

CSS Layout and Positioning

Frameworks and Architectures of the Web

Spring 2018

Today's Program

The CSS Box Model

Positioning Schemes and Floating Elements

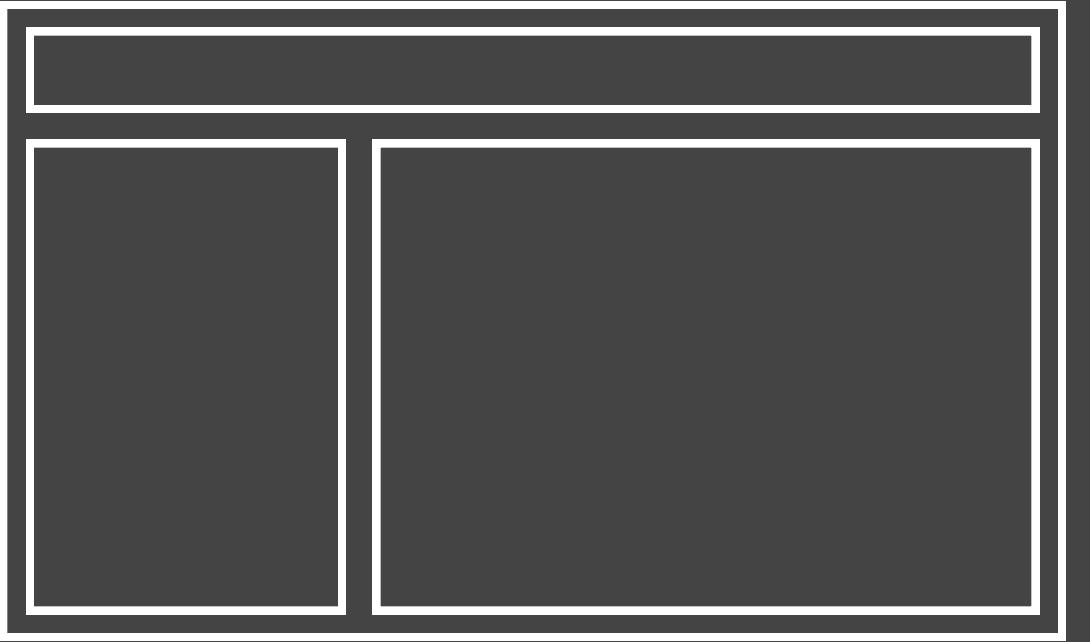
Centering

Flexbox

CSS Grids

Pop Quiz!

Exercises



• Sequoia
Lund Quartet
Lund Quartet

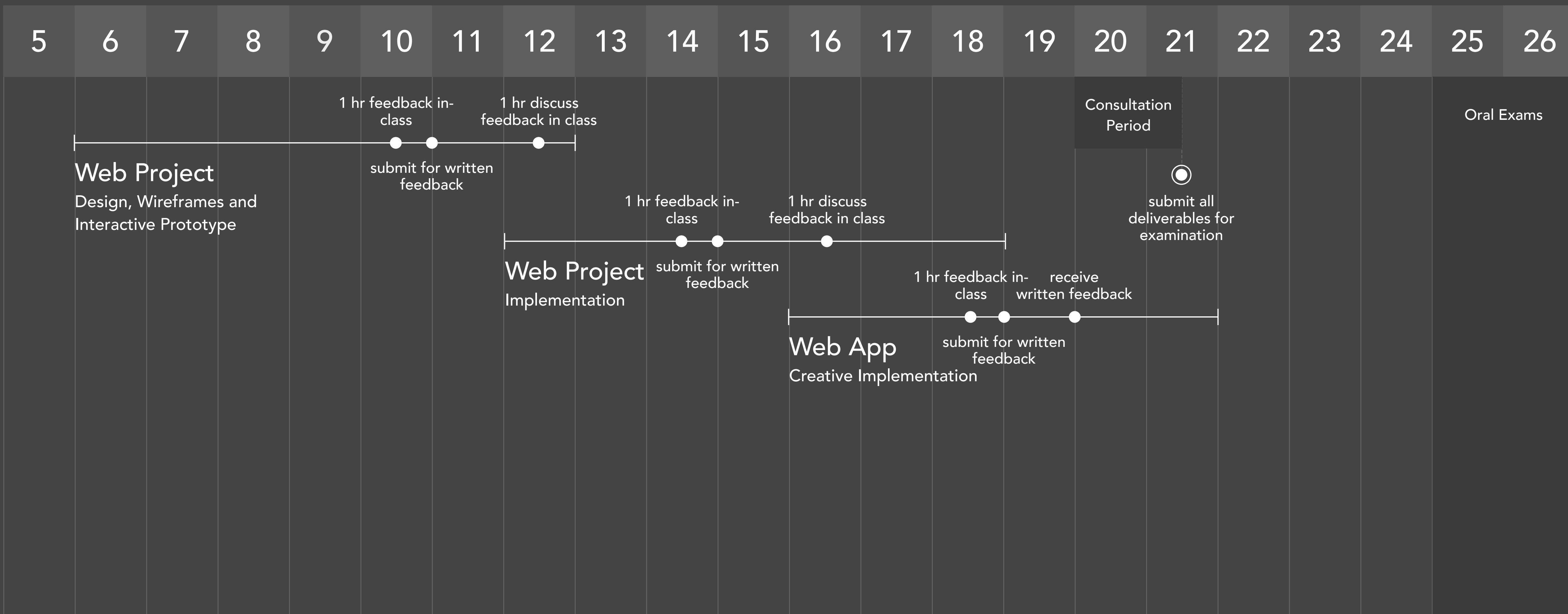
Course Outline

Foundation

Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Introduction, HTML Syntax, Structure and Semantics	Interface Principles, Design Patterns and Aesthetics	HTML and CSS Preliminaries	CSS Layout & Positioning	Mobile and Responsive Design, Forms and Data Validation	Introduction to JavaScript	Document Object Model and Events in JavaScript	CSS3, Graphics and Media and Advanced JavaScript
Web Project - Design, Wireframes and Interactive Prototype						Web Project - Implement	

Timing and Feedback Cycle for Deliverables

Week #



The Box Model Revisited

Last week, we looked at how CSS treats each element as its own box.

This week, we will explore this box model in more detail.

You can control the dimensions of your boxes, create borders and set margins and padding.

You can also adjust how their contents fit inside them.

You can also create layouts by positioning these boxes on your page.

Lolita

Lolita is a novel by [Vladimir Nabokov](#), written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.

Lolita quickly attained a classic status; it is today regarded as one of the prime achievements in 20th century literature, though also among the most controversial.

Style and Interpretation

Clegg sees the novel's non-disclosure of Lolita's feelings as directly linked to the fact that her "real" name is Dolores and (in the novel but not the film) only Humbert refers to her as *Lolita*. Humbert also states he has effectively "solipsized" *Lolita* early in the novel. Eric Lemay of Northwestern University writes:

The human child, the one noticed by non-nymphomaniacs, answers to other names, "Lo", "Lola", "Dolly", and, least alluring of all, "Dolores". "But in my arms," asserts Humbert, "she was always *Lolita*." And in his arms or out, "*Lolita*" was always the creation of Humbert's craven self ... The Siren-like Humbert sings a song of himself, to himself, and titles that self and that song "*Lolita*". ... To transform Dolores into *Lolita*, to seal this sad adolescent within his musky self, Humbert must deny her her humanity.

```
<div>
  <p>
```

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.

```
  </p>
</div>
```

```
div {
  width: 400px;
  height: 300px;
  background-color: #DC5B83;
}

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

Width and Height

By default, a box is sized just big enough to hold its own contents. You can set your own dimensions for the box using the `width` and `height` properties.

Pixels (px) and percentages (%) are two common ways to specify the width and height of a box. By using px, you can specify the exact width or height of a box. By using %, you can proportionally size the box as a percentage of its container's width and height.

You can also limit the width and height of a box by using the `min-width`, `max-width`, `min-height` and `max-height` properties.

```
<div>
  <p>
    Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.
```

```
  </p>
</div>
```

```
div {
  width: 400px;
  height: 300px;
  background-color: #DC5B83;
}

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

Width and Height

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.

75%

300px

400px

The `overflow` property tells the browser what to do if the content contained within the box is larger than the box itself.

index.html

```
<html>
  <head>
    <title>CSS Layout and Positioning</title>
    <link href="style.css" type="text/css"
rel="stylesheet" />
  </head>
  <body>
    <p class="visible-overflow">
      Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.
    </p>
  </body>
</html>
```

style.css

```
body {
  font-family: Avenir, "Century Gothic";
  font-weight: normal;
  line-height: 1.4em;
}

p {
  color: #5B5B65;
  font-size: 12pt;
  line-height: 1.8em;
  background-color: #EEEEEE;
  padding: 30px;
  margin: 30px;
  width: 400px;
  max-height: 80px;
}

p.visible-overflow {
  overflow: visible;
}

p.hidden-overflow {
  overflow: hidden
}

p.scroll-overflow {
  overflow: scroll;
}
```

Setting the `overflow` property to `visible` means that the content would be visible outside of its containing box, as it does in the following example.

Result

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.

Setting the overflow property to hidden means that the extra content is hidden, as it is in the first paragraph.

index.html

```
<html>
  <head>
    <title>CSS Layout and Positioning</title>
    <link href="style.css" type="text/css"
rel="stylesheet" />
  </head>
  <body>
    <p class="hidden-overflow">
      Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.
    </p>
    <p class="scroll-overflow">
      Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.
    </p>
  </body>
</html>
```

style.css

```
body {
  font-family: Avenir, "Century Gothic";
  font-weight: normal;
  line-height: 1.4em;
}

p {
  color: #5B5B65;
  font-size: 12pt;
  line-height: 1.8em;
  background-color: #EEEEEE;
  padding: 30px;
  margin: 30px;
  width: 400px;
  max-height: 80px;
}

p.visible-overflow {
  overflow: visible;
}

p.hidden-overflow {
  overflow: hidden;
}

p.scroll-overflow {
  overflow: scroll;
}
```

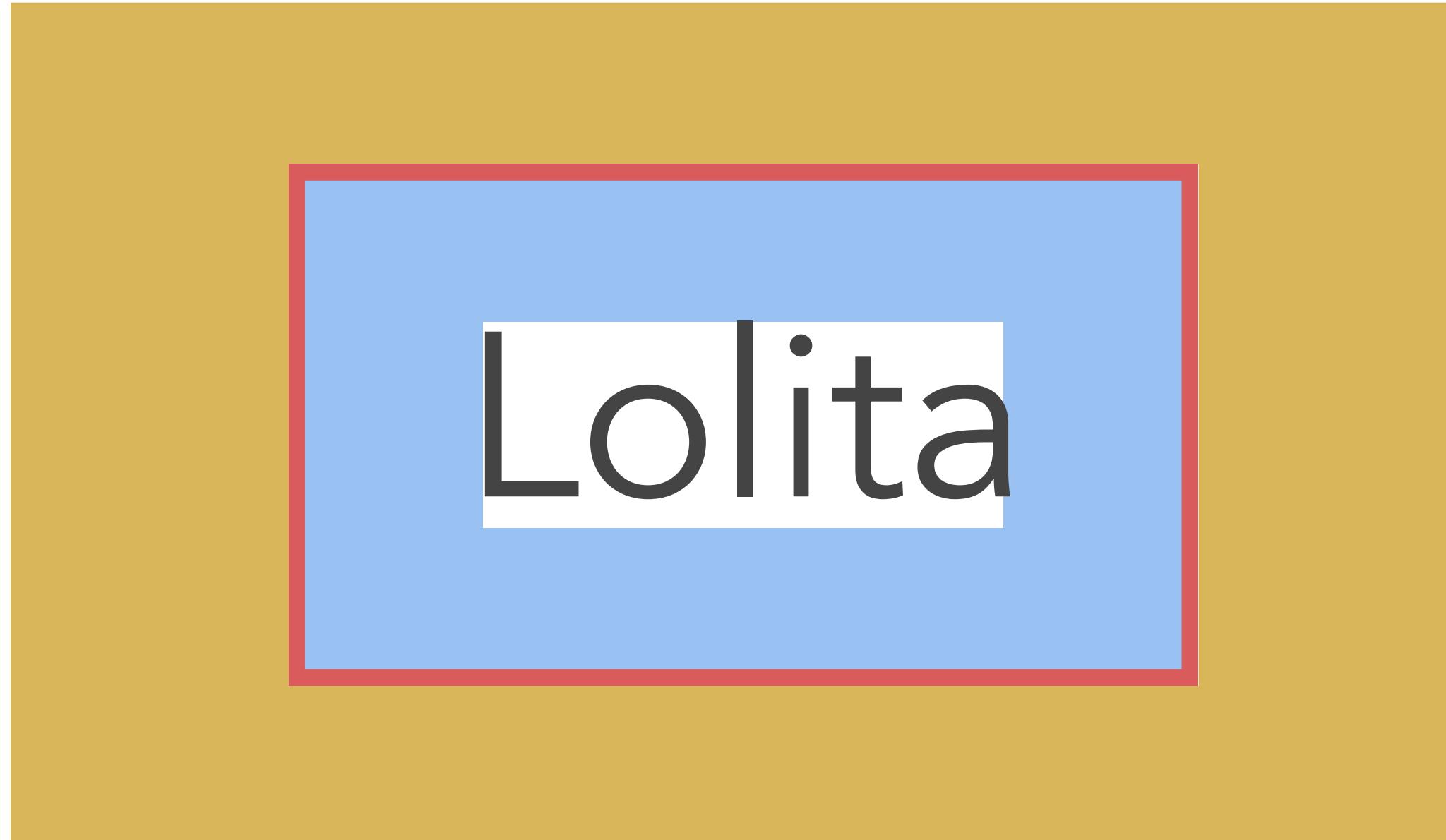
You can also set the overflow property to scroll, where you can actually scroll within the box if the content is larger than the box itself.

Result

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra

Border, Margin and Padding

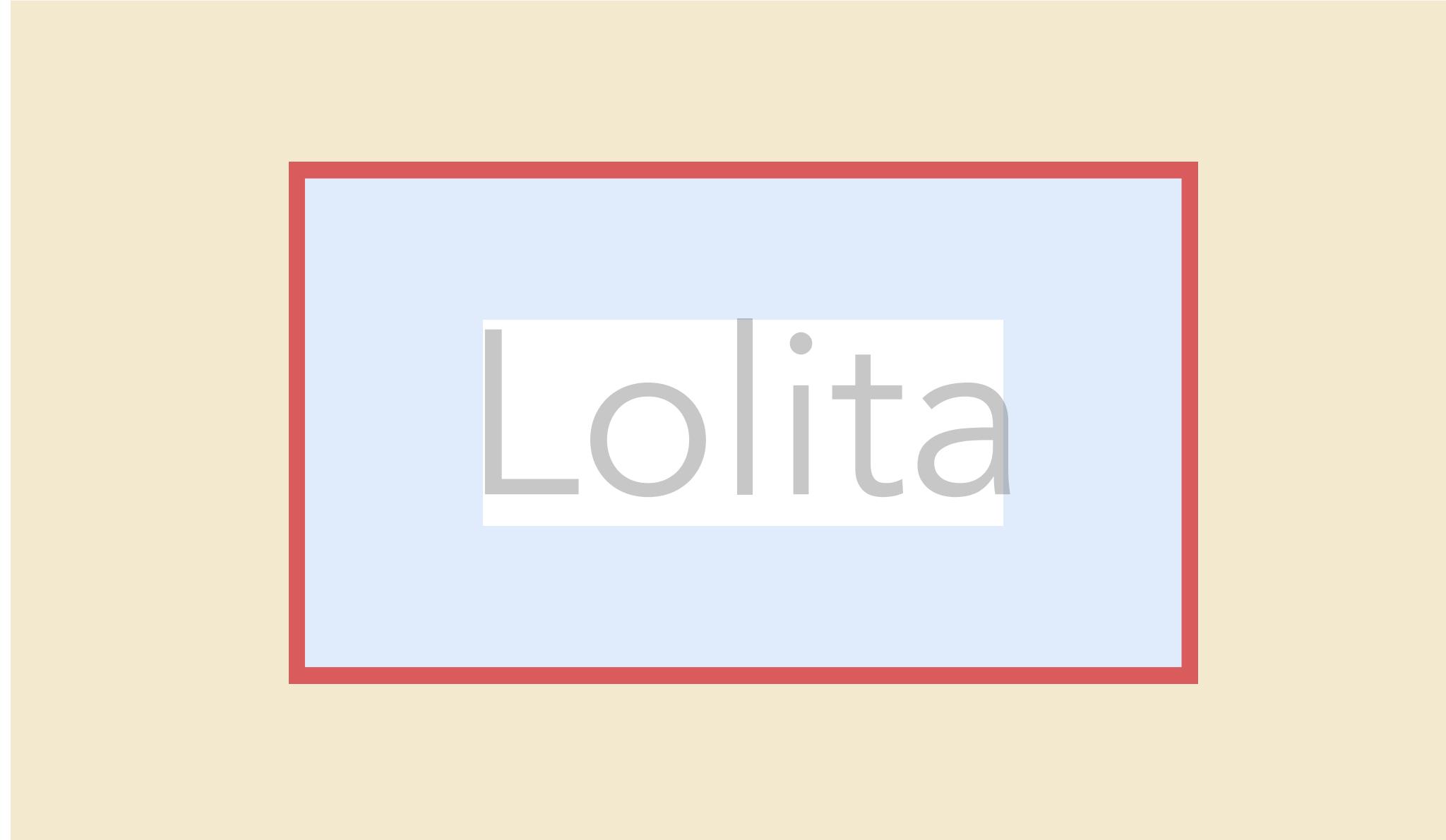


Every box has three properties that you can use to control its appearance: **border**, **margin** and **padding**.

If you specify a width or height for a box, then its borders and padding are added to its displayed width or height.

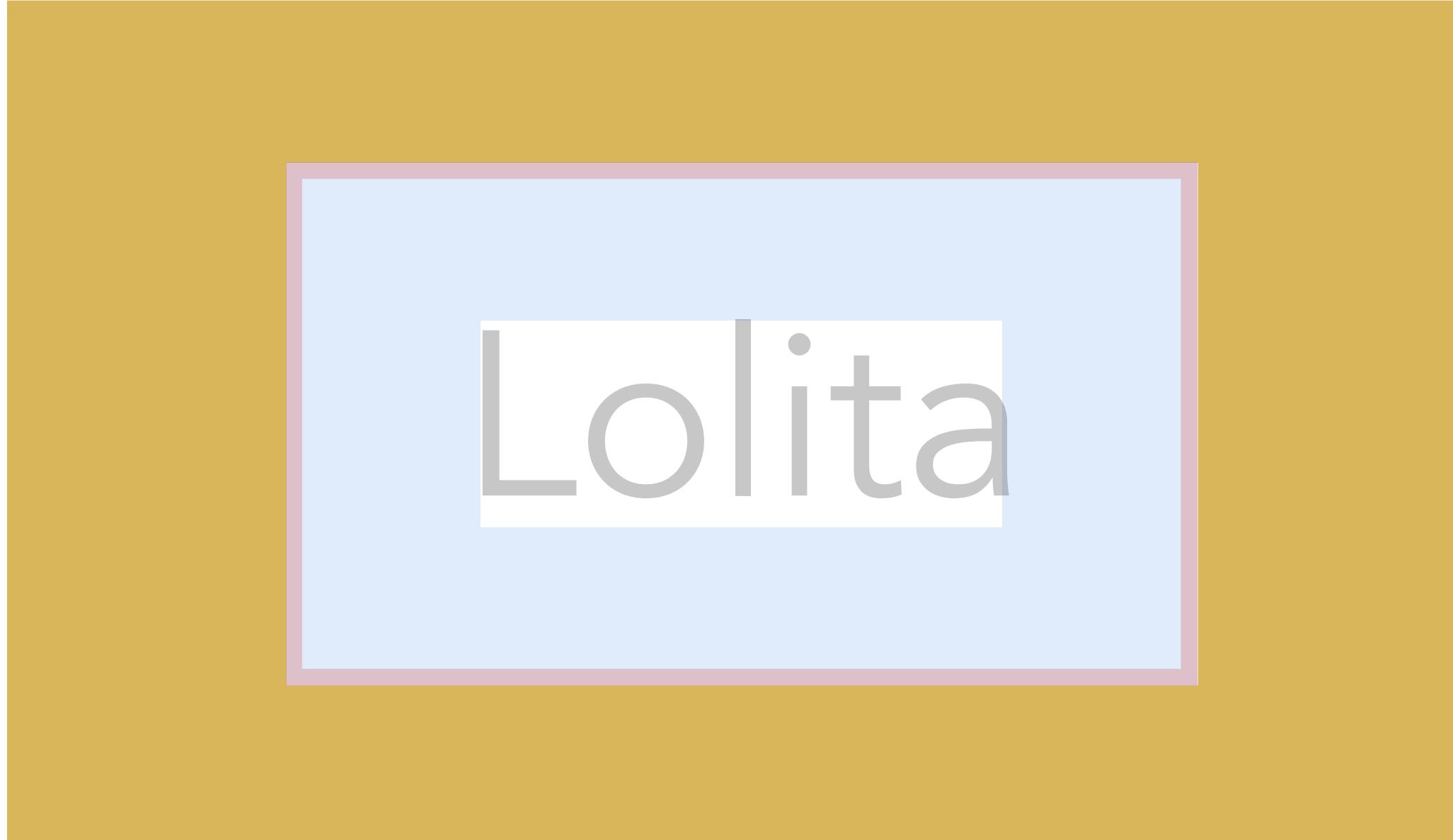
For example, if you specify a box to be 500px wide, with 20px padding, and a 1px border, then the displayed width of that box is 542px wide, as it adds the border and padding widths on *both sides*.

Border



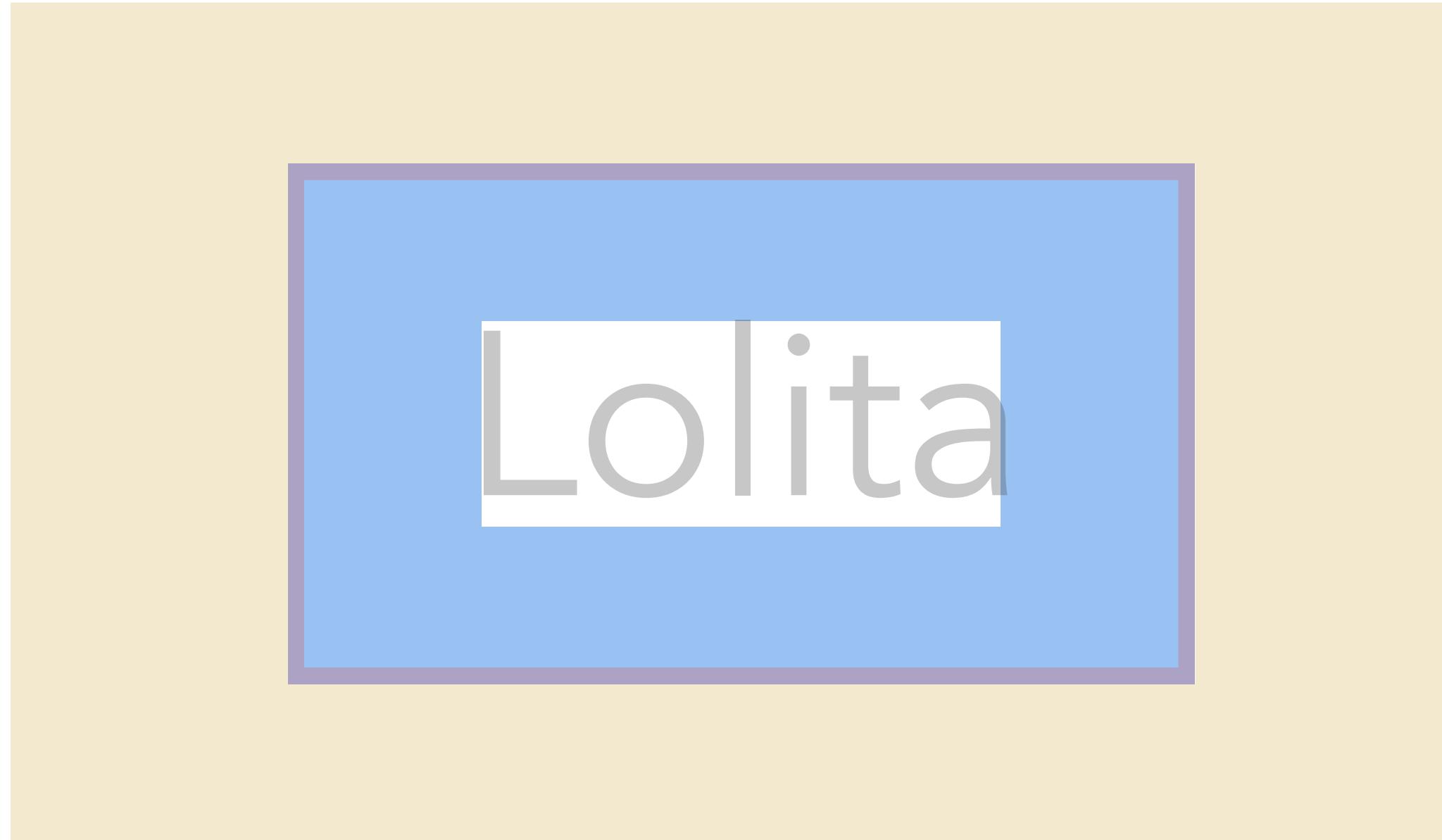
Every box has a border, even if its not visible or if it has a width of 0. The border seperates the edge of one box from another.

Margin



Margins refer to the spacing outside of a box. You can set margins to separate and create space around boxes.

Padding



Padding refers to the the spacing between the border of the box and the content contained within it. Adding padding can improve the readability of text contained within a box.

Border Styling

There are a number of ways you could style the border of a box.

```
.bordered {  
    border-width: 4px;  
}
```

```
.bordered {  
    border-style: solid;  
}
```

```
.bordered {  
    border-color: #CCCCCC;  
}
```

The `border-width` property can be used to adjust the thickness of a border.

The `border-style` property can be used to adjust the style that the border is rendered in. You can use the `solid` value to render a simple, solid border around the box. You can make it dashed, or you could display it as a double border.

You can also set the colour of the border using the `border-color` property.

Border Styling

```
<h1 class="bordered rounded">Lolita</h1>  
  
.bordered {  
    border: 4px solid #CCCCCC;  
}  
  
.rounded {  
    border-radius: 8px;  
}
```



The three border styling properties - border-width, border-style and border-color - can be combined into a single shorthand border property.

You can also add rounded edges to your boxes so that they resemble rounded rectangles by using the border-radius property.

Padding

<p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.</p>

```
p {  
    padding: 30px;  
}
```

```
p {  
    padding: 20px 40px 60px 40px;  
}
```

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.

You can use the padding property to specify how much space there is between the content of an element and its border.

The padding property is commonly expressed in units of px, although you can use em and % as well. You can specify a single value which applies that value of padding for all sides of the box.

Alternatively, you can specify four individual values, separated by a space, starting clockwise from the top. In this example, the top padding of the element would be 20px; its right padding 40px; its bottom padding 60px and its left padding 40px.

Margins

```
<div class="container">
  <p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.</p>
  <p>Clegg sees the novel's non-disclosure of Lolita's feelings as directly linked to the fact that her "real" name is Dolores and (in the novel but not the film) only Humbert refers to her as Lolita. Humbert also states he has effectively "solipsized" Lolita early in the novel.</p>
</div>

.container {
  width: 800px;
  border: 3px solid #FF4500;
}

p {
  padding: 30px;
  margin: 30px;
}
```

You can use the `margin` property to specify how much space there is around each box.

If one box sits on top of another, their two margins collapse. In this case, the vertical space between the two boxes is equivalent to the largest margin of those boxes. In the example shown here, the space between the first paragraph and second paragraph is 30px, even though the first paragraph has a bottom margin of 30px, and the second paragraph as a top margin of 30px. Although their margins add up to 60px, their two margins collapse, resulting in the 30px distance shown in the result.

Margins

```
<div class="container">
```

```
    <p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.</p>
```

```
    <p>Clegg sees the novel's non-disclosure of Lolita's feelings as directly linked to the fact that her "real" name is Dolores and (in the novel but not the film) only Humbert refers to her as Lolita. Humbert also states he has effectively "solipsized" Lolita early in the novel.</p>
```

```
</div>
```

```
.container {  
    width: 800px;  
    border: 3px solid #FF4500;  
}
```

```
p {  
    padding: 30px;  
    margin: 30px;  
}
```

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```
<body>
  <div>
    Lolita is a novel by Vladimir Nabokov, written in
    English and published in 1955 in Paris, in 1958 in New
    York City, and in 1959 in London. Nabokov's own
    translation of the book into Russian was published by
    Phaedra Publishers in New York in 1967.
  </div>
</body>
```

```
body {
  font-family: Avenir, "Century Gothic";
  line-height: 1.4em;
}

div {
  color: #5B5B65;
  font-size: 12pt;
  line-height: 1.8em;
  background-color: #EEEEEE;
  padding: 30px;
  margin: 30px;
  border: 3px solid #FF4500;
  width: 500px;
  height: 300px;
}
```

How big is this box?

Given the CSS on the left, what is the total width and height of this box?

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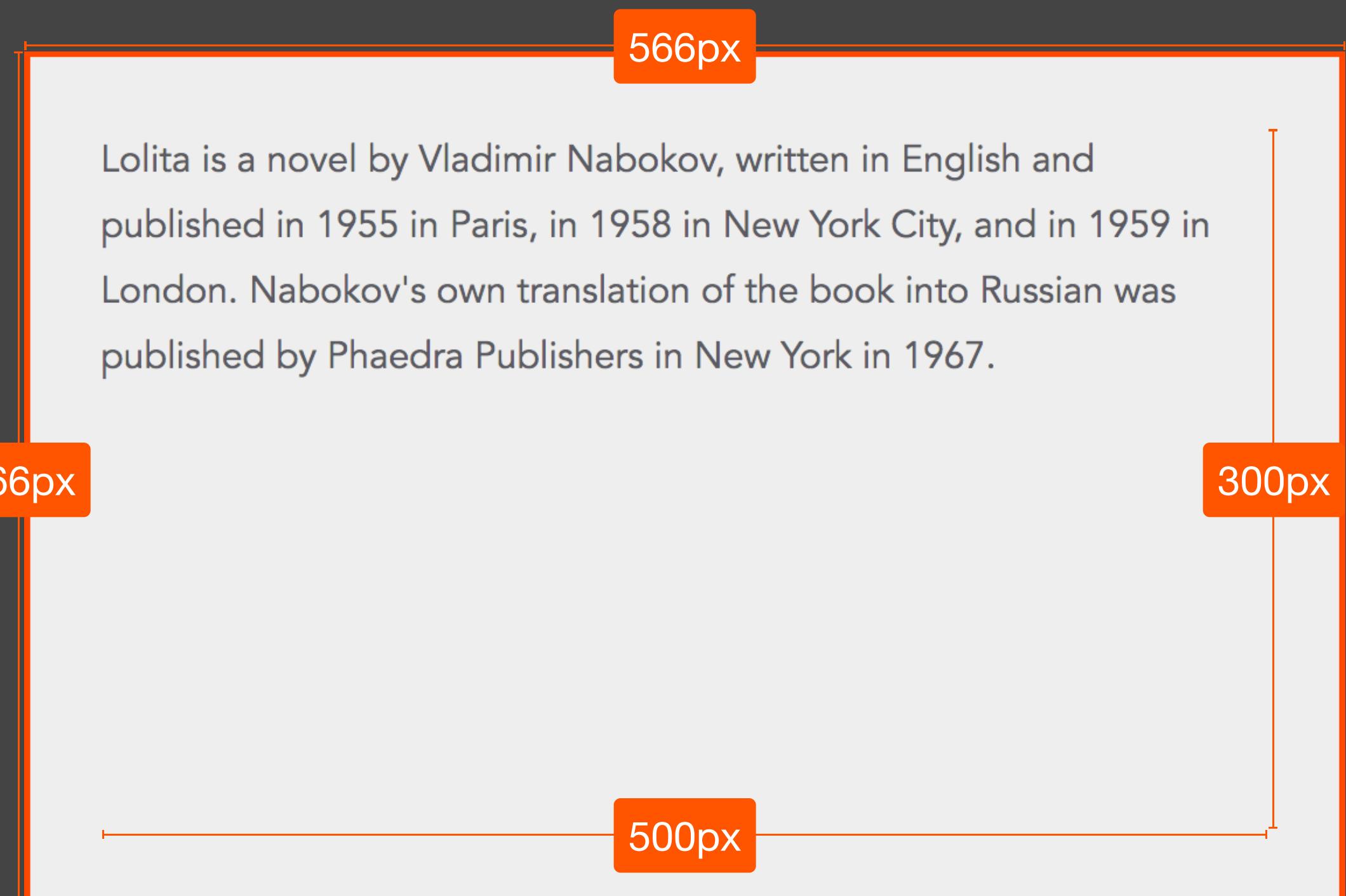
```
<body>
  <div>
    Lolita is a novel by Vladimir Nabokov, written in
    English and published in 1955 in Paris, in 1958 in New
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  </div>
</body>
```

```
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  line-height: 1.4em;
}

div {
  color: #5B5B65;
  font-size: 12pt;
  line-height: 1.8em;
  background-color: #EEEEEE;
  padding: 30px;
  margin: 30px;
  border: 3px solid #FF4500;
  width: 500px;
  height: 300px;
}
```

How big is this box?

Did you guess 500px x 300px? If so, you are not correct. The actual rendered size of the box is 566px x 366px, because by default width and height only specify content dimensions.



```
<body>
  <div>
    Lolita is a novel by Vladimir Nabokov, written in
    English and published in 1955 in Paris, in 1958 in New
    York City, and in 1959 in London. Nabokov's own
    translation of the book into Russian was published by
    Phaedra Publishers in New York in 1967.
  </div>
</body>
```

```
body {
  font-family: Avenir, "Century Gothic";
  line-height: 1.4em;
}

div {
  color: #5B5B65;
  font-size: 12pt;
  line-height: 1.8em;
  background-color: #EEEEEE;
  padding: 30px;
  margin: 30px;
  border: 3px solid #FF4500;
  width: 500px;
  height: 300px;
  box-sizing: border-box;
}
```

The Box Sizing Property

By adding the `box-sizing: border-box` declaration, the explicit width or height of a box also includes its border and padding.

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300px

500px

Positioning Schemes

An element's positioning scheme dictates how it will be laid out on the page relative to its surrounding elements.

Lolita

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Eric Lemay of Northwestern University writes: The human child, the one noticed by non-nymphomaniacs, answers to other names, "Lo", "Lola", "Dolly", and, least alluring of all, "Dolores". "But in my arms," asserts Humbert, "she was always Lolita."

Normal Flow

Every block element appears on a new line, regardless of their width or height. Every inline element flows inline with the flow of text, appearing next to one another. This is known as "normal flow".

This is the default behaviour of elements, although in cases where you may need to revert elements back to this behaviour, use the position: static; declaration.

```
h1 {  
  position: static;  
}
```

Relative Positioning

Lolita

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```
h1 {  
  position: relative;  
  top: 30px;  
  left: -30px;  
}
```

You can move elements from their normal flow positions by applying offsets.

In the example, the relatively positioned header is shifted 30px from the top, and -30px from the left (so it moves 30px downwards and 30px to the left).

The surrounding elements stay in the same position they would have been in, had the relatively positioned element been rendered within the normal flow.

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Lolita

```
.container {  
  position: relative;  
}  
  
h1 {  
  position: absolute;  
  top: 0;  
  right: 0;  
}
```

Absolute Positioning

This positions the element in relation to its closest containing, non-statically positioned element.

In this case, the div with class container is defined as the containing element of the header's absolute position, so it's given a position: relative declaration (in practice this container's position does not change because no offsets have been defined).

The header is absolutely positioned to the very top-right of that container.

Lolita

York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.

Clegg sees the novel's non-disclosure of Lolita's feelings as directly linked to the fact that her "real" name is Dolores and (in the novel but not the film) only Humbert refers to her as Lolita. Humbert also states he has effectively "solipsized" Lolita early in the novel.

Eric Lemay of Northwestern University writes: The human child, the one noticed by non-nymphomaniacs, answers to other names, "Lo", "Lola", "Dolly", and, least alluring of all, "Dolores". "But in my arms," asserts Humbert, "she was always Lolita."

```
h1 {  
  position: fixed;  
  top: 0;  
  right: 0;  
  left: 0;  
}
```

Fixed Positioning

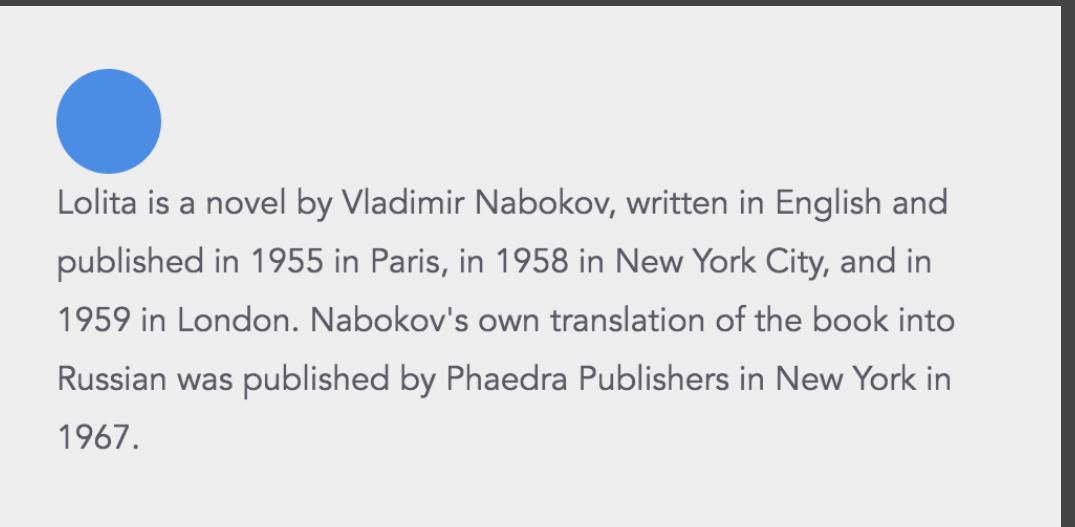
This positions the element in relation to the browser window, and the element remains in that position, even as the user scrolls.

Both position: absolute and position: fixed declarations remove their elements from the document flow.

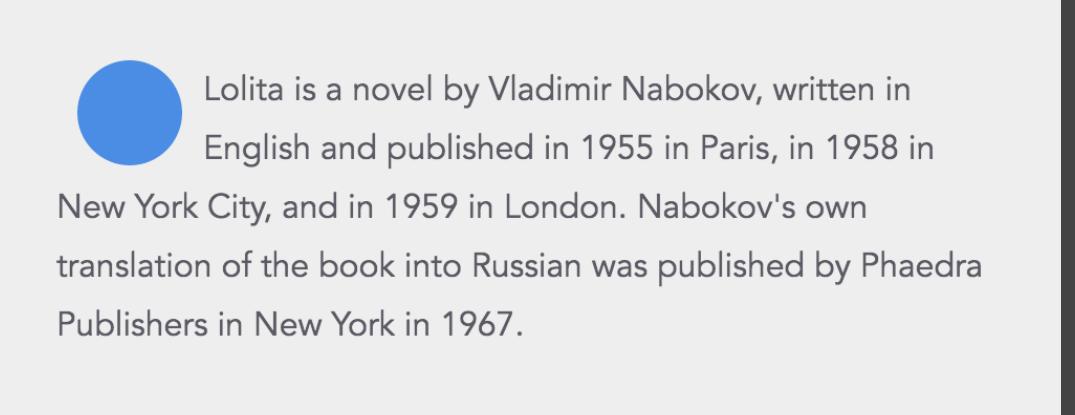
In the example above, the header is removed from the document flow and is fixed permanently to the top of the browser window.

```
<p><span class="circle"></span>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.</p>
```

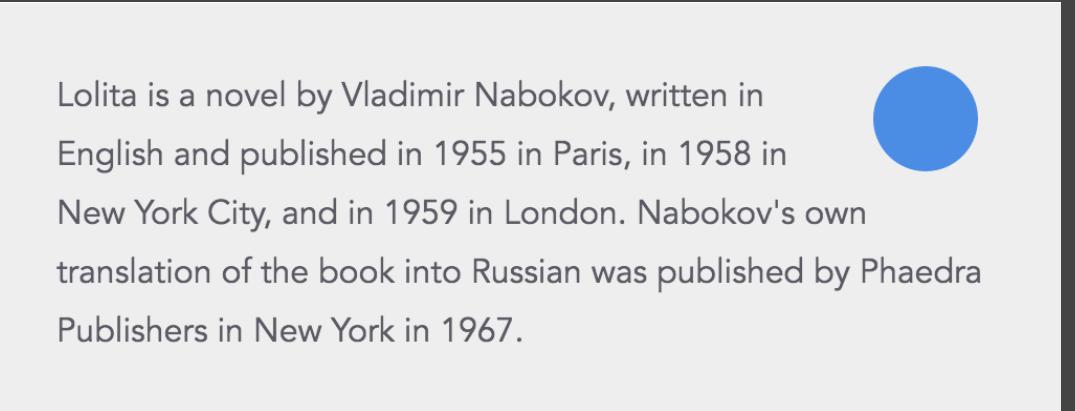
```
.circle {  
  width: 50px;  
  height: 50px;  
  float: none;  
  ...  
}
```



```
.circle {  
  width: 50px;  
  height: 50px;  
  float: left;  
  ...  
}
```



```
.circle {  
  width: 50px;  
  height: 50px;  
  float: right;  
  ...  
}
```



Floating Elements

You can use the `float` property to remove an element from its normal flow and place it as far as possible to the left or right of its containing element. Anything else that sits inside that containing element will flow around the floated element.

The floated element should have its width set so the browser can size and position the element appropriately, given that it no longer occupies its own line. You can also set margins on the floated element to give it some extra space so the text doesn't wrap too closely around it.

You can create column layouts by setting widths, heights and margins on the columns and then floating them to the left.

index.html

```
<html>
  <head>
    <title>CSS Layout and Positioning</title>
    <link href="style.css" type="text/css" rel="stylesheet" />
  </head>
  <body>
    <div class="container">
      <div class="col">
        <p>
          Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris, in 1958 in New York City, and in 1959 in London. Nabokov's own translation of the book into Russian was published by Phaedra Publishers in New York in 1967.
        </p>
      </div>
      <div class="col">
        <p>
          Clegg sees the novel's non-disclosure of Lolita's feelings as directly linked to the fact that her "real" name is Dolores and (in the novel but not the film) only Humbert refers to her as Lolita. Humbert also states he has effectively "solipsized" Lolita early in the novel.
        </p>
      </div>
      <div class="col">
        <p>
          Eric Lemay of Northwestern University writes: The human child, the one noticed by non-nymphomaniacs, answers to other names, "Lo", "Lola", "Dolly", and, least alluring of all, "Dolores". "But in my arms," asserts Humbert, "she was always Lolita."
        </p>
      </div>
    </div>
  </body>
</html>
```

style.css

```
body {
  font-family: Avenir, "Century Gothic";
  font-weight: normal;
  line-height: 1.4em;
}

.container {
  width: 702px;
  border: 3px solid #FF4500;
  padding: 9px;
  overflow: auto;
}

.col {
  color: #5B5B65;
  font-size: 12pt;
  line-height: 1.8em;
  background-color: #EEEEEE;
  float: left;
  width: 216px;
  margin: 9px;
  height: 400px;
}

.col p {
  margin: 18px;
}
```

The containing element needs to have its width and overflow properties set, so as to ensure that it appropriately wraps around the floated columns.

Result



Centering Elements

One of the trickier aspects of understanding CSS layout is the ability to center and align elements relative to their parent.

There are a number of centering techniques that you would need to become familiar with, depending on whether the centered elements are inline elements or block level elements, and on whether you would need to center elements horizontally or vertically.

Horizontal Centering

To centre a block level element inside another block level element, simply set the inner element's left and right margin properties to auto.

A common shorthand way of writing this would be `margin: 0 auto;` — the first 0 represents the top and bottom margins of an element, and the auto represents the left and right margins of an element.

```
Lolita is a novel by Vladimir Nabokov, written in English  
and published in 1955 in Paris, in 1958 in New York  
City, and in 1959 in London. Nabokov's own translation  
of the book into Russian was published by Phaedra  
Publishers in New York in 1967.
```

```
Clegg sees the novel's non-disclosure of Lolita's  
feelings as directly linked to the fact that her "real"  
name is Dolores and (in the novel but not the film) only  
Humbert refers to her as Lolita. Humbert also states he  
has effectively "solipsized" Lolita early in the novel.
```

```
<div class="container">  
  <p>Lolita is a novel by Vladimir Nabokov, written in  
English and published in 1955 in Paris, in 1958 in New  
York City, and in 1959 in London. Nabokov's own  
translation of the book into Russian was published by  
Phaedra Publishers in New York in 1967.</p>  
  <p>Clegg sees the novel's non-disclosure of Lolita's  
feelings as directly linked to the fact that her  
"real" name is Dolores and (in the novel but not the  
film) only Humbert refers to her as Lolita. Humbert  
also states he has effectively "solipsized" Lolita  
early in the novel.</p>  
</div>
```

```
body, p {  
  font-family: Avenir, "Century Gothic", sans-serif;  
  font-weight: normal;  
  line-height: 1.8em;  
  color: #444444;  
}  
  
h1, h2, p {  
  padding: 30px;  
}  
  
.container {  
  width: 800px;  
  border: 3px solid #FF4500;  
}  
  
p {  
  width: 400px;  
  margin: 30px auto;  
  background-color: #EEEEEE;  
}
```

Horizontal Centering

Inline elements (such as text or ``s) or elements that are set to a display type of `inline-block` can be centered by applying `text-align: center` to the element's parent.

Inline-block elements are like a hybrid of inline elements and block level elements. Like inline elements, they flow horizontally and can be both vertically and horizontally aligned. Like block elements, they can have a width, height, margin and padding applied to them.

This text is horizontally centered.

```
body, p, span {  
    font-family: Avenir, "Century Gothic", sans-serif;  
    font-weight: normal;  
    line-height: 1.8em;  
    color: #444444;  
}  
h1, h2, p {  
    padding: 30px;  
}
```

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.

```
<div class="container">  
    <span>This text is horizontally centered.</span>  
</div>  
<div class="container">  
    <p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.</p>  
    <p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.</p>  
</div>
```

```
.container {  
    width: 800px;  
    height: 300px;  
    border: 3px solid #FF4500;  
    text-align: center;  
    margin: 15px 0;  
}
```

```
p {  
    width: 250px;  
    height: 125px;  
    display: inline-block;  
    background-color: #EEEEEE;  
    text-align: left;  
}
```

Vertical Centering

For inline or inline-block type elements, you can also adopt this approach to center elements vertically.

This is done by explicitly setting both the height and line-height on the containing elements, and then set vertical-align: middle for the elements that you would want vertically centered. You can also set vertical-align: bottom if you would wish to align your elements to the bottom.

The problem with this approach is that the height of the containing element needs to be known and explicitly set.

This text is horizontally centered.

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.

Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.

```
<div class="container">
  <span>This text is horizontally centered.</span>
</div>
<div class="container">
  <p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.</p>
  <p>Lolita is a novel by Vladimir Nabokov, written in English and published in 1955 in Paris.</p>
</div>
```

```
body, p, span {
  font-family: Avenir, "Century Gothic", sans-serif;
  font-weight: normal;
  line-height: 1.8em;
  color: #444444;
}

h1, h2, p {
  padding: 30px;
}

.container {
  width: 800px;
  height: 300px;
  line-height: 300px;
  border: 3px solid #FF4500;
  text-align: center;
  margin: 15px 0;
}

p {
  display: inline-block;
  width: 250px;
  height: 125px;
  background-color: #EEEEEE;
  text-align: left;
  vertical-align: middle;
}
```

Using Absolute Positioning

If the dimensions of the element being centered are known, but the dimensions of its container are not known, then you can use absolute positioning to centre the element.

For the element being centered, absolutely position it to 50% of the offset of its containing element (either horizontal, vertical or both) and then apply a negative margin to half of its width and/or height.

Lolita, light of my life, fire of my loins. My sin, my soul. Lo-lee-ta: the tip of the tongue taking a trip of three steps down the palate to tap, at three, on the teeth. Lo. Lee. Ta. She was Lo, plain Lo, in the morning, standing four feet ten in one sock. She was Lola in slacks. She was Dolly at school. She was Dolores on the dotted line. But in my arms she was always Lolita. Did she have a precursor? She did, indeed she did.

```
<div class="container">
  <span>Lolita, light of my life, fire of my loins. My
sin, my soul. Lo-lee-ta: the tip of the tongue taking
a trip of three steps down the palate to tap, at
three, on the teeth. Lo. Lee. Ta. She was Lo, plain
Lo, in the morning, standing four feet ten in one
sock. She was Lola in slacks. She was Dolly at school.
She was Dolores on the dotted line. But in my arms she
was always Lolita. Did she have a precursor? She did,
indeed she did.</span>
  <p>You are currently reading the frist page of
Lolita.</p>
</div>
```

```
body, p, span {
  font-family: Avenir, "Century Gothic", sans-serif;
  font-weight: normal;
  line-height: 1.8em;
  color: #444444;
}

h1, h2, p {
  padding: 30px;
}

.container {
  position: relative;
  border: 3px solid #FF4500;
  text-align: center;
  margin: 15px 0;
  padding: 30px;
}

p {
  position: absolute;
  top: 50%;
  left: 50%;
  margin-left: -90px;
  margin-top: -75px;
  width: 180px;
  height: 150px;
  box-sizing: border-box;
  background-color: #EEEEEE;
}
```

Using Flexbox

Flexbox makes it very easy to center and align elements, both horizontally and vertically.

Flexbox makes it really easy to center items.

To use Flexbox, set `display: flex` to the containing element.

The `justify-content` property controls the horizontal alignment of the container's child elements. The `align-items` property controls the vertical alignment of the container's child elements.

In this case, we can both horizontally and vertically center an element without the need to know its width and height, or the width and height of its container.

```
<div class="container">
  <div class="item">
    Flexbox makes it really easy to center items.
  </div>
</div>
```

Flexbox makes it really easy to center items.

```
body, p, span {
  font-family: Avenir, "Century Gothic", sans-serif;
  font-weight: normal;
  line-height: 1.8em;
  color: #444444;
}

h1, h2, p {
  padding: 30px;
}

.container {
  border: 3px solid #FF4500;
  text-align: center;
  margin: 15px 0;
  padding: 30px;
  width: 450px;
  height: 400px;
  display: flex;
  justify-content: center;
  align-items: center;
}

.item {
  padding: 30px;
  box-sizing: border-box;
  background-color: #EEEEEE;
}
```

Alignment using Flexbox

Flexbox makes it really
easy to align items.

Flexbox makes it really
easy to align items.

You can also use flexbox to specify whether its elements are lined up horizontally or vertically. This is achieved by using the **flex-direction** property.

Flexbox makes it really easy to align items.

Flexbox makes it really easy to align items.

Flexbox makes it really
easy to align items.

Flexbox makes it really
easy to align items.

Flexbox makes it really easy to align items.

Flexbox makes it really easy to align items.

```
<div class="container row">
  <div class="item">
    Flexbox makes it really easy to align items.
  </div>
  <div class="item">
    Flexbox makes it really easy to align items.
  </div>
</div>
<div class="container column">
  <div class="item">
    Flexbox makes it really easy to align items.
  </div>
  <div class="item">
    Flexbox makes it really easy to align items.
  </div>
</div>
```

```
body, p, span {
  font-family: Avenir, "Century Gothic", sans-serif;
  font-weight: normal;
  line-height: 1.8em;
  color: #444444;
}
```

```
h1, h2, p {
  padding: 30px;
}
```

```
.container {
  border: 3px solid #FF4500;
  text-align: center;
  margin: 15px 0;
  padding: 30px;
  width: 450px;
  height: 200px;
  display: flex;
  justify-content: center;
  align-items: center;
}
```

```
.container.row {
  flex-direction: row;
}
.item {
  padding: 15px;
  margin: 15px;
}
.container.column {
  flex-direction: column;
}
```

Flexbox also makes it really easy to create column-based layouts.

Unlike the existing float method, it's very straightforward to create columns that can 'fit' within the layout that also extend all the way to the bottom of the container.

This sort of layout is very difficult to do using more 'traditional' layout techniques.

Flexbox for Columns

Flexbox is also extremely useful for creating column-based layouts. There are several advantages of using flexbox as opposed to the more traditional 'float' technique.

The existing 'float' technique requires you to explicitly set column widths. It's also difficult to vertically align the columns, or to ensure that the bottom of each column extends all the way to the bottom.

Flexbox makes it very easy to create column-based layouts.

Flexbox also makes it really easy to create column-based layouts.

Unlike the existing float method, it's very straightforward to create columns that can 'fit' within the layout that also extend all the way to the bottom of the container.

This sort of layout is very difficult to do using more 'traditional' layout techniques.

```
<div class="container row">
  <div class="item">
```

Flexbox also makes it really easy to create column-based layouts.

```
  </div>
  <div class="item">
```

Unlike the existing float method, it's very straightforward to create columns that can 'fit' within the layout that also extend all the way to the bottom of the container.

```
  </div>
  <div class="item">
```

This sort of layout is very difficult to do using more 'traditional' layout techniques.

```
  </div>
</div>
```

```
body, p, span {
  font-family: Avenir, "Century Gothic", sans-serif;
  font-weight: normal;
  line-height: 1.8em;
  color: #444444;
}
```

```
h1, h2, p {
  padding: 30px;
}
```

```
.container {
  border: 3px solid #FF4500;
  text-align: center;
  margin: 15px 0;
  padding: 20px;
  display: flex;
  justify-content: space-around;
}
```

```
.item {
  padding: 15px;
  margin: 15px;
  box-sizing: border-box;
  background-color: #EEEEEE;
  width: 100%;
}
```

HOW TO CENTER IN CSS

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WHAT

Centering in CSS is a pain in the ass. There seems to be a gazillion ways to do it, depending on a variety of factors. This consolidates them and gives you the code you need for each situation.

Select the type of content you want to center in a parent `<div>` and the size of the parent.

CONTENT

What do you want to center?

Text

Just text, or an inline-level block of text and images.

Div

Any block-level element.

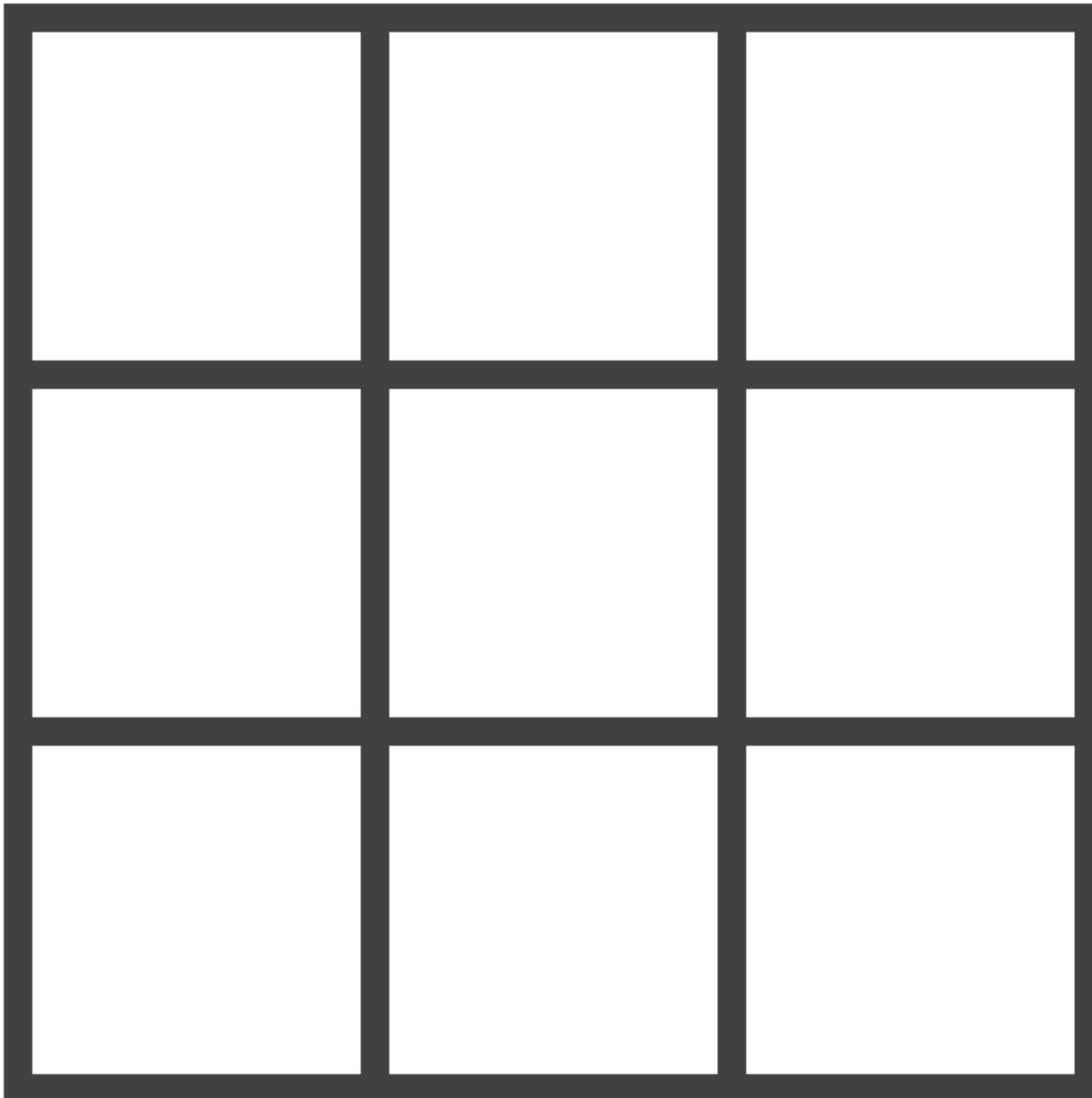
CONTAINER

How big is your container `<div>`?

WIDTH

Known

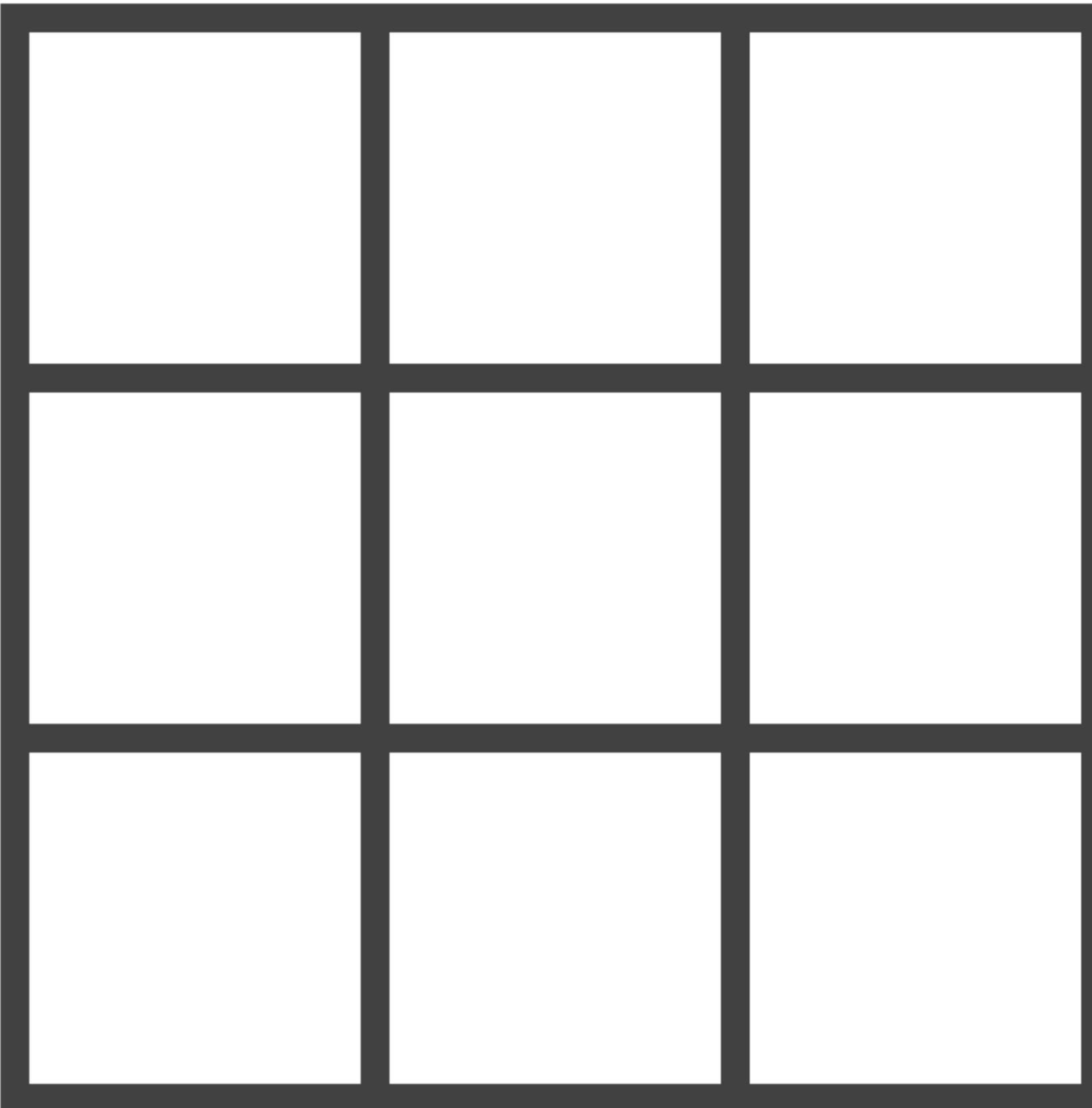
CSS Grids



CSS grids are a powerful means of creating grid-based layouts.

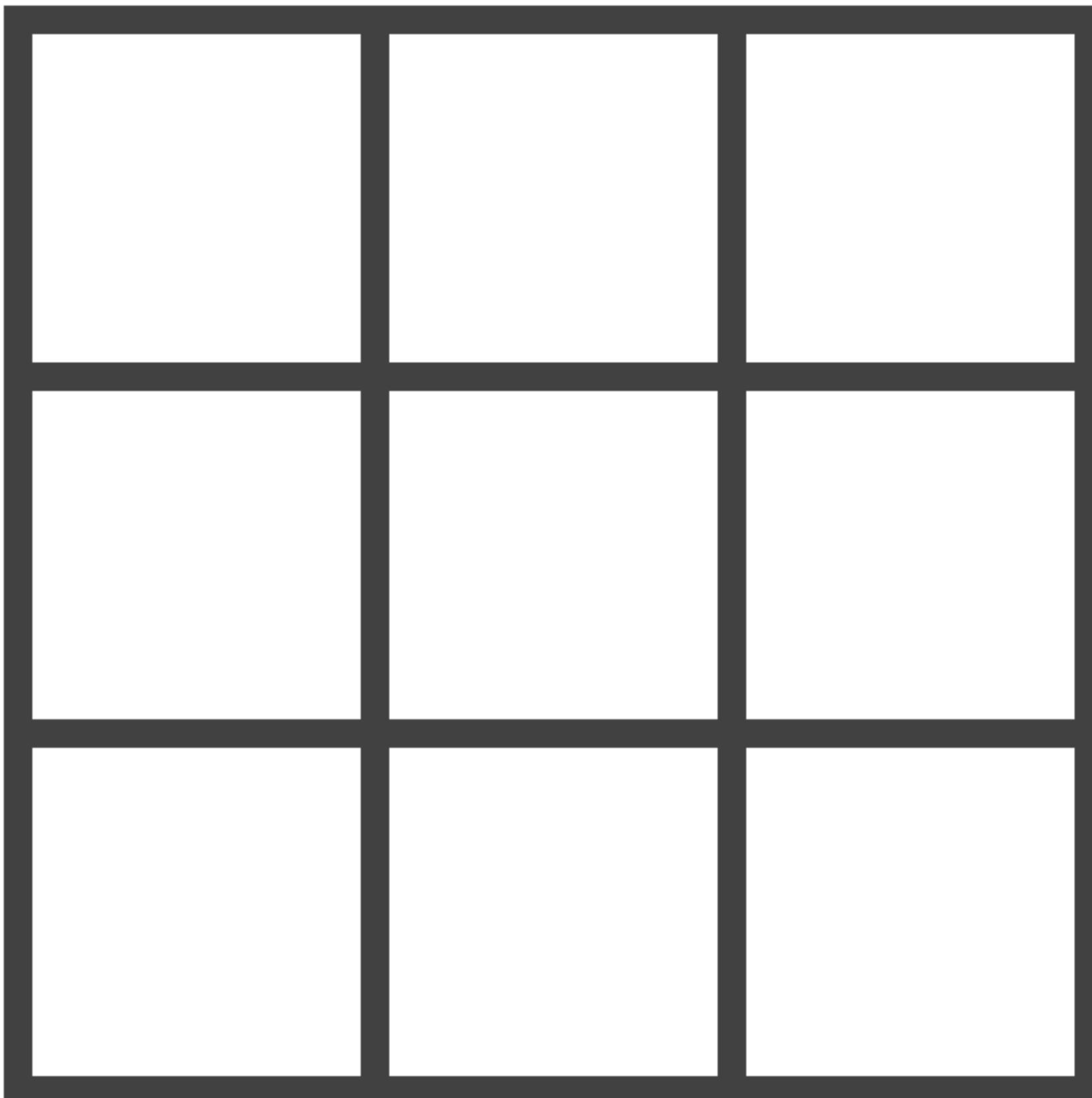
Unlike Flexbox, which is primarily designed to work with content flowing in one direction, CSS grids make it easy to work with layouts that cover both horizontal and vertical directions.

A Simple 3 x 3 Grid



Here, for example, I have an outer div called grid with 9 cells, each with a class name of box.

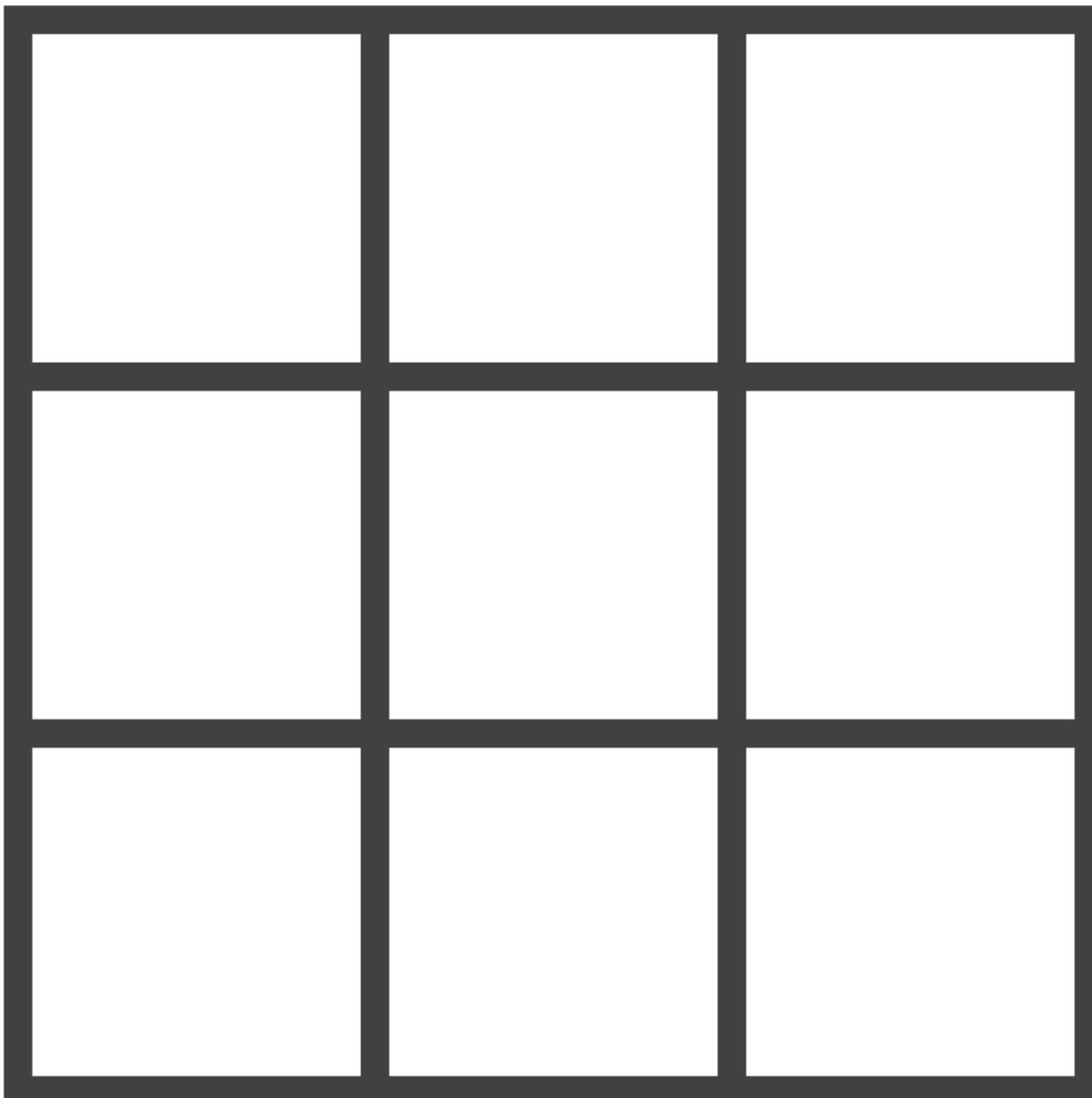
A Simple 3 x 3 Grid



When I set the `display` property to `grid`, I can use the `grid-template-rows` and `grid-template-columns` to respectively specify the width and height of each row and each column that makes up the grid.

```
.grid {  
  width: 300px;  
  height: 300px;  
  display: grid;  
  grid-template-rows: 100px 100px 100px;  
  grid-template-columns: 100px 100px 100px;  
  border: 4px solid #444;  
}  
  
.box {  
  border: 4px solid #444;  
}
```

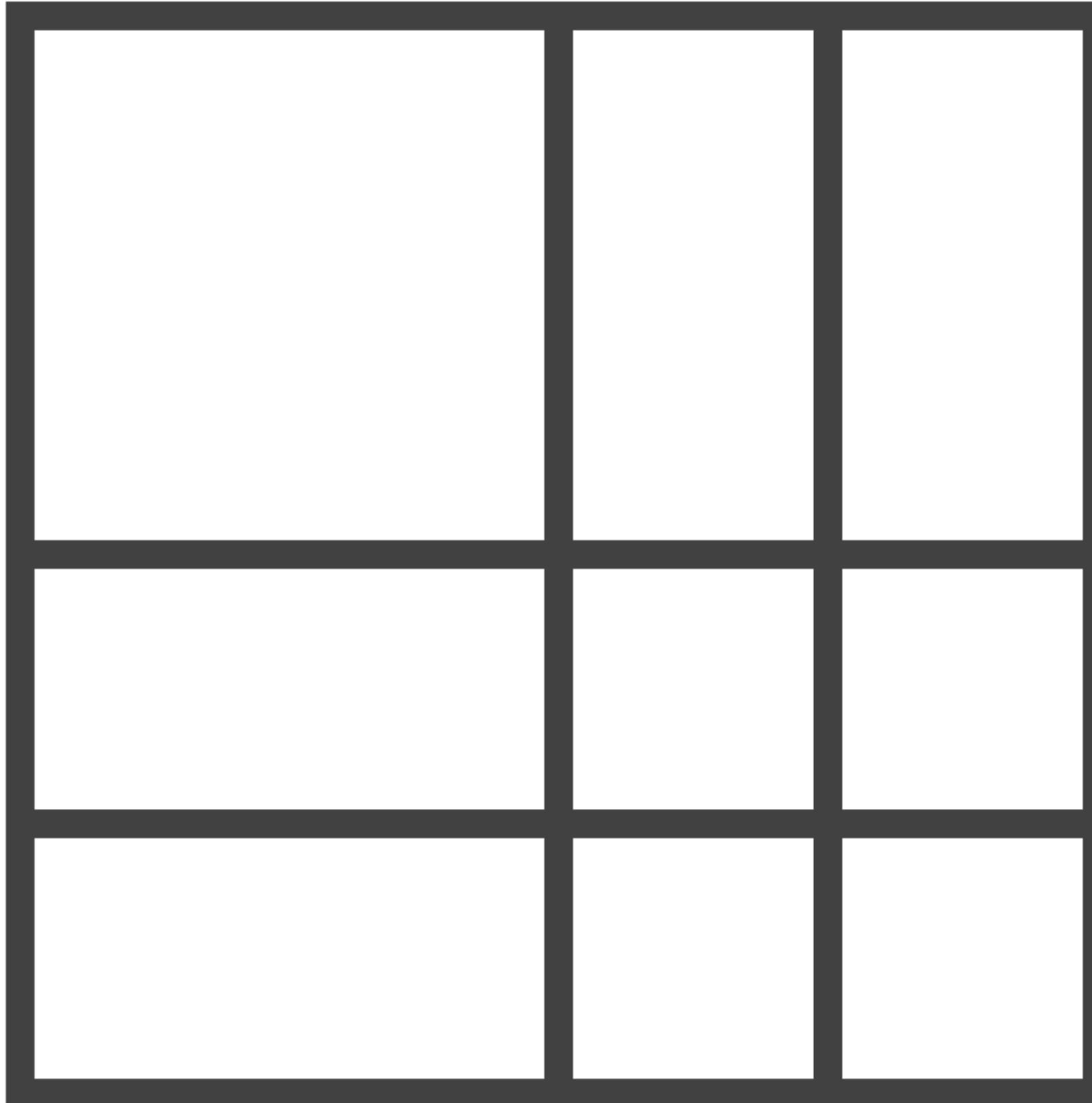
A Simple 3 x 3 Grid



If my layout is fluid, I can also use fractional units `fr` to specify the proportion that each row or column takes up. In this example, each row and each column takes up one third of its container, regardless of its width or height.

```
.grid {  
    width: 500px;  
    height: 500px;  
    display: grid;  
    grid-template-rows: 1fr 1fr 1fr;  
    grid-template-columns: 1fr 1fr 1fr;  
    border: 4px solid #444;  
}  
  
.box {  
    border: 4px solid #444;  
}
```

Proportional Layouts



You can use fractional units to specify the width and height of grid cells in terms of how much space they occupy relative to the parent. The repeat() function can be used to specify multiple grid cells at once.

```
.grid {  
    width: 500px;  
    height: 500px;  
    display: grid;  
    grid-template-rows: 6fr repeat(2, 3fr);  
    grid-template-columns: 6fr repeat(2, 3fr);  
    border: 4px solid #444;  
}  
  
.box {  
    border: 4px solid #444;  
}
```

<https://css-tricks.com/snippets/css/complete-guide-grid/>

Code Snippets » CSS »

A Complete Guide to Grid

BY **CHRIS HOUSE** LAST UPDATED ON FEBRUARY 2, 2018

GRID

CSS Grid Layout is the most powerful layout system available in CSS. It is a 2-dimensional system, meaning it can handle both columns and rows, unlike [flexbox](#) which is largely a 1-dimensional system. You work with Grid Layout by applying CSS rules both to a parent element (which becomes the Grid Container) and to that element's children (which become Grid Items).

This article was ported over from [Chris House's guide](#), by Chris himself, who is keeping both up-to-date.