

Layout & images (1)

Website Development 1

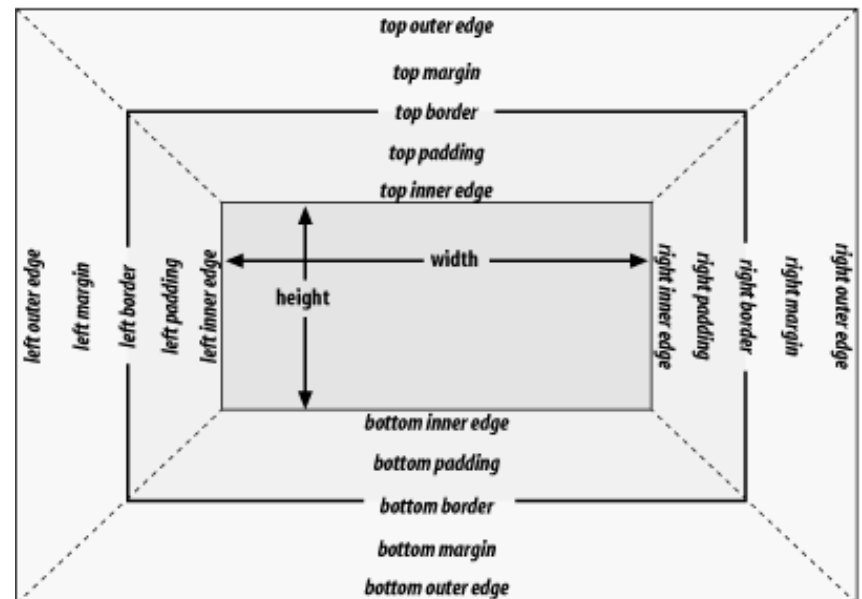
Agenda

- The Box Model
- Background images
- More CSS layout properties

CSS Box Model

- So far, your CSS has focussed on changing simple properties of elements, like size, color, and decorations. For effective layout control, you have got to move on to the box model.
- The **box model** is how CSS sees elements.
- CSS treats every single element as if it were represented by a box.
- All elements are treated as boxes: paragraphs, headings, block quotes, lists, list items, and so on. Even inline elements like `` and links are treated by CSS as boxes

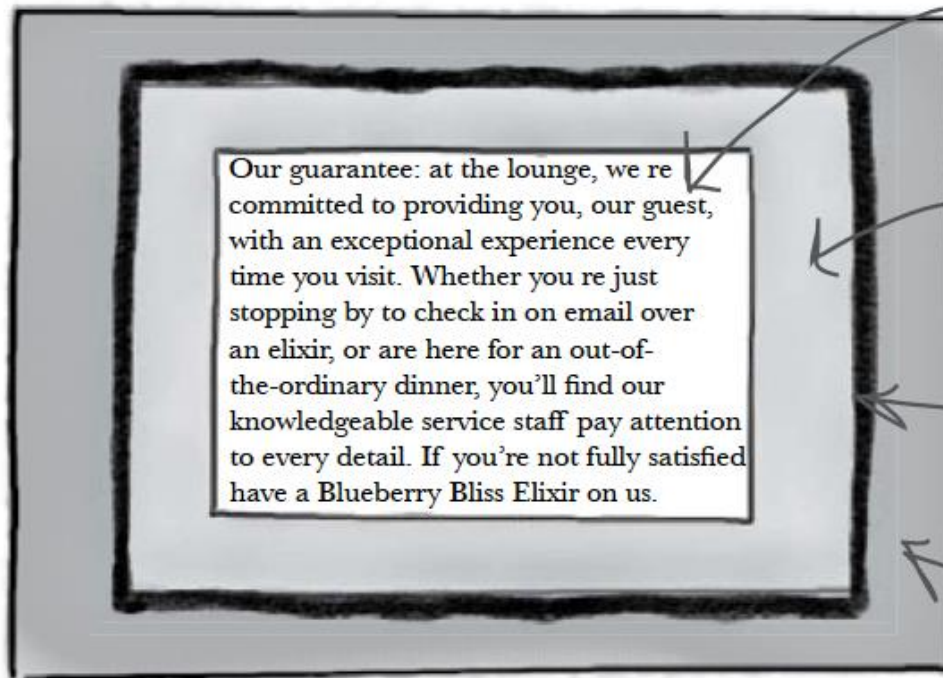
- Boxes consist of:
 - Content
 - Padding
 - Border
 - Margin



CSS Box Model

From the perspective of CSS, every element is a box.

Every box is made up of a content area along with optional padding, border, and margins.



The content area, which holds the content (text or an image, for instance).

The content area is surrounded by optional transparent padding.

An optional border can be placed around the padding.

And finally, an optional transparent margin surrounds everything.

Content Area

- Every element starts with some content, like text or an image, and this content is placed inside a box that is just big enough to contain it.
- The content area has no whitespace between the content and the edge of the box

The content area holds the element's content. It's typically just big enough to hold the content.



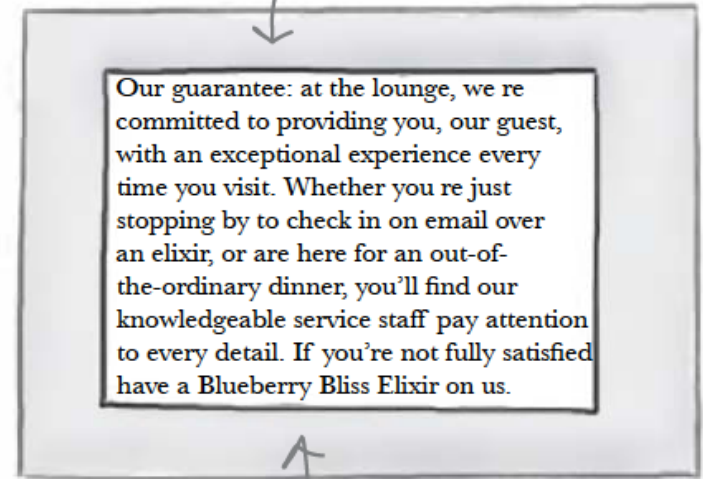
Our guarantee: at the lounge, we're committed to providing you, our guest, with an exceptional experience every time you visit. Whether you're just stopping by to check in on email over an elixir, or are here for an out-of-the-ordinary dinner, you'll find our knowledgeable service staff pay attention to every detail. If you're not fully satisfied have a Blueberry Bliss Elixir on us.

We've drawn an edge around the content area just so you know how big it is. But in a browser there is never a visible edge around the content area.

Padding

- Any box can have a layer of padding around the content area.
- Padding is optional, so you don't have to have it, but you can use padding to create visual whitespace between the content and the border of the box.
- The padding is transparent and has no color or decoration of its own.

The browser adds optional padding around the content area.



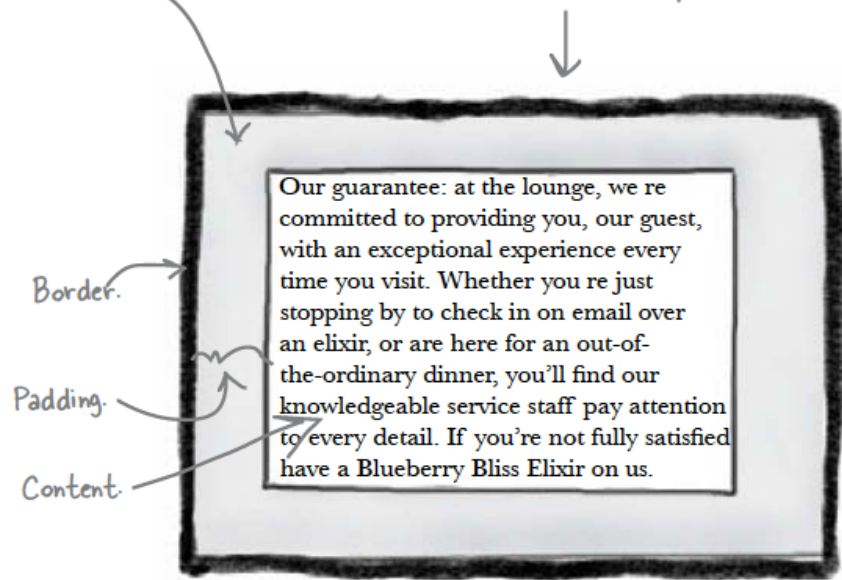
Using CSS, you're going to be able to control the width of the padding around the entire content area, or even control the padding on any one side (top, right, bottom, or left).

Border

- Elements can have an optional border around them
- The border surrounds the padding and because it takes the form of a line around the content, borders provide visual separation between content and other elements on the same page
- Borders can be various widths, colors and styles

Notice that the padding separates the content area from the border.

Using CSS, you're going to be able to control the width, color, and style of the border.



Variations: Boxes

- The box model may look simple with just the content, some padding, a border, and margins.
- But when you combine these all together there are endless ways you can determine the layout of an element with its internal spacing (padding) and the spacing around it (margins).

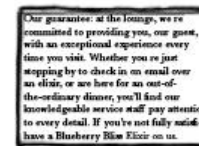
Boxes



You can style a box to have padding, a border, and a margin.



Or, just padding and a border.



Or just a border.

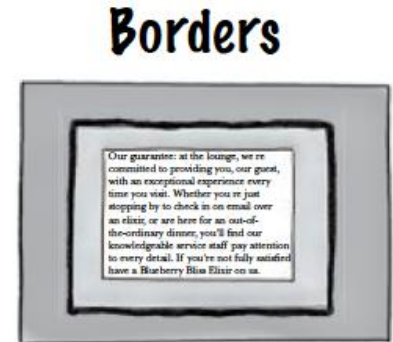


Or a margin with no border and no padding.

Variations: Borders

- Borders can have different properties:
 - Border-width
 - Border-style
 - Border-colour

You can have solid borders, thick or thin.



Or no border at all.



Or choose from eight different styles of borders, like dashed.



Or even color your borders.



Variations: Padding & Margins

- You can vary the padding and margin that is used on the top, bottom, left and right of each box.

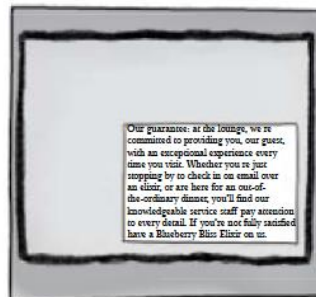
Padding



With CSS you can control padding on any side of the content area. Here we've got a lot of left and right padding.



And here a lot of top and bottom padding.



And here the content is offset to the bottom right with padding on the top and left.

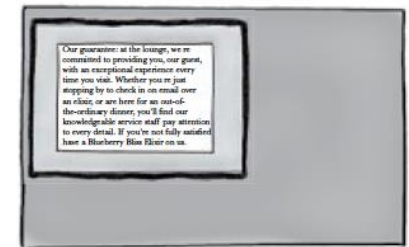
Margins



You have the same level of control over the margins. Here there's a lot of top and bottom margin.



And here's a lot of left and right margin.



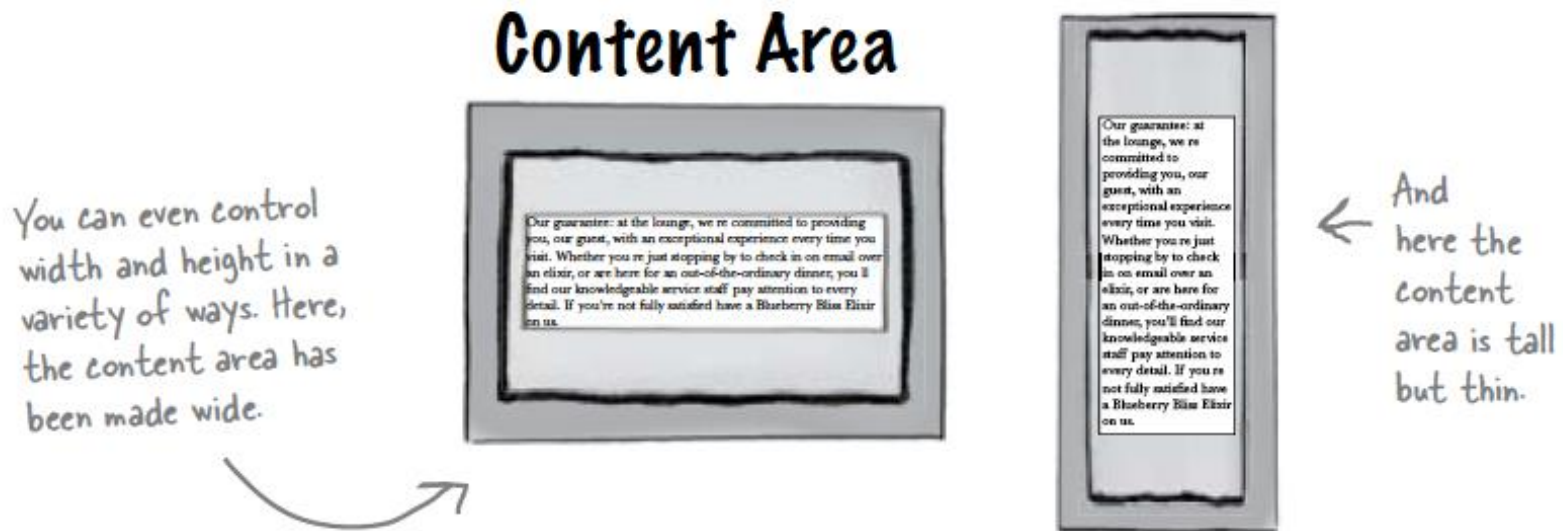
And like padding, you can specify all sides independently to create margins like this.

Variations: Padding & Margins

- Examples:
 - `padding-top:5px;`
 - `padding-right:12px;`
 - `padding-bottom:5px;`
 - `padding-left:10px;`
- Shorthand of above:
 - `padding: 5px 12px 5px 10px;`
- Top and bottom (same); and left and right (same):
 - `padding: 5px 10px;`
- Same applies to Margins.

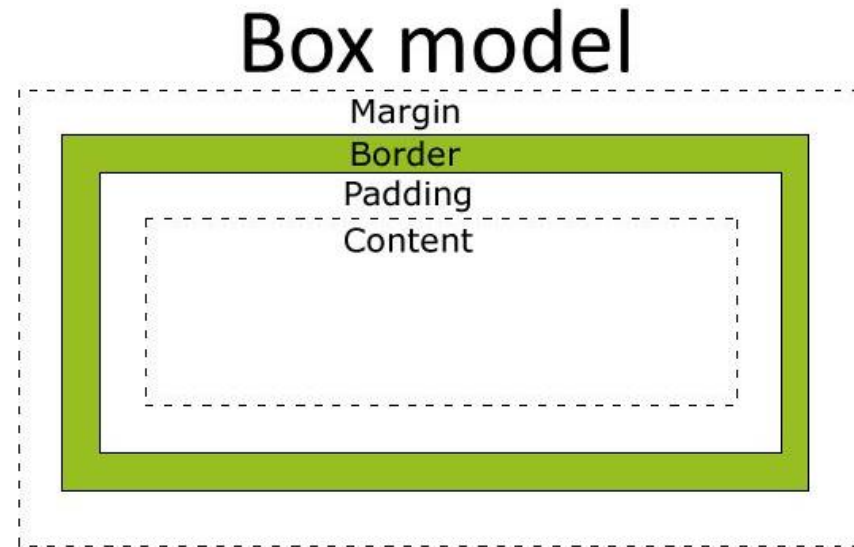
Variations: Content

- You can also set the width and height of content areas.



Total width and height

- The padding, margins, borders, and content area all combine to give the total width and height of an element.



- **Total element width** = width + left padding + right padding + left border + right border + left margin + right margin
- **Total element height** = height + top padding + bottom padding + top border + bottom border + top margin + bottom margin

Example: head first lounge



Welcome to the Head First Lounge

The Head First Lounge is, no doubt, the biggest trendsetter in Webville. Stop in to sample the eclectic offering of elixirs, teas, and coffees, or, stay a bit longer and enjoy the multicultural culinary menu that combines a harmony of taste, texture, and color with the best in fresh and healthy ingredients.

During your stay at the lounge, you'll enjoy a smooth mixture of ambient and mystic sounds, filling the lounge and adding an extra dimension to your dining experience. The decor surrounds you with the relaxing sentiments of sights from eras past. And, don't forget, the lounge offers free wireless access to the Internet, so bring your laptop.

But that's not all; at night, join us in the backroom as our resident DJ spins a choice selection of trance and drum&bass beats across our spacious tiki-themed dance floor. Or just hang out in one of our comfy white vinyl booths at the dance bar. You can have your elixirs delivered from the main lounge right to the dance floor. If you've had enough of the beat, just head back to the lounge area to relax. And, no matter where you find yourself in the lounge, you'll always be connected with our wireless Internet access.

Now that you've experienced the lounge *virtually*, isn't it time to check us out *for real*? We're located right in the heart of Webville, and we've created some [detailed directions](#) to get you here in record time. No reservations necessary; come and join us anytime.

Weekly Elixir Specials



Lemon Breeze

The ultimate healthy drink, this elixir combines herbal botanicals, minerals, and vitamins with a twist of lemon into a smooth citrus wonder that will keep your immune system going all day and all night.



Chai Chiller



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Chai Chiller

Not your traditional chai, this elixir mixes maté with chai spices and adds an extra chocolate kick for a caffeinated taste sensation on ice.



Black Brain Brew

Want to boost your memory? Try our Black Brain Brew elixir, made with black oolong tea and just a touch of espresso. Your brain will thank you for the boost.

Join us any evening for these and all our other wonderful [elixirs](#).

The “Guarantee” box



Guarantee class: CSS

```
.guarantee
{
  border-color:      black;
  border-width:      1px;
  border-style:      solid;
  background-color:  #a7cece;
  padding:           25px;
  padding-left:      80px;
  margin:            30px;
  margin-right:      250px;
  background-image:  url(images/background.gif);
  background-repeat: no-repeat;
  background-position: top left
}
```



Agenda

- The Box Model
- Background images
- More CSS layout properties



background.gif

Add a Background Image

- We can add a background image using the background-image property in CSS.
- `` vs. background images:
 - An `` element is used to include an image that has a more substantial role in the page, like a photo or a logo
 - A background image is pure presentation, and the only reason you would use a background-image is to improve the attractiveness of an element.
- We could have just placed the image inside the paragraph, and we could probably get the same look and feel, but the guarantee star is pure decoration
- It has no real meaning on the page and it's only meant to make the element look better. So, background-image makes more sense.

Background Image

- In this example, the image sits on top of the background color.
- Because it has a transparent background, it lets the color show through
- The background images, like the background color, only show under the content area and padding, and not outside the border in the margin

```
.guarantee
{
  border-color:      black;
  border-width:      1px;
  border-style:      solid;
  background-color:  #a7cece;
  padding:           25px;
  margin:            30px;
  background-image:  url(images/background.gif);
}
```

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- By default, background images are repeated.
- The no-repeat value for the background-repeat property turns this off, so we get just one image.
- By default, browsers position a background image in the top, left of the element

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But
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loun
cont

.guarantee

```
{  
  border-color:    black;  
  border-width:    1px;  
  border-style:    solid;  
  background-color: #a7cece;  
  padding:         25px;  
  margin:          30px;  
  background-image: url(images/background.gif);  
  background-repeat: no-repeat;  
  background-position: top left;  
}
```

Agenda

- The Box Model
- Background images
- More CSS layout properties
 - Display
 - Position
 - Float and clear
 - Overflow

Display property

- There are several options for displaying elements:
 - Block
 - Inline
 - Block-inline
 - None (doesn't show the element)

Block vs. inline elements

- **Block** elements are those which start on a new line. For example, `<p>`, `<h1>` and `<div>` all place the element on a new line (and start another new line after the element has been completed).
- **Inline** elements do not start a new line; examples are ``, `<i>` and ``.
- **Inline-block** is a third option that lets us have block-like elements that stay on the same line.

Block, inline, inline-block

`display: block`

display:
block

display:
block

display:
block

`display: inline`

display: inline display: inline display: inline

`display: inline-block`

display:
inline-
block

display:
inline-
block

display:
inline-
block

position

- Position property often used to make more complex layouts.
- Has a range of possible values, and their names can be confusing and difficult to remember.
- **Static**
 - static is the default value.
 - An element with position: static; is not positioned in any special way.
 - A static element is said to be not positioned and an element with its position set to anything else is said to be positioned.

```
.static {  
    position: static;  
}
```

position

Relative

Relative behaves the same way as static unless you add some extra properties to adjust the element away from its normal position.

Other content will not be adjusted to fit into any gap left by that element.

```
<div class="relative1 dashed">  
  <p>  
    Te iriure moderatius vis, nam prodesset honestatis te. Atqui facilisi  
    at est. Ex duo vocent incorrupte eloquentiam. Agam deterruisset vel  
    at, has no illum ipsum alterum. Virtute vivendo officiis his et, ius v  
    cu eos malorum luptatu  
  </p>  
</div>
```

```
<div class="relative2 dash">  
  <p>  
    Saperet maiestatis ins  
    illum regione deterrui  
    ex erant principes. Au  
    iusto dicam verear mei  
  </p>  
</div>
```

```
.relative1 {  
  position: relative;  
}
```

```
.relative2 {  
  position: relative;  
  top: -20px;  
  left: 20px;  
  width: 500px;  
}
```

Te iriure moderatius vis, nam prodesset honestatis te. Atqui facilisi at est. Ex duo vocent incorrupte eloquentiam. Agam deterruisset vel at, has no illum ipsum alterum. Virtute vivendo officiis his et, ius viris tollit homero ad. In sit euismod salutatus, cu eos malorum luptatum consulatu, et nec debet antiopam.

Saperet maiestatis instructor te per, cu vel tota cotidieque. Vix illum regione deterruisset cu, ne cum diam suavitate complectitur, nec ex erant principes. Augue omittam no sea, putant forensibus usu te. Te iusto dicam verear mei. Dolorum posidonium no vel.

position

- **Fixed**

- A fixed element is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled.
- As with relative the top, right, bottom, and left properties are used.
- A fixed element does not leave a gap in the page where it would normally have been located.

The screenshot shows a web browser window with three tabs: 'CSS - position', 'position', and 'Module: Business Int...'. The address bar shows a file path: 'file:///C:/Users/bmullally/Documents/web-development-2015/WebDevelopment/lab06/learn-c...'. The browser's toolbar includes icons for Apps, Virtual Learning..., Online Marking..., Timetables, Work Email, SWEng, XML, and Other books. The main content area is titled '01. position' and contains several paragraphs of placeholder text. A yellow box highlights the CSS code for a fixed element:

```
.fixed {  
    position: fixed;  
    bottom: 0;  
    right: 0;  
    width: 200px;  
}
```

. Another yellow box highlights the HTML code for a fixed element:

```
<div class="fixed dashed">  
  <p>  
    Hello! How did I get here?  
  </p>  
</div>
```

. A dashed box indicates the original position of the element, and a solid box shows its fixed position at the bottom right. A large black arrow points down to the fixed element, which is labeled 'Fixed'.

01. position

Vel et enim consulatu. Te civibus copiosae salutandi vel. Adhuc sonet libris ad eam, mundi affert mea ex. Dicunt
'fugiat patrioque et mel, id qui nusquam maluisse, ei vim iusto ceteros vituperata. Mei saepe mediocrem ut.
et.

Ex duo vocent incorrupte eloquentiam.
ficiis his et, ius viris tollit homero ad. In sit
pam...

egione
ipes.
mei.

ec; its absolutely-
ument body.

Fixed

↓

Hello! How did I get here?

position

- **Absolute**

- Absolute behaves like fixed except relative to the nearest positioned ancestor instead of relative to the viewport. If an absolutely positioned element has no positioned ancestors, it uses the document body, and still moves along the page scrolling.
- This is tricky, but can be important for creating sophisticated CSS layouts.

This element is relatively-positioned. If this element was `position: static`; its absolutely-positioned child would escape and would be positioned relative to the document body.

This element is absolutely-positioned. It's positioned relative to its parent.

```
.relative3 {  
  position: relative;  
  width: 600px;  
  height: 400px;  
}
```

```
.absolute {  
  position: absolute;  
  top: 120px;  
  right: 0;  
  width: 300px;  
  height: 200px;  
}
```

```
<div class="relative3 dashed">  
  <p>  
    This element is relatively-positioned. If this element was <code>  
    position: static;</code> its absolutely-positioned child would escape  
    and would be positioned relative to the document body.  
  </p>  
  <div class="absolute dashed">  
    <p>  
      This element is absolutely-positioned. It's positioned relative to  
      its parent.  
    </p>  
  </div>  
</div>
```

float

- Float can be used for wrapping text around images:

```
img {  
  float: right;  
  margin: 0 0 1em 1em;  
}
```

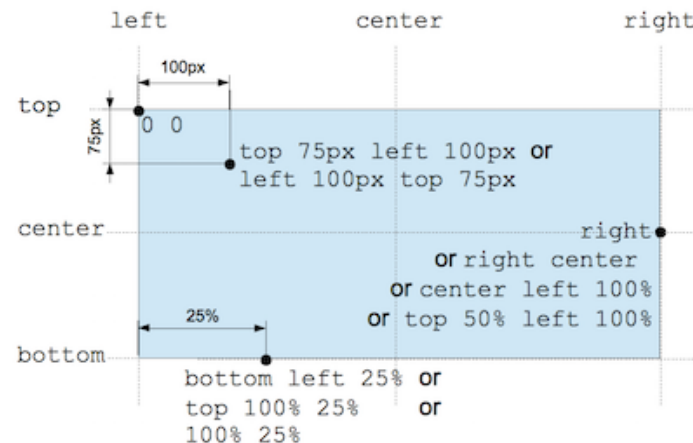
<h1> 01. float </h1>

<p>

the position CSS data type denotes a coordinate in a 2D space used to set a location relative to a box. A specific coordinate can be given by a two keywords, with specific offsets. A keyword represent one edge of the element's box or the medium line between two edges: left, right, top, bottom or center (which represents either the center between the left and right edges, or the center between the top or bottom edges, depending on the context). An offset can be either a relative value, expressed as a percentage, or an absolute length value. Positive values are offset towards the right or towards the bottom, whichever is suitable. Negative values are offset in the other.

</p>

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float without clear

```
.box {  
  float: left;  
  width: 200px;  
  height: 100px;  
  margin: 1em;  
}
```

```
<h1> 09. clear </h1>  
<section class="box dashed">  
  <p>  
    Lorem ipsum dolor sit amet, eos ut diam interesset, cu modo  
    necessitatibus pri.  
  </p>  
</section>  
<section class="after-box dashed">  
  <p>  
    Vel et enim consulatu. Te civibus copiosae salutandi vel. Adhuc sonet  
    libris ad eam, mundi affert mea ex. Dicunt feugiat patrioque et mel,  
    id qui nusquam maluisset, ei vim justo ceteros vituperata. Mei saepe  
    mediocrem ut. Repudiare definitiones ea ius, sint commodo est ea, nam  
    no nemore diceret.  
  </p>  
</section>
```

09. clear

>Lorem ipsum dolor sit amet, eos
ut diam interesset, cu modo
necessitatibus pri.
diceret.

Vel et enim consulatu. Te civibus copiosae salutandi vel. Ad
ad eam, mundi affert mea ex. Dicunt feugiat patrioque et me
nusquam maluisset, ei vim justo ceteros vituperata. Mei saep
ut. Repudiare definitiones ea ius, sint commodo est ea, nam

float with clear

- The **clear** property is important for controlling the behaviour of floats.
- You use the value *left* to clear elements floated to the left.
- You can also clear *right* and *both*.

```
<h1> 09. clear </h1>
<section class="box dashed">
  <p>
    Lorem ipsum dolor sit amet, eos ut d:
    necessitatibus pri.
  </p>
</section>
<section class="after-box dashed">
  <p>
    Vel et enim consulatu. Te civibus copiosae salutandi vel. Adhuc sonet
    libris ad eam, mundi affert mea ex. Dicunt feugiat patrioque et mel,
    id qui nusquam maluisset, ei vim justo ceteros vituperata. Mei saepe
    mediocrem ut. Repudiare definitiones ea ius, sint commodo est ea, nam
    no nemore diceret.
  </p>
</section>
```

```
.box {
  float: left;
  width: 200px;
  height: 100px;
  margin: 1em;
}
.after-box {
  clear: left;
}
```

09. clear

Lorem ipsum dolor sit amet, eos ut
diam interesset, cu modo
necessitatibus pri.

Vel et enim consulatu. Te civibus copiosae salutandi vel. Adhuc sonet libris ad eam, mundi affert mea ex. Dicunt feugiat patrioque et mel, id qui nusquam maluisset, ei vim justo ceteros vituperata. Mei saepe mediocrem ut. Repudiare definitiones ea ius, sint commodo est ea, nam no nemore diceret.

Overflow property

- Another problem with using floats is when the content is larger than the containing element – if the content is floated, it is removed from the normal flow of the page, and therefore overflows outside of its container, as seen below:

In this example, the image is taller than the element containing it, and it is floated, so it overflows outside of its container:

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet, nulla et dictum interdum...



Overflow property

- To prevent this, create a class that uses the `overflow:auto` property. This automatically adapts the containing div to fit the height of the content.
- This is the overflow class, created in the CSS file:

```
.overflow {  
    overflow: auto;  
}
```

Overflow property

- This is the HTML, where you can see the overflow class being applied; the result is shown underneath

```
<div class="overflow">  
  
  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus  
imperdiet, nulla et dictum interdum...  
  
</div>
```

Add a class with overflow: auto; to the containing element, to fix this problem:

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet, nulla et dictum interdum...

