1>The Evolution of the Bicycle</h1>
        <p>To sure calm much most long me mean. Able rent long in do we.
            Uncommonly no it announcing melancholy an in. Mirth learn it he
            given. Secure shy favour length all twenty denote. He felicity no
            an at packages answered opinions juvenile.
        </p>
        <p>Ferrars all spirits his imagine effects amongst neither. It bachelor
            cheerful of mistaken. Tore has sons put upon wife use bred seen.
            Its dissimilar invitation ten has discretion unreserved. Had you
            him humoured jointure ask expenses learning. Blush on in jokes
            sense do do. Brother hundred he assured reached on up no. On am
            nearer missed lovers. To it mother extent temper figure better.
        </p>

    </body>
</html>
```

Relative Positioning

❏ This moves an element from the position it would be in normal flow, shifting it to the top, right, bottom, or left of where it would have been placed.

▪ This does not affect the position of surrounding elements; they stay in the position they would be in in normal flow.

Lorem Ipsum

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea. Duis aute irure dolor in reprehenderit in voluptate velit.

Relative Positioning

□ position-relative

- You can indicate that an element should be relatively positioned using the **position** property with a value of **relative**.

- You then use the offset properties (**top** or **bottom** and **left** or **right**) to indicate how far to move the element from where it would have been in normal flow.

  ÷ The values of the box offset properties are usually given in pixels, percentages or ems.

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            body {
                width: 750px;
                font-family: Arial, Verdana, sans-serif;
                color: #665544;}
            h1 {
                background-color: #efefef;
                padding: 10px;}
            p {
                width: 450px;}
            p.example {
                position: relative;
                top: 10px;
                left: 100px;}
        </style>
    </head>
    <body>
        <h1>The Evolution of the Bicycle</h1>
        <p>
            To sure calm much most long me mean. Able rent long in do we.
            Uncommonly no it announcing melancholy an in. Mirth learn it he
            given. Secure shy favour length all twenty denote. He felicity
            no at packages answered opinions juvenile.
        </p>
        <p class="example">
        Ferrars all spirits his imagine effects amongst neither. It bachelor
        cheerful of mistaken. Tore has sons put upon wife use bred seen.
        Its dissimilar invitation ten has discretion unreserved. Had you
        him humoured jointure ask expenses learning. Blush on in jokes
        sense do do. Brother hundred he assured reached on up no. On am
        nearer missed lovers. To it mother extent temper figure better.
        </p>
```
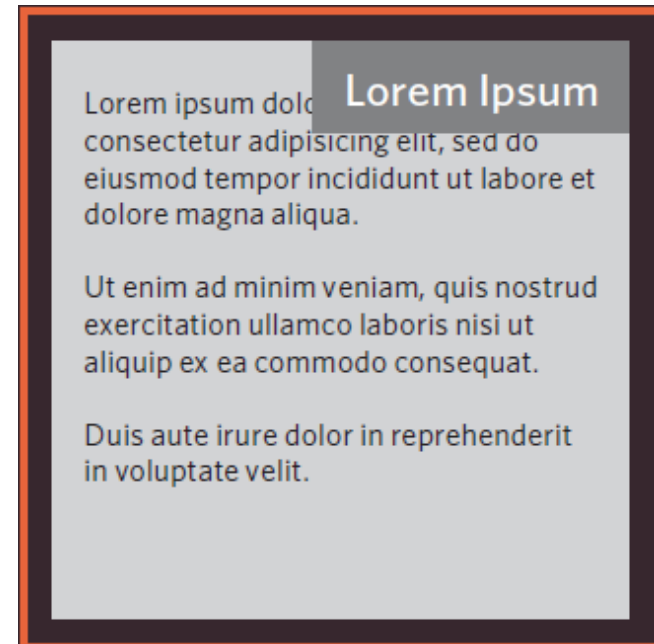
The Evolution of the Bicycle

To sure calm much most long me mean. Able rent long in do we. Uncommonly no it announcing melancholy an in. Mirth learn it he given. Secure shy favour length all twenty denote. He felicity no at packages answered opinions juvenile.

Ferrars all spirits his imagine effects amongst neither. It bachelor cheerful of mistaken. Tore has sons put upon wife use bred seen. Its dissimilar invitation ten has discretion unreserved. Had you him humoured jointure ask expenses learning. Blush on in jokes sense do do. Brother hundred he assured reached on up no. On am nearer missed lovers. To it mother extent temper figure better.

Absolute Positioning

❑ This positions the element in relation to its containing element.

❑ It is taken out of normal flow, meaning that it does not affect the position of any surrounding elements (as they simply ignore the space it would have taken up).

❑ Absolutely positioned elements move as users scroll up and down the page.

Lorem ipsum dolo... **Lorem Ipsum** consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Duis aute irure dolor in reprehenderit in voluptate velit.

Absolute Positioning

❏ **position:absolute**

- The box offset properties (`top` or `bottom` and `left` or `right`) specify where the element should appear in relation to its containing element.

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            h1 {
                background-color: #efefef;
                position: absolute;
                top: 0px;
                left: 500px;
                width: 250px;}
            body {
                width: 750px;
                font-family: Arial, Verdana, sans-serif;
                color: #665544;}
            p {
                width: 450px;}
        </style>
    </head>
    <body>
        <h1>The Evolution of the Bicycle</h1>
        <p>
            To sure calm much most long me mean. Able rent long in do we.
            Uncommonly no it announcing melancholy an in. Mirth learn it he
            given. Secure shy favour length all twenty denote. He felicity
            no at packages answered opinions juvenile.
        </p>
    </body>
</html>
```
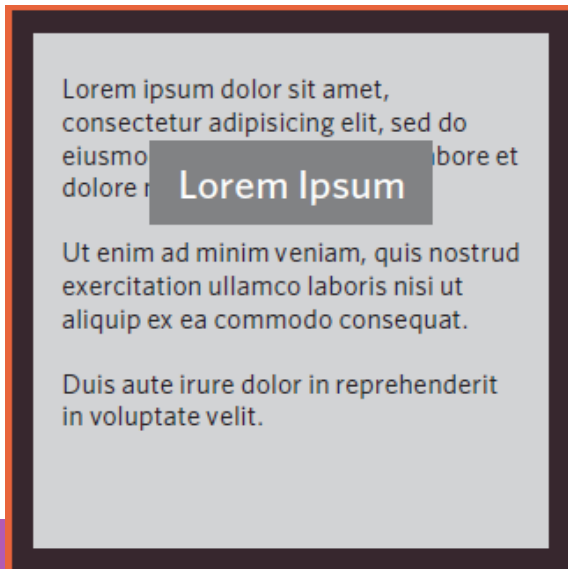
To sure calm much most long me mean. Able rent long in do we. Uncommonly no it announcing melancholy an in. Mirth learn it he given. Secure shy favour length all twenty denote. He felicity no at packages answered opinions juvenile.

The Evolution of the Bicycle

Fixed Positioning

❑ This is a form of absolute positioning that positions the element **in relation to the browser window**, as opposed to the containing element.

- Elements with fixed positioning do not affect the position of surrounding elements and they do not move when the user scrolls up or down the page.

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmobore et dolore Lorem Ipsum

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Duis aute irure dolor in reprehenderit in voluptate velit.

The heading has been placed in the center of the page and 25% from the top of the screen. (The rest appears in normal flow.)

Fixed Positioning

❏ **position:fixed**

❏ It positions the element in relation to the browser window.

- Therefore, when a user scrolls down the page, it stays in the exact same place.

Overlapping Elements

When you move any element from normal flow, boxes can overlap.

The `z-index` property allows you to control which box appears on top.

z-index

- When you use relative, fixed, or absolute positioning, boxes can overlap.

- If boxes do overlap, the elements that appear later in the HTML code sit on top of those that are earlier in the page.

- If you want to control which element sits on top, you can use the z-index property.

- Its value is a number, and the higher the number the closer that element is to the front.

  - For example, an element with a z-index of 10 will appear over the top of one with a z-index of 5.

Floating Elements

❑ Floating an element allows you to take that element out of normal flow and position it to the far left or right of a containing box.

❑ The floated element becomes a block-level element around which other content can flow.

Lorem Ipsum   Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Duis aute irure dolor in reprehenderit in voluptate velit.

Floating Elements

❏ float

- The **float** property allows you to take an element in normal flow and place it as far to the left or right of the containing element as possible.
  - ÷ Note: When you use the **float** property, you should also use the **width** property to indicate how wide the floated element should be. If you do not, results can be inconsistent but the box is likely to take up the full width of the containing element (just like it would in normal flow).

```html
<!DOCTYPE html>
<html>
    <head>
        <title></title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <style>
            h1 {
                background-color: #efefef;
            }
            body {
                width: 750px;
                font-family: Arial, Verdana, sans-serif;
                color: #665544;}

            blockquote {
                float: right;
                width: 275px;
                font-size: 130%;
                font-style: italic;
                font-family: Georgia, Times, serif;
                margin: 0px 0px 10px 10px;
                padding: 10px;
                border-top: 1px solid #665544;
                border-bottom: 1px solid #665544;}
        </style>
    </head>
    <body>
        <h1>The Evolution of the Bicycle</h1>
        <blockquote>"Life is like riding a bicycle.
            To keep your balance you must keep moving." -
            Albert Einstein</blockquote>
        <p>
            To sure calm much most long me mean. Able rent long in do we.
            Uncommonly no it announcing melancholy an in. Mirth learn it he
            given. Secure shy favour length all twenty denote. He felicity
            no at packages answered opinions juvenile.To sure calm much most
```

The Evolution of the Bicycle

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"Life is like riding a bicycle. To keep your balance you must keep moving." - Albert Einstein

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Using Float to Place Elements Side-by-Side

❑ A lot of layouts place boxes next to each other. The **float** property is commonly used to achieve this.

❑ When elements are floated, the height of the boxes can affect where the following elements sit.

```
body {
    width: 750px;
    font-family: Arial, Verdana, sans-serif;
    color: #665544;}
p {
    width: 230px;
    float: left;
    margin: 5px;
    padding: 5px;
    background-color: #efefef;}
```

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Multi-column layouts with floats

❑ Many web pages use multiple columns in their design. This can be done by using a <div> element to represent each column.

❑ The following three CSS properties are used to position the columns next to each other:

- ▪ **width**: This sets the width of the columns
- ▪ **float**: This positions the columns next to each other
- ▪ **margin**: This creates a gap between the columns

```
<style>
    .column1of2 {
        float: left;
        width: 620px;
        margin: 10px;}
    .column2of2 {
        float: left;
        width: 300px;
        margin: 10px;
    }
    </style>
</head>
<body>
    <h1>The Evolution of the Bicycle</h1>
    <div class="column1of2">
        <h2>Hello you all!</h2>
    <p>"Life is like riding a bicycle.
        To keep your balance you must keep moving." –
        Albert Einstein</p>
    <p>

        To sure calm much most long me mean. Able rent long in do we.
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        no at packages answered opinions juvenile.To sure calm much most
        long me mean. Able rent long in do we.
    </p>
    <p>

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        given. Secure shy favour length all twenty denote. He felicity
        no at packages answered opinions juvenile.
    </p>
    </div>
    <div class="column2of2">
        <h2>Links</h2>
        <p>To sure calm much most long me mean. Able rent long in do we.
            Uncommonly no it announcing melancholy an in. Mirth learn it
            he given. Secure shy favour length all twenty denote. He
```

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Solving this-clearing floats

- **clear**: allows you to say that no element (within the same containing element) should touch the left or right hand sides of a box. It can take the following values:
  - **left**: The left-hand side of the box should not touch any other elements appearing in the same containing element.
  - **right**: The right-hand side of the box will not touch elements appearing in the same containing element.
  - **both**: Neither the left nor right-hand sides of the box will touch elements appearing in the same containing element.
  - **none**: Elements can touch either side.

```css
body {
  width: 750px;
  font-family: Arial, Verdana, sans-serif;
  color: #665544;}
p {
  width: 230px;
  float: left;
  margin: 5px;
  padding: 5px;
  background-color: #efefef;}
.clear {
  clear: left;}
```

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Layouts

Screen Sizes & Resolutions

❑ The <u>size of a user's screen</u> affects <u>how big they can open their windows</u> and how much of the page they will see.

❑ Resolution refers to the number of dots a screen shows per inch.

- Some devices have a higher resolution than desktop computers and most operating systems allow users to adjust the resolution of their screens

Screen Sizes & Resolutions

❑ Because screen sizes and display resolutions vary so much, web designers often try to create pages of around 960-1000 pixels wide (since most users will be able to see designs this wide on their screens).

❑ Designs still try to let the user know what the site is about within the top 570- 600 pixels, as well as hint at more content below this point.

Fixed Width Layouts

❑ They do not change size as the user increases or decreases the size of their browser window. Measurements tend to be given in pixels.

Advantages

● Pixel values are accurate at controlling size and positioning of elements.
● The designer has far greater control over the appearance and position of items on the page than with liquid layouts.
● The size of an image will always remain the same relative to the rest of the page.

Disadvantages

●You can end up with big gaps around the edge of a page.
●If the user's screen is much higher resolution than designer's screen, the page can look smaller and text harder to read.
●If a user increases font sizes, text might not fit into the allotted spaces.
●The design works best on devices that have a resolution similar to that of desktop or laptop computers.
●The page will often take up more vertical space than a liquid layout with the same content.

Liquid Layouts

❑ It stretches and contracts as the user increases or decreases the size of their browser window.

- Usually with percentages.

Advantages

● Pages expand to fill the entire browser window so there are no spaces around the page on a large screen.
● If the user has a small window, the page can contract to fit it without the user having to scroll to the side.
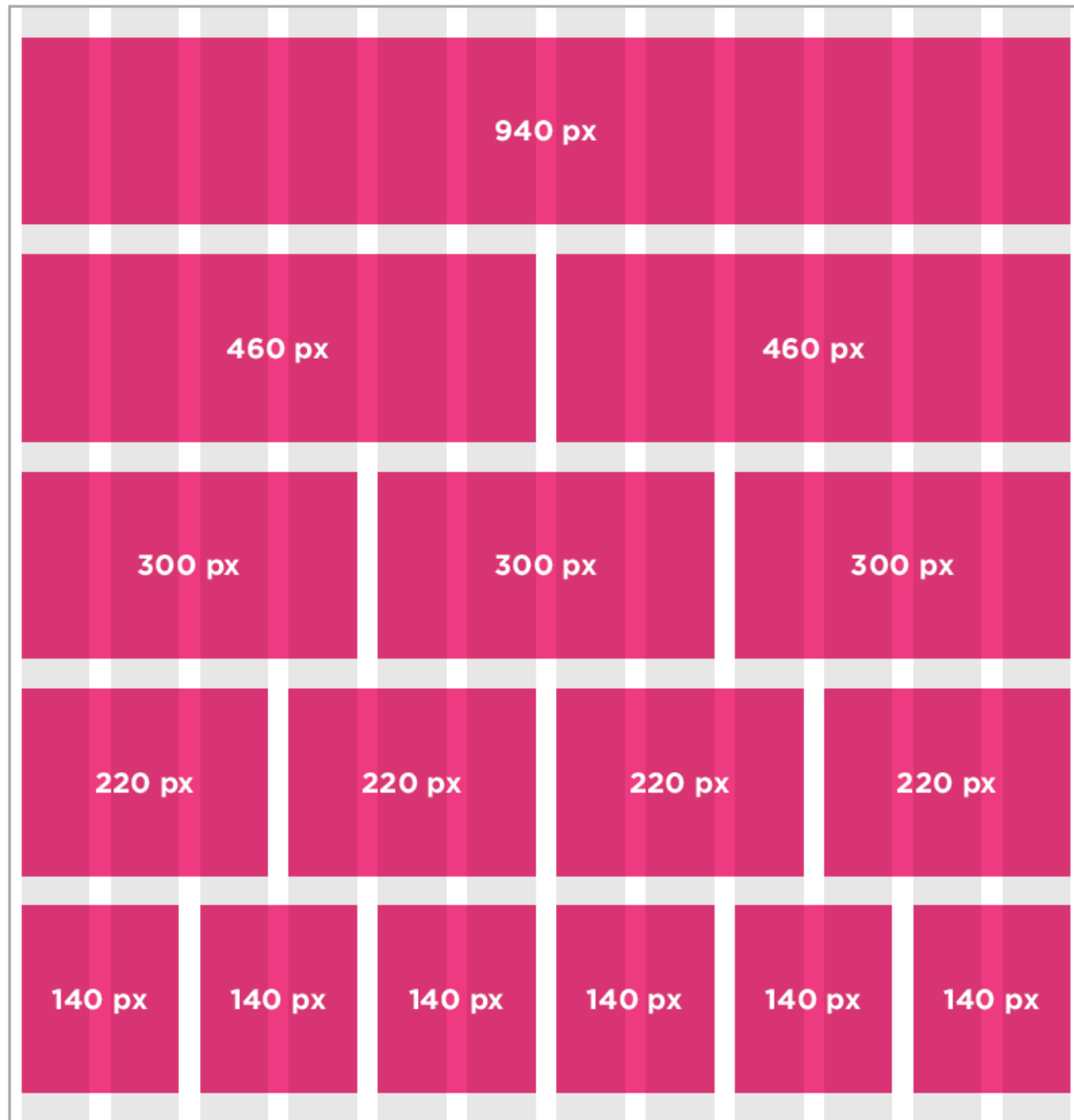● The design is tolerant of users setting font sizes larger than the designer intended (because the page can stretch).
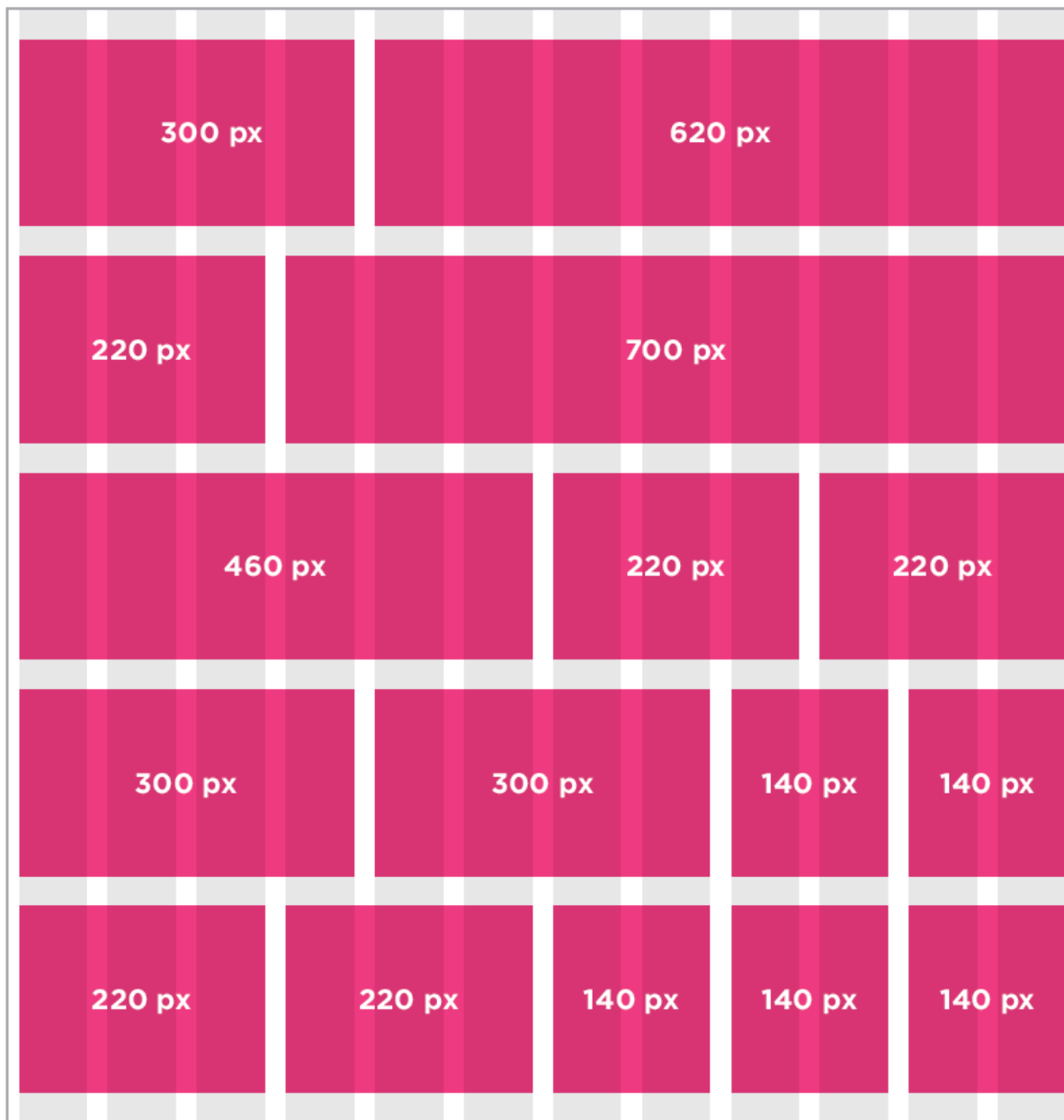
Disadvantages

● If you do not control the width of sections of the page then the design can look very different than you intended (unexpected gaps around certain elements or items squashed together).
● If the user has a wide window, lines of text can become very long, which makes them harder to read.
● If the user has a very narrow window, words may be squashed and you can end up with few words on each line.
● If a fixed width item (such as an image) is in a box that is too small to hold it (because the user has made the window smaller) the image can overflow over the text.

Possible Layouts:
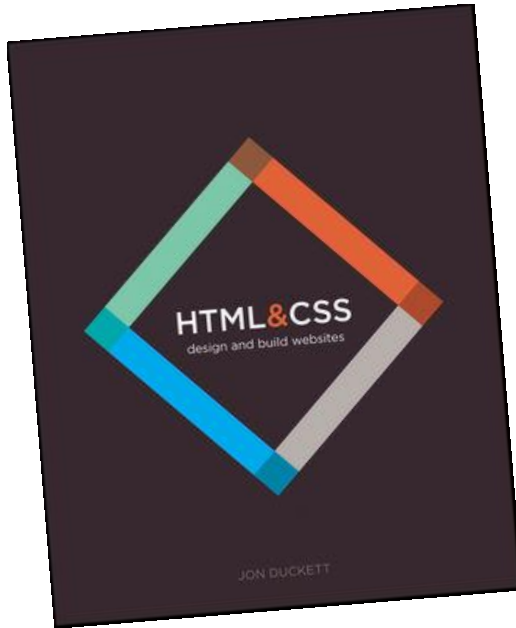
960 Pixel wide
12 Column Grid

Lets get our hands dirty

Questions?

Source

HTML and CSS: Design and Build Websites
Jon Duckett
ISBN: 978-1-118-00818-8

❑ Additional Sources

- W3Schools: http://www.w3schools.com/