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Cascading Style Sheets: Selectors and Properties

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Using these selectors you can select every element you want!!

Lets go to Properties now ☺

Properties: Colors

- CSS properties allow authors to specify the foreground color and background of an element. Backgrounds may be colors or images.
- Background properties allow authors to position a background image, repeat it, and declare whether it should be fixed or scroll along with the document.

– color **(a colour)**

em {color:red}

– background-color **(a colour, or “transparent”)**

h1 {background-color:white}

– background-image **(a URI)**

body {background-image:URL(“stripe.gif”)}

CSS2 Properties: Color Values

CSS colors can either be a named color or follow a numerical RGB specification:

– HTML 4.0 Color names are used in CSS2 as well.

- **Aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, sliver, teal, white and yellow**.

– Colors in numerical RGB specification

em {color: rgb(255,0,0)} /* 0-255 (red) */

em {color: rgb(100%, 0%, 0%) /* 0.0% - 100.0% (red) */

– Colors in hexadecimal RGB specification

em {color: #ff0000} /* #rrggbb (red) */

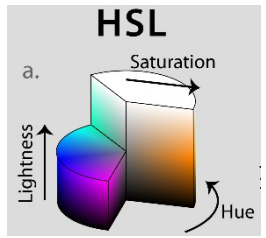
CSS3 Properties: Color Values

- CSS3 has introduced an extra value for RGB colors to indicate opacity. It is known as RGBA

```
background-color: rgba(0, 255, 255, 0.5);
```

- CSS3 also allows you to specify colors as HSL values, with an optional opacity value. It is known as HSLA

```
background-color: hsla(0, 100%, 100%, 0.5);
```



CSS Properties: Fonts

- font family (can specify order of preference)

  body {font-family: “Book Antiqua”, “Times New Roman”, serif}
- font style **(normal, italic or oblique)**

  h1,h2,h3 {font-style:italic}
- font variant **(normal, small-caps)**

  h3 {font-variant: small-caps}
- font weight **(normal, bold, bolder, lighter)**

  strong {font-weight: normal}

CSS Properties: Font Size

- Absolute font sizes used to fix sizes to specific values.
- Five standard units (mm, cm, in, pt, pc):

```
p {font-size: 0.5in}
p {font-size: 1cm}
p {font-size: 5mm}
p {font-size: 12pt}
p {font-size: 3pc}
```

- 1 inch (in) = 72 points (pt) = 6 picas (pc)

CSS Properties: Font Size

- Relative font size can make web page ***scalable-*** adapts automatically to font that reader uses.
- Examples of relative units: ***percentage*** and ***em unit***

  p {font-size: 150%}

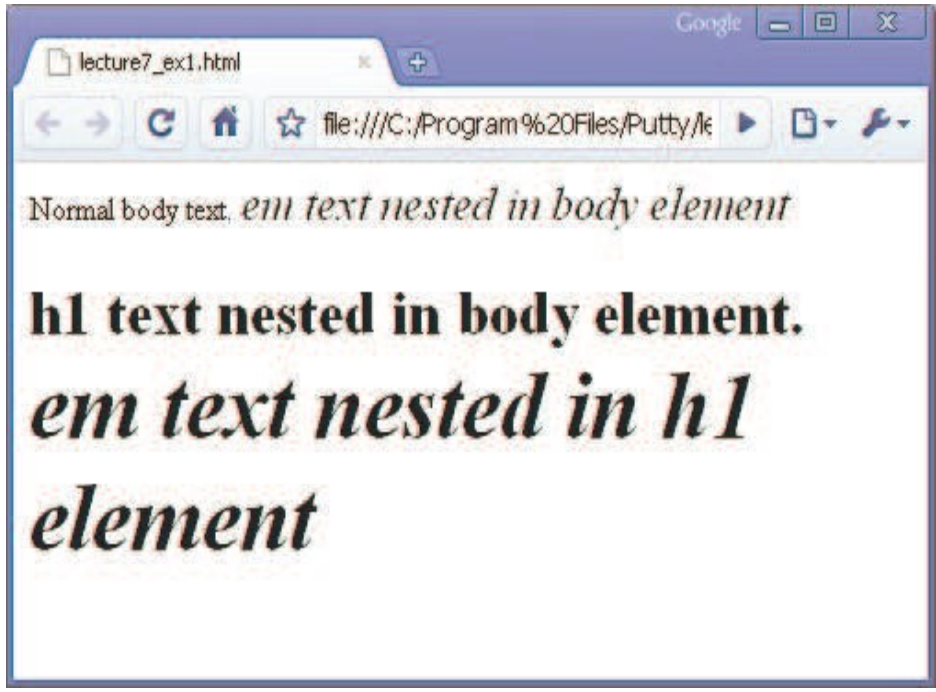
  em {font-size: 1.5em}
- Don’t confuse **em selector** from **em unit**.
- 100% or 1em is equal to font size of the parent element.

CSS Properties: Font Size

```
<html>
        <head>
                <style type="text/css">

                   h1 {font-size: 2em}
                   em {font-size: 1.5em}

                </style>
        </head>
        <body>
                Normal body text.
                <em> em text nested in body element</em>
                <h1> h1 text nested in body element.
                     <em> em text nested in h1 element</em>
                </h1>
        </body>
</html>
```



Normal body text = 100%
First em text = 150%
h1 text = 200%
Second em text = 300%

CSS Properties: Font Size in Pixels

Using Pixels:

- 1 pixel = 1 dot on output device
- Different devices have different resolutions
- 600 dpi printer has more pixels per inch than PC monitor

```
h1 { font-size:20px }
```

Using keywords:

- xx-small, x-small, small, medium, large, x-large, xx-large
- smaller, larger (relative: 1 size smaller or larger)

```
h1 { font-size:xx-small }
h1 { font-size:larger }
```

CSS Properties: Text

The presentation of text can be adjusted by:

- text-indent **(the amount of indentation using absolute length or percentage)**

  p {text-indent:3em}

- text-align **(left, center, right, justify)**

  div.center {text-align:center}

- text-decoration **(none, underline, overline, line-through)**

  a[href] {text-decoration: underline}

- Other properties are also available.

Properties: Boxes

- CSS treats each HTML element as if it lives in its own box.
- We can set several properties that affect appearance of these boxes
  - Control the dimensions of the boxes
  - Create borders around boxes
  - Set margins and padding for boxes
  - Show and hide boxes

Working with the Box Model

- The CSS Box Model is essentially a box that wraps around HTML elements. The **box model** is an element composed of four parts:
  - Margin
  - Border
  - Padding
  - Content

Explanation of the different parts:

- **Margin** - Clears an area around the border. The margin does not have a background color, it is completely transparent
- **Border** - A border that goes around the padding and content. The border is inherited from the color property of the box
- **Padding** - Clears an area around the content. The padding is affected by the background color of the box
- **Content** - The content of the box, where text and images appear

Properties: Boxes

- Every displayable element considered to fall inside a rectangular box.
- Each box has an external margin, a border, internal padding and content (e.g. text or images, etc.)
  - margin **(a length or a percentage)**

    body {margin:2em}
  - padding **(a length or a percentage)**

    td {padding: 5pt}
  - border-width **(thin, medium, thick or a length)**

    colgroup {border-width: 5pt}
  - border-color **(a colour)**

    p {border-color:red}
  - border-style **(solid, double, dashed, …)**

    h2 {border-style:double}
  - Individual box sides can also be targeted:

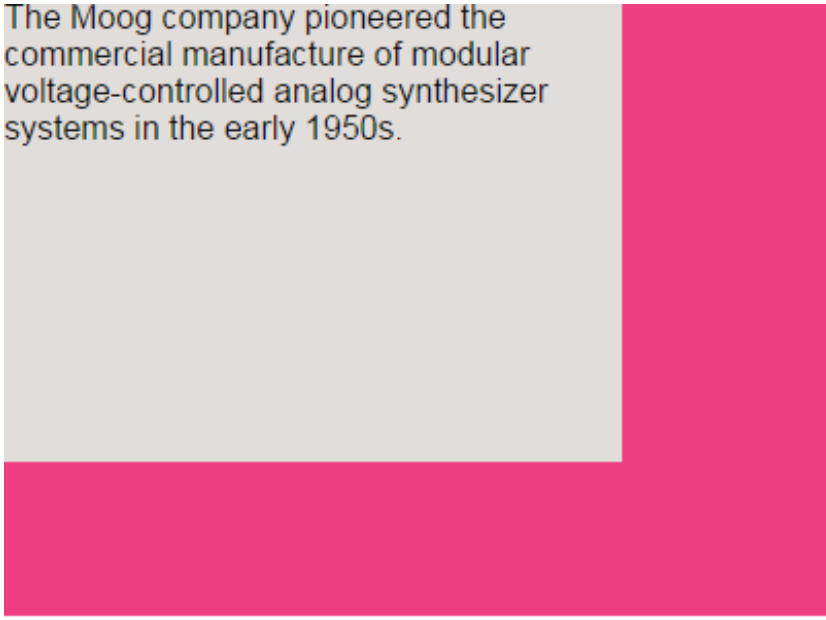
    div {border-style-left:dashed}

Box Dimensions

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

```
div {   width: 400px;
        height: 300px;
        background-color: #ee3e80;}

p {     height: 75%;
        width: 75%;
        background-color: #e1ddda;}
```



min/max-width property

```
<td><img src="images/rhodes.jpg" width="200" height="150"
alt="Fender Rhodes" /></td> <td class="description">The Rhodes
piano is an electro-mechanical piano, invented by Harold Rhodes
during the fifties and later manufactured in a number of models, first
in collaboration with Fender and after 1965 by CBS. It employs a piano-
like keyboard with hammers that hit small metal tines, amplified by
electromagnetic pickups.</td><td>$1400</td></tr>
```

```
td.description {  min-width: 450px;
                  max-width: 650px;
                  text-align: left;
                  padding: 5px;
                  margin: 0px;}
```

Photo	Description	Price
	The Rhodes piano is an electro-mechanical piano, invented by Harold Rhodes during the fifties and later manufactured in a number of models, first in collaboration with Fender and after 1965 by CBS. It employs a piano-like keyboard with hammers that hit small metal tines, amplified by electromagnetic pickups.	$1400
	The Wurlitzer electric piano is an electro-mechanical piano, created by the Rudolph Wurlitzer Company of Mississippi. The Wurlitzer company itself never called the instrument an "electric piano", instead inventing the phrase "Electronic Piano" and using this as a trademark throughout the production of the instrument. It employs a piano-like keyboard with hammers that hit small metal tines, amplified by electromagnetic pickups.	$1600
	A Clavinet is an electronically amplified clavichord manufactured by the Hohner company. Each key uses a rubber tip to perform a hammer on a string. Its distinctive bright staccato sound is often compared to that of an electric guitar. Various models were produced over the years, including the models I, II, L, C, D6, and E7.	$1200

Overflowing Content

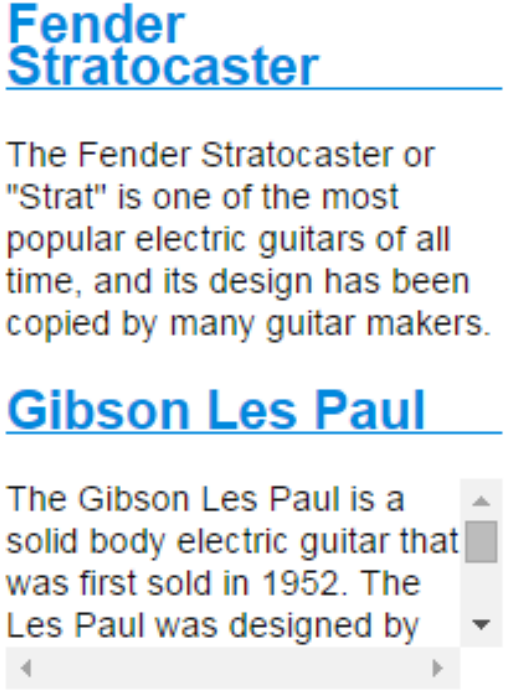
- The overflow property tells the browser what to do if the content is larger than the box itself

```
p.one {overflow: hidden;}
p.two {overflow: scroll;}
```

hidden simply hides any extra text

scroll, adds a scrollbar to the box

```
<h2>Fender Stratocaster</h2>
<p class="one">The Fender Stratocaster or "Strat" is one of the most popular electric guitars of .....</p>
<h2>Gibson Les Paul</h2>
<p class="two">The Gibson Les Paul is a solid body electric guitar that was first sold in 1952....</p>
```



Border Width border-width

The border-width property is used to control the width of borders in pixels on using the thin, medium or thick value.

```
<p class="one">Hohner's  "Clavinet" is essentially an electric clavichord.</p>
<p class="two">Hohner's  "Clavinet" is essentially an electric clavichord.
</p> <p class="three">Hohner's  "Clavinet" is essentially an electric clavichord.</p>
```

Hohner's "Clavinet" is essentially an electric clavichord.

Hohner's "Clavinet" is essentially an electric clavichord.

Hohner's "Clavinet" is essentially an electric clavichord.

```
p.one { border-width: 2px;}
p.two {border-width: thick;}
p.three {border-width: 1px 4px 12px 4px;}
```

clockwise starting from the top

Border Style border-style

```
<p class="one">Wurlitzer  Electric Piano</p>
<p class="two">Wurlitzer  Electric Piano</p>
<p class="three">Wurlitzer  Electric Piano</p>
<p class="four">Wurlitzer  Electric Piano</p>
<p class="five">Wurlitzer  Electric Piano</p>
<p class="six">Wurlitzer  Electric Piano</p>
<p class="seven">Wurlitzer  Electric Piano</p>
<p class="eight">Wurlitzer  Electric Piano</p>
```

```
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;}
```

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Wurlitzer Electric Piano

Border Style Types

none: Defines no border

dotted: Defines a dotted border

dashed: Defines a dashed border

solid: Defines a solid border

double: Defines two borders. The width of the two borders are the same as the border-width value

groove: Defines a 3D grooved border. The effect depends on the border-color value

ridge: Defines a 3D ridged border. The effect depends on the border-color value

inset: Defines a 3D inset border. The effect depends on the border-color value

outset: Defines a 3D outset border. The effect depends on the border-color value

The border-style property can have from one to four values

- **border-style: dotted;**
  - all four borders are dotted

different border styles.

- **border-style: dotted solid;**
  - top and bottom borders are dotted
  - right and left borders are solid

different border styles.

- **border-style: dotted solid double;**
  - top border is dotted
  - right and left borders are solid
  - bottom border is double

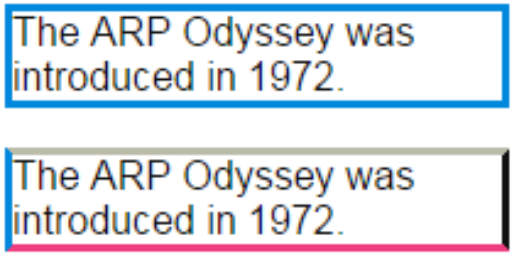
different border styles.

- **border-style: dotted solid double dashed;**
  - top border is dotted
  - right border is solid
  - bottom border is double
  - left border is dashed

different border styles.

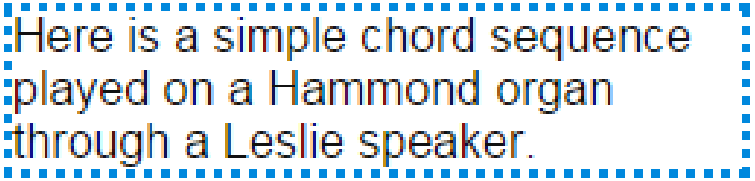
Border Color border-color Shorthand

```
<p class="one">The ARP Odyssey was introduced in 1972.</p>
<p class="two">The ARP Odyssey was introduced in 1972.</p>
```




```
p.one {
        border-color: #0088dd;}
p.two {
        border-color: #bbbbaa #111111 #ee3e80 #0088dd;}
```

```
<p>Here is a simple chord sequence played on a Hammond organ through a Leslie speaker.</p>
```




```
p {
        width: 250px;
        border: 3px dotted #0088dd;}
```

CSS Border Style

Property	Description
border	Sets all the border properties in one declaration
border-bottom	Sets all the bottom border properties in one declaration
border-bottom-color	Sets the color of the bottom border
border-bottom-style	Sets the style of the bottom border
border-bottom-width	Sets the width of the bottom border
border-color	Sets the color of the four borders
border-left	Sets all the left border properties in one declaration
border-left-color	Sets the color of the left border
border-left-style	Sets the style of the left border
border-left-width	Sets the width of the left border
border-right	Sets all the right border properties in one declaration
border-right-color	Sets the color of the right border
border-right-style	Sets the style of the right border
border-right-width	Sets the width of the right border
border-style	Sets the style of the four borders
border-top	Sets all the top border properties in one declaration
border-top-color	Sets the color of the top border
border-top-style	Sets the style of the top border
border-top-width	Sets the width of the top border
border-width	Sets the width of the four borders

Padding Example

- Padding property allows you to specify how much space should appear between the content of an element and its border

```
<p>Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been …</p>
<p class="example">Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been …</p>

p {     width: 275px;
        border: 2px solid #0088dd;}

p.example { padding: 10px;}
```

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 turned into numbers.

Margin Example

- The margin property controls the gap between boxes.

```
<p>Analog synthesizers are often said to have a "warmer" sound than their digital counterparts.</p>
<p class="example">Analog synthesizers are often said to have a "warmer" sound than their digital counterparts.</p>
```

```
p {
        width: 200px;
        border: 2px solid #0088dd;
        padding: 10px;}
p.example {
        margin: 20px;}
```

Analog synthesizers are often said to have a "warmer" sound than their digital counterparts.

Analog synthesizers are often said to have a "warmer" sound than their digital counterparts.

Change inline/block

- The display property allows you to turn an inline element into a block-level or vice versa.

```
<ul>
        <li>Home</li>
        <li>Products</li>
        <li class="coming-soon">Services</li>
        <li>About</li>
        <li>Contact</li>
</ul>
```

Home Products About Contact

```
li {display: inline;
    margin-right: 10px;}
li.coming-soon {display: none;}
```

Hiding

- Visibility property allows you to hide boxes from users but it leaves a space where the element would have been.

```
<ul>
        <li>Home</li>
        <li>Products</li>
        <li class="coming-soon">Services</li>
        <li>About</li>
        <li>Contact</li>
</ul>
```

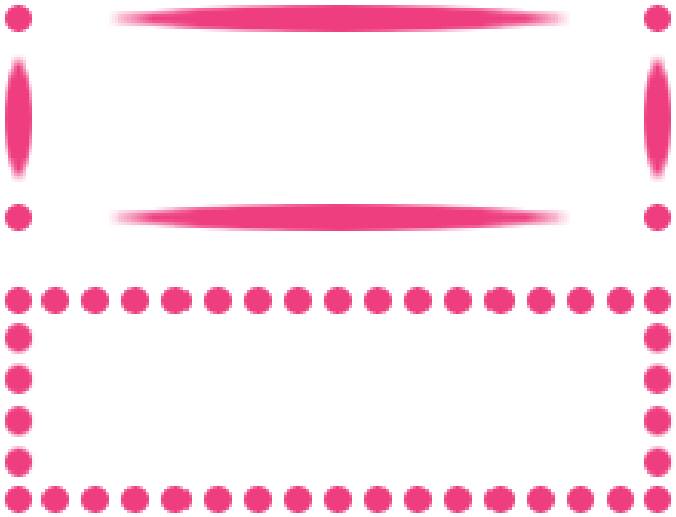
Home Products About Contact

```
li {
        display: inline;
        margin-right: 10px;}
li.coming-soon {
        visibility: hidden;}
```

Border Images

The border-image property applies an image to the border of any box.
The 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
    1. Stretch, stretches the image
    2. Round, repeats the image



```
<p class="one"></p>
<p class="two"></p>
```

```
p.one {
border-image: url("images/dots.gif") 11 11 11 11 stretch;}
p.two {
border-image: url("images/dots.gif") 11 11 11 11 round;}
```

Box Shadows

The box-shadow property allows you to add a drop shadow around a box. You must use at least the first two of the next values:

- Horizontal offset
- Vertical offset
- Blur distance
- Spread of shadow

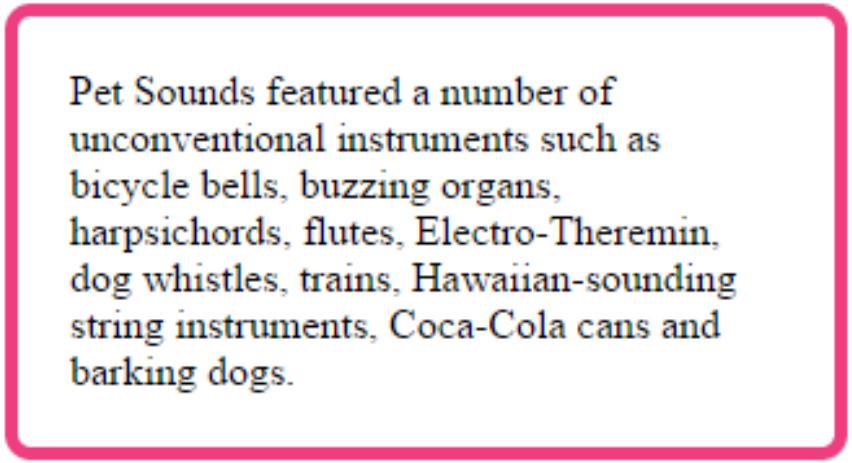
```
p.one { box-shadow: -5px -5px #777777;}
p.two {box-shadow: 5px 5px 5px #777777;}
p.three {box-shadow: 5px 5px 5px 5px #777777;}
p.four {box-shadow: 0 0 10px #777777;}
p.five {box-shadow: inset 0 0 10px #777777;}
```

Rounded Corners border-radius

CSS3 introduces the ability to create rounded corners on any box, using a property called border-radius.

Pet Sounds featured a number of unconventional instruments such as bicycle bells, …

```
p {
        border: 5px solid #ee3e80;
        padding: 20px;
        width: 275px;
        border-radius: 10px;}
```



Elliptical Shapes

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

You can target all corners or just an individual and define the size of radius.

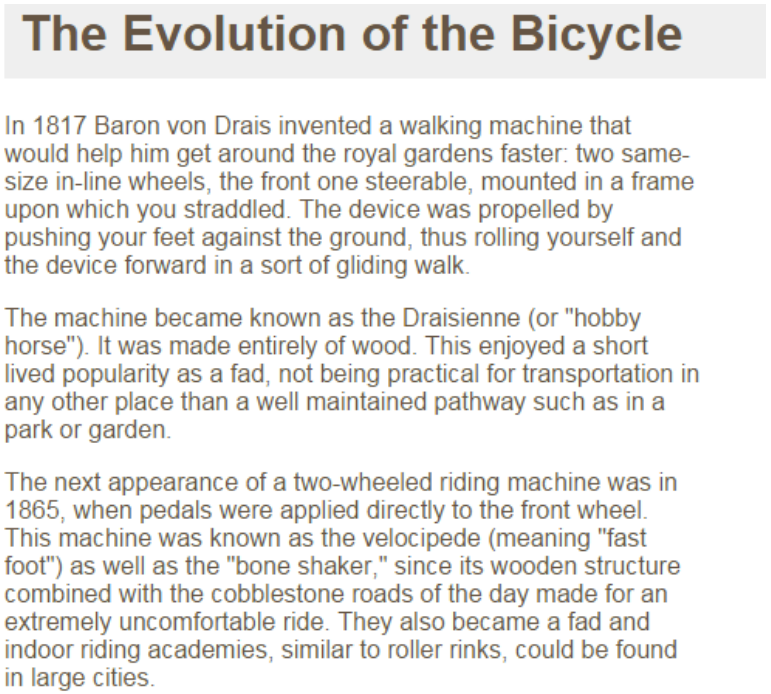
```
p.one {border-top-left-radius: 80px 50px;
p.two {border-radius: 1em 4em 1em 4em / 2em 1em 2em 1em; horiz values / vertic.
p.three {padding: 0px; border-radius: 100px;}
```

```
<p class="one"></p>
<p class="two"></p>
<p class="three"></p>
```

Position: static

- In normal flow, each block-level element sits on top of the next one. This is the default way in which browsers treat HTML, you don't need CSS for that, however this would be:

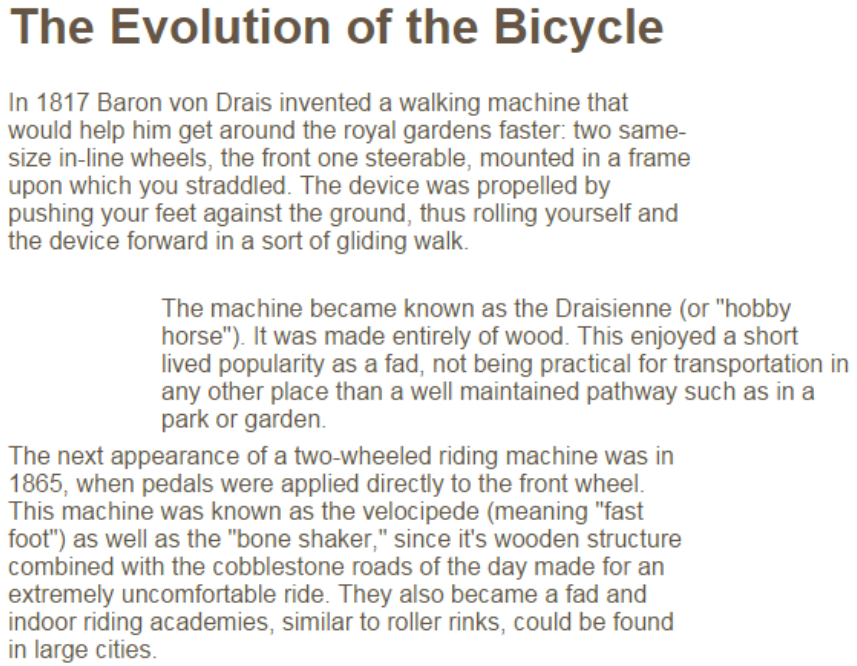
position: static



Position: relative

- Relative positioning moves an element in relation to where it would have been in normal flow.
- You can move it top or bottom and left or right using pixels or presentences.

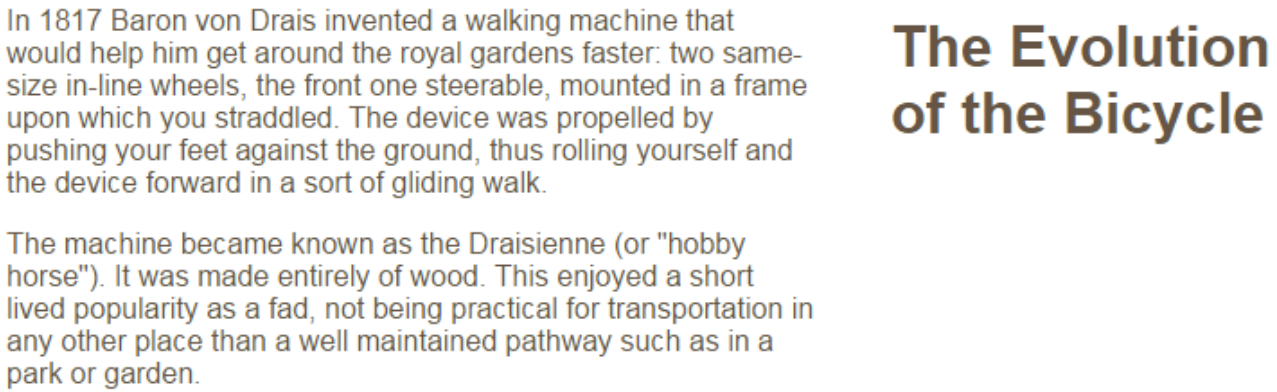
```
p.example {
        position: relative;
        top: 10px;
        left: 100px;}
```



Position: absolute

- When the position property is given a value of absolute, **the box is taken out of normal flow and no longer affects the position of the other elements**.

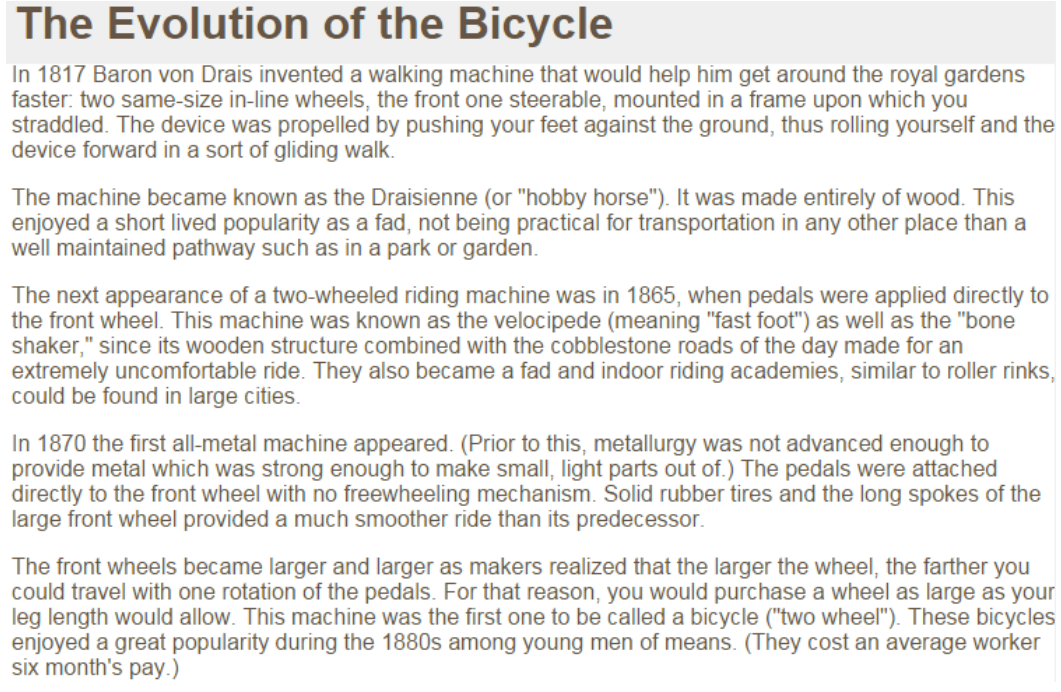
```
h1 {
        position: absolute;
        top: 0px;
        left: 500px;
        width: 250px;}
p {
        width: 450px;}
```



Position: fixed

- Fixed positioning is a type of absolute positioning that requires the position property to have a value of fixed.
- The position is specified in relation to the browser window, as such the user scrolls down, but the element stays on the same place.

```
h1 {
        position: fixed;
        top: 0px;
        left: 0px;
        padding: 10px;
        margin: 0px;
        width: 100%;
        background-color: #efefef;}
p.example {
        margin-top: 100px;}
```



The Evolution of the Bicycle

In 1817 Baron von Drais invented a walking machine that would help him get around the royal gardens faster: two same-size in-line wheels, the front one steerable, mounted in a frame upon which you straddled. The device was propelled by pushing your feet against the ground, thus rolling yourself and the device forward in a sort of gliding walk.

The machine became known as the Draisienne (or "hobby horse"). It was made entirely of wood. This enjoyed a short lived popularity as a fad, not being practical for transportation in any other place than a well maintained pathway such as in a park or garden.

The next appearance of a two-wheeled riding machine was in 1865, when pedals were applied directly to the front wheel. This machine was known as the velocipede (meaning "fast foot") as well as the "bone shaker," since its wooden structure combined with the cobblestone roads of the day made for an extremely uncomfortable ride. They also became a fad and indoor riding academies, similar to roller rinks, could be found in large cities.

In 1870 the first all-metal machine appeared. (Prior to this, metallurgy was not advanced enough to provide metal which was strong enough to make small, light parts out of.) The pedals were attached directly to the front wheel with no freewheeling mechanism. Solid rubber tires and the long spokes of the large front wheel provided a much smoother ride than its predecessor.

The front wheels became larger and larger as makers realized that the larger the wheel, the farther you could travel with one rotation of the pedals. For that reason, you would purchase a wheel as large as your leg length would allow. This machine was the first one to be called a bicycle ("two wheel"). These bicycles enjoyed a great popularity during the 1880s among young men of means. (They cost an average worker six month's pay.)

Position

Property Value	Description
static	This is the default setting – no special positioning.
absolute	Move element relative to upper left corner of page or a containing element.
relative	Move element relative to its default position.
fixed	Move element relative to browser window – ie doesn't change position if scrolling content.

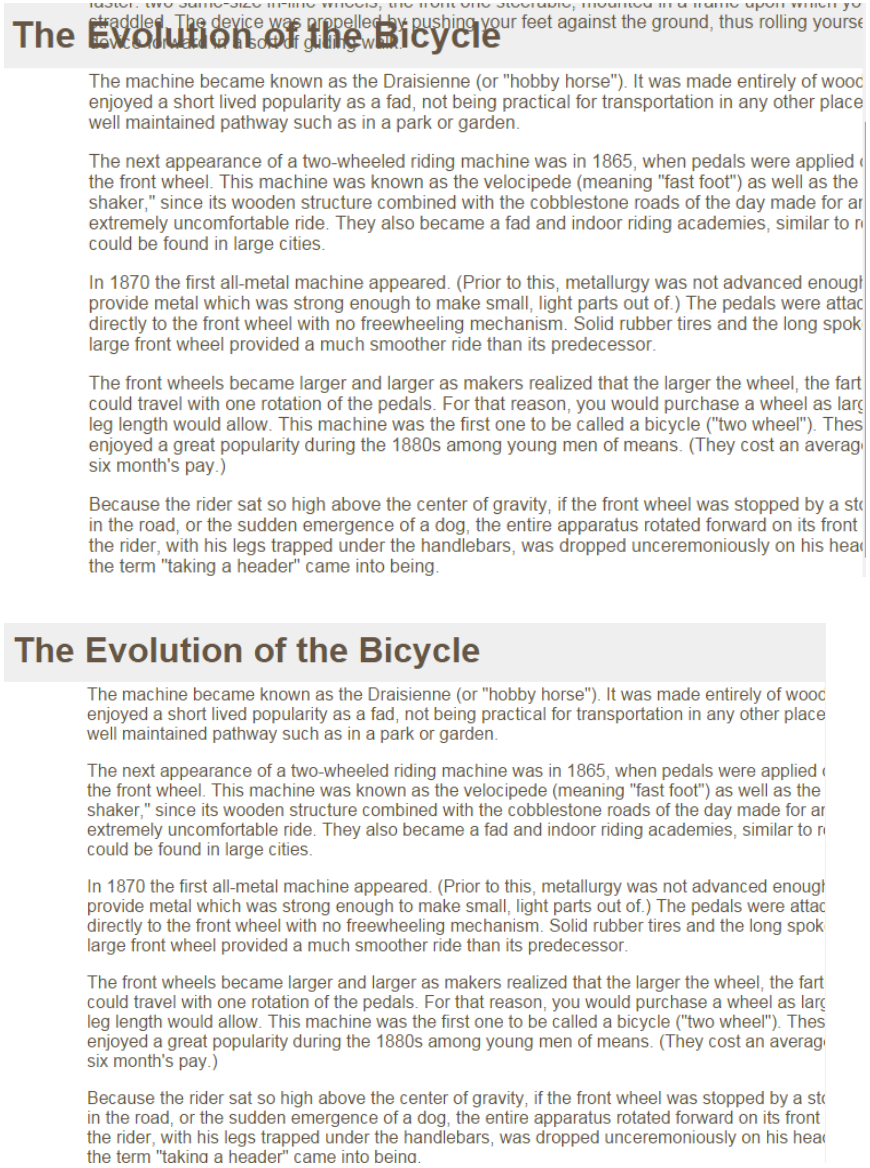
These used in conjunction with the **top**, **right**, **bottom**, **left** offset properties.

Overlapping Elements

- If you use relative, fixed, or absolute positioning, boxes can overlap. If boxes do overlap, the elements that appear later sit one on the top of the other.
- If you want to control which element sits on the top you use the z-index property. The higher value z-index property has the closer that element is to the front.

Overlapping Elements

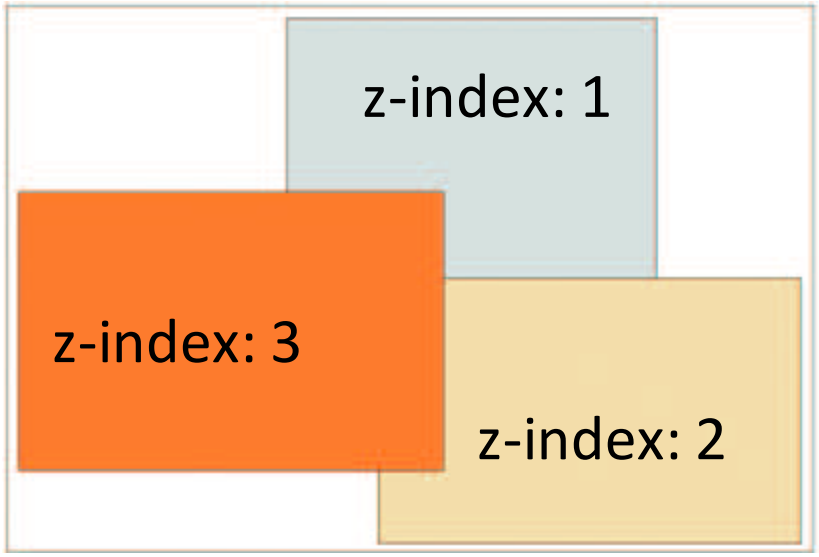
```
h1 {
        position: fixed;
        top: 0px;
        left: 0px;
        margin: 0px;
        padding: 10px;
        width: 100%;
        background-color: #efefef;
        z-index: 10;}
p {
        position: relative;
        top: 70px;
        left: 70px;}
```



Stacking Elements

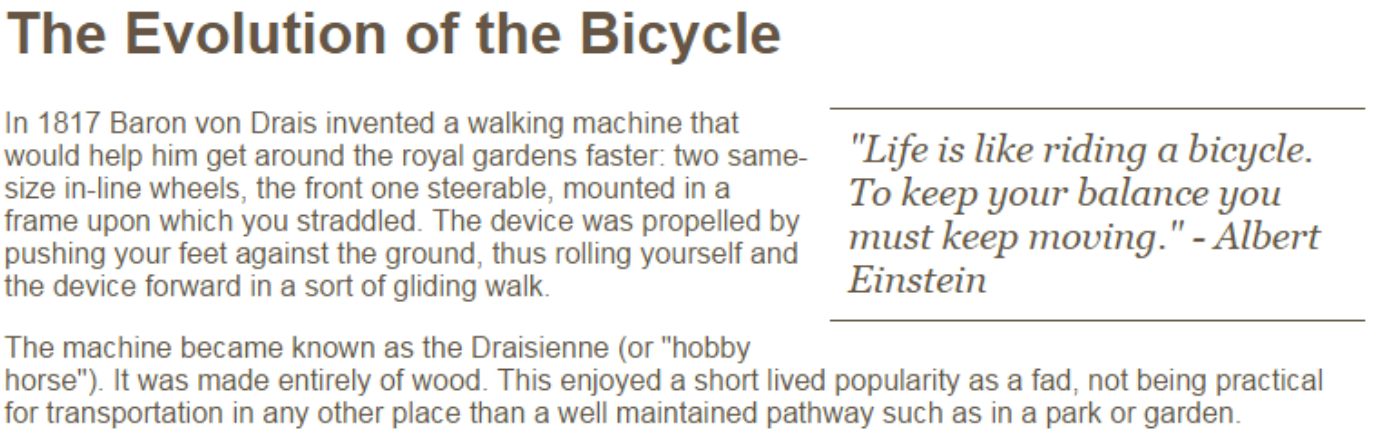
- Specify stacking order with:

– **z-index: value**



Floating Elements

- The float property allows you to take an element in normal flow and place it as far to the left right.




```
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;}
```

You can use float to place elements side-by-side

Table Properties

- We have already talked several properties that can be used with tables. Here we will put together some of the most commonly used ones, in a single example.
- **Width,** set width
- **Padding,** set the space between the border of each cell
- **Letter-spacing, font-size,** set additional styles
- **Border-top/bottom,** set borders above and below the headers
- **:hover,** to highlight a table row when a user's mouse goes over it

Table Properties

```
<table><tr>
        <th>Author</th>
        <th>Title</th>
        <th class="money">Reserve Price</th>
        <th class="money">Current Bid</th>
</tr><tr>
        <td>E.E. Cummings</td>
        <td>Tulips & Chimneys</td>
        <td class="money">$2,000.00</td>
        <td class="money">$2,642.50</td>
</table>
```

```
body {
        font-family: Arial, Verdana, sans-serif;
        color: #111111;}
table {  width: 600px;}
th, td {  padding: 7px 10px 10px 10px;}
th {
        text-transform: uppercase;
        letter-spacing: 0.1em;
        font-size: 90%;
        border-bottom: 2px solid #111111;
        border-top: 1px solid #999;
        text-align: left;}
tr.even {  background-color: #efefef;}
r:hover {  background-color: #c3e6e5;}
.money {  text-align: right;}
```

First Edition Auctions

AUTHOR	TITLE	RESERVE PRICE	CURRENT BID
E.E. Cummings	Tulips & Chimneys	$2,000.00	$2,642.50
Charles d'Orleans	Poemes		$5,866.00
T.S. Eliot	Poems 1909 - 1925	$1,250.00	$8,499.35
Sylvia Plath	The Colossus		$1031.72

Tips for tables

- Give cells padding
- Distinguish headings
- Shade alternate rows
- Align numerals

Controlling Size of Images using CSS

- Control the size of an image using width and height properties.

```
<img src="images/magnolia-large.jpg" class="large" alt="Magnolia" />
<img src="images/magnolia-medium.jpg" class="medium" alt="Magnolia" />
<img src="images/magnolia-small.jpg" class="small" alt="Magnolia" />
```

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

Align Images with CSS

- Use float to align images

```
<p><img src="images/magnolia-medium.jpg" alt="Magnolia" class="align-left medium" /><b><i>Magnolia is …</p>

<p><img src="images/magnolia-medium.jpg" alt="Magnolia" class="align-right medium" />Some magnolias…</p>
```

```
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 beetle.

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*.

Display style

selector {display:**Value**}

Value	Description
None	The element will generate no box at all.
block	The element will generate a block box (a line break before and after the element).
Inline	The element will generate an inline box (no line break before or after the element). This is default.
inline-block	The element will generate a block box, laid out as an inline box.
inline-table	The element will generate an inline box (like <table>, with no line break before or after).
inherit	Specifies that the value of the display property should be inherited from the parent element.

Display style cont.

Value	Description
list-item	The element will generate a block box, and an inline box for the list marker
run-in	The element will generate a block or inline box, depending on context
table	The element will behave like a table (like <table>, with a line break before and after)
table-caption	The element will behave like a table caption (like <caption>)
table-cell	The element will behave like a table cell
table-column	The element will behave like a table column
table-column-group	The element will behave like a table column group (like <colgroup>)
table-footer-group	The element will behave like a table footer row group
table-header-group	The element will behave like a table header row group
table-row	The element will behave like a table row
table-row-group	The element will behave like a table row group

Summary

- How to create style sheets to control the style and layout of web sites.
- How to use CSS to add backgrounds, format text, add and format borders, and specify padding and margins of elements.
- How to position an element, control the visibility and size of an element, set the shape of an element, place an element behind another, and to add special effects to some selectors, like links.
- How many of the new features in CSS3: rounded borders, box and text shadows, gradient backgrounds and more.

P0 and P1

P0 Getting Started (Sept 18) and

P1 Project Requirements (Sept 18 but will stay open for updates up to Sept 23)

Questions?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