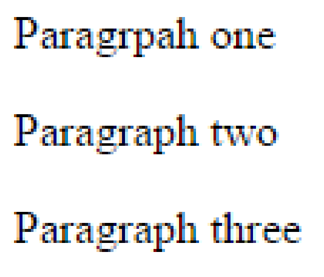
Coding Temple

CSS - BOX MODEL

How are elements Displayed?

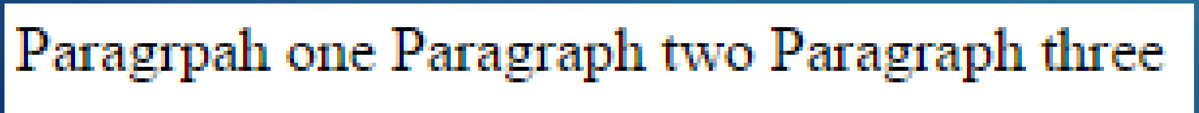
- Earlier we discussed the difference between *block-level* and *inline-level* elements
- Every element has a default ***display*** property value (CSS)
- This property may be overwritten
- There are quite a few values for the ***display*** property
  - Most common as ***block, inline, inline-block,*** and ***none***
  - ***Block –*** will make that element a block-level element
  - ***Inline –*** will make that element a inline-level element
  - ***Inline-block –*** will make that element behave like a block-level element but display as a inline-level element
    - Confused? More information in coming slides
  - ***None –*** will completely hide an element



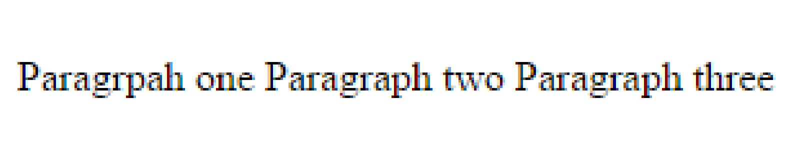
Paragrpah one

Paragraph two

Paragraph three



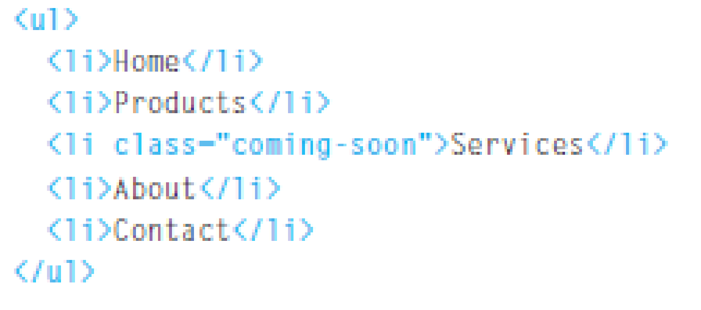
Paragrpah one Paragraph two Paragraph three



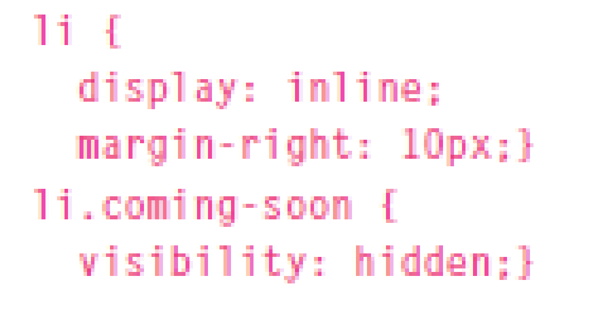
Paragrpah one Paragraph two Paragraph three

Hiding Boxes

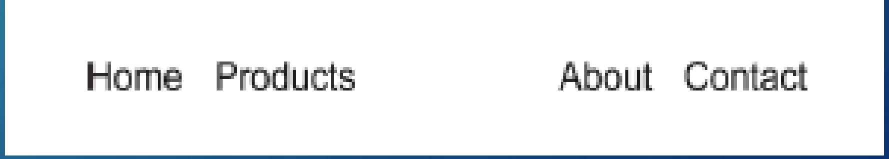
- The ***visibility*** property allows you to hide boxes from users but it leaves a space where the element would have been
- This property takes two values:
  - Hidden – hides the element
  - Visible – show the element
- If the visibility of an element is set to hidden, a blank space will appear in its places
  - If you do not want this empty space than use ***display*** property with the value ***none***



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



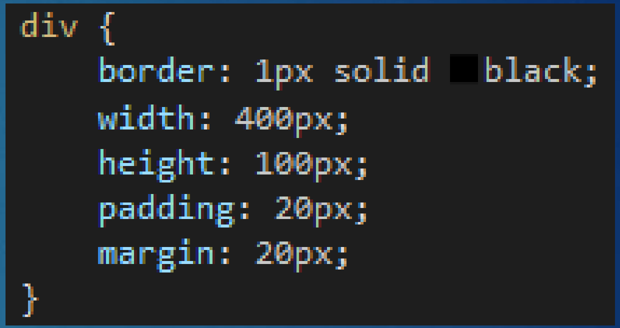
```
li {
  display: inline;
  margin-right: 10px;}
li.coming-soon {
  visibility: hidden;}
```



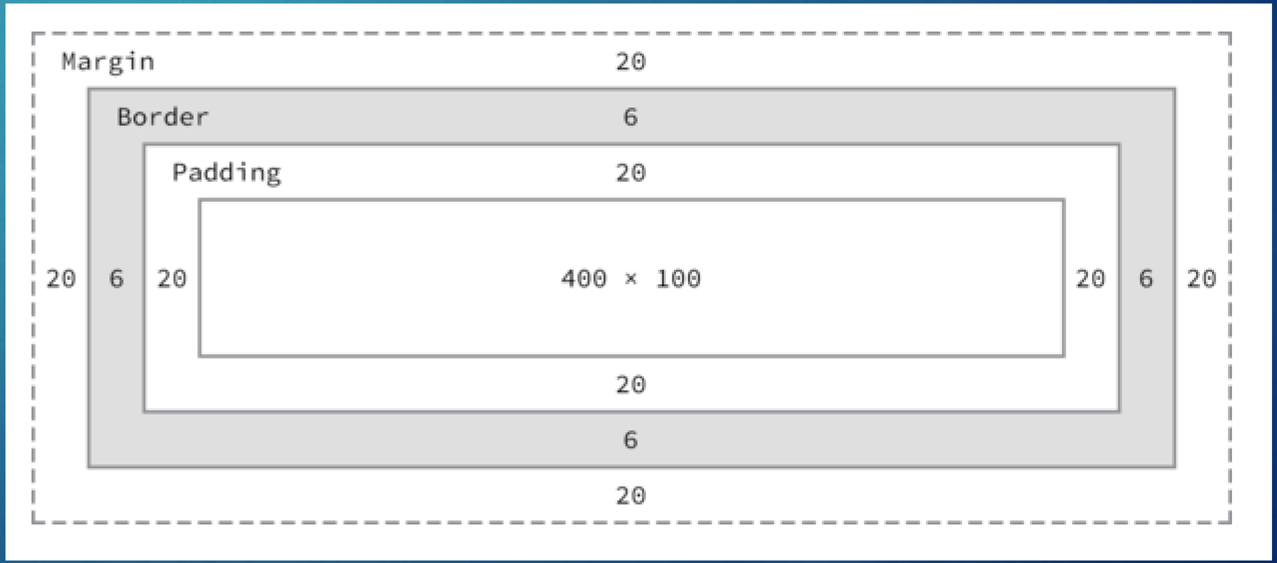
Home   Products   About   Contact

What is the Box Model?

- Every element on a page is a rectangular box and may have width, height, padding, borders and margins
- Each part of the box model corresponds to a CSS property
  - ***Width***
  - ***Height***
  - ***Padding***
  - ***Border***
  - ***Margin***



```
div {
    border: 1px solid ■black;
    width: 400px;
    height: 100px;
    padding: 20px;
    margin: 20px;
}
```



Box Model Calculations

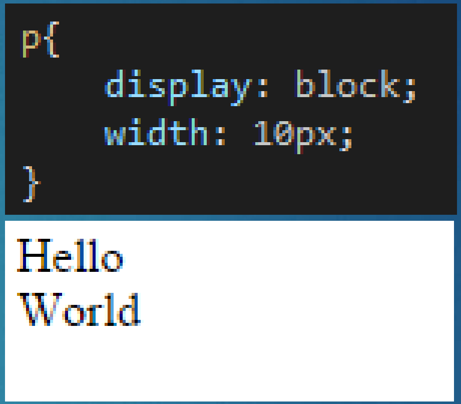
- Looking at the image of the box model from previous slide we can make use of these calculations to compute the overall **width** and **height**
- **Width Calculation:**
  - margin-right + border-right + padding-right + width + padding-left + border-left + margin-left
  - **Width:** 492px = 20px + 6px + 20px + 400px + 20px + 6px + 20px
- **Height Calculation:**
  - margin-top + border-top + padding-top + height + padding-bottom + border-bottom + margin-bottom
  - **Height:** 192px = 20px + 6px + 20px + 100px + 20px + 6px + 20px

- These Calculations are simple but yet very important when designing websites

Width

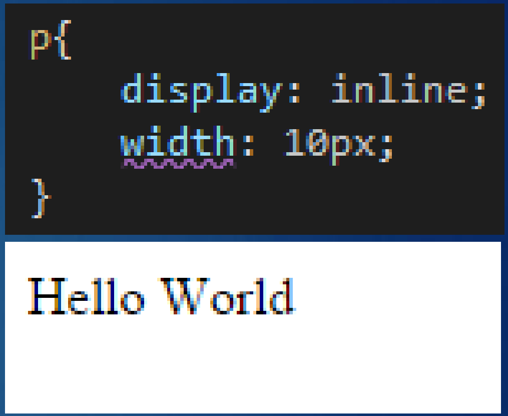
- Every element has a default width value, it may be 0 pixels
  - By default ***block-level*** elements have a width of 100%
    - Consumes the entire horizontal space available
  - ***Inline*** and ***inline-block*** elements expand and contract horizontally to accommodate their content
    - ***Inline*** elements cannot have a fixed size, thus the ***width*** and ***height*** properties are only relevant to non-inline elements

- Notice the squiggly sign under width?
- Its warning us that the width property will not work



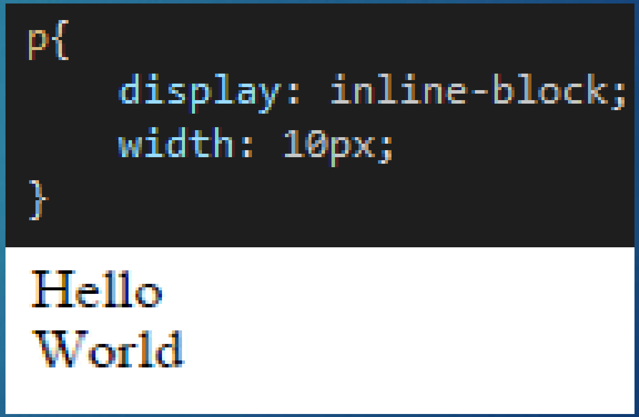
```
p{
    display: block;
    width: 10px;
}
```

Hello
World



```
p{
    display: inline;
    width: 10px;
}
```

Hello World



```
p{
    display: inline-block;
    width: 10px;
}
```

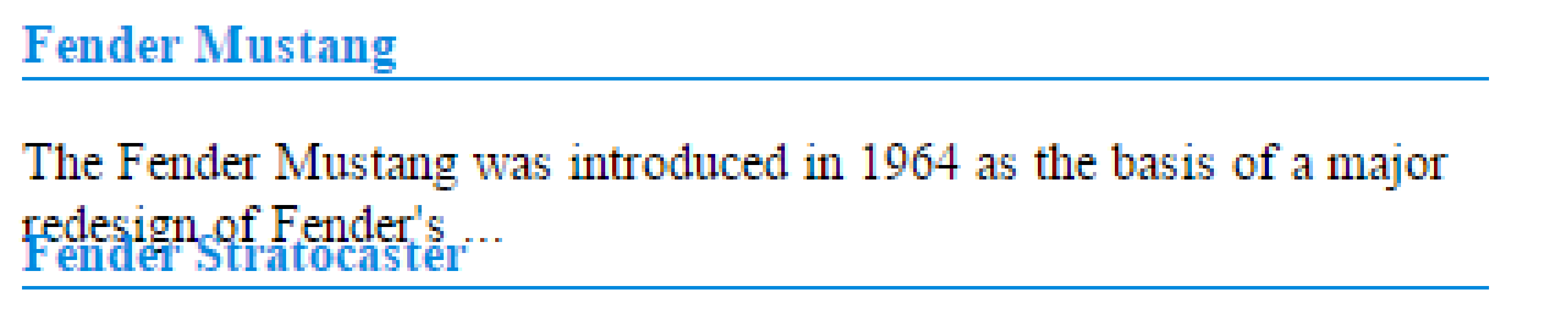
Hello
World

Height

- The Default Height of an element is determined by its content
- An element will expand and contact vertically as necessary to accommodate its content
- ***Height*** will only work for non-inline element

You Shall Not Pass (LOTR)

- Min-width, max-width, min-height and max-height properties allow us to control size of an element when the browse window is changed.
  - Min-width and min-height specify the smallest a box be
  - Max-width and max-height specifies the biggest a box can be
- These are very helpful properties to ensure that the content of pages are legible
  - Helps to be able to read text and view images on mobile devices
- If the contents of the element exceed the size min-height value, the will bleed out and over pass the contents of the next element



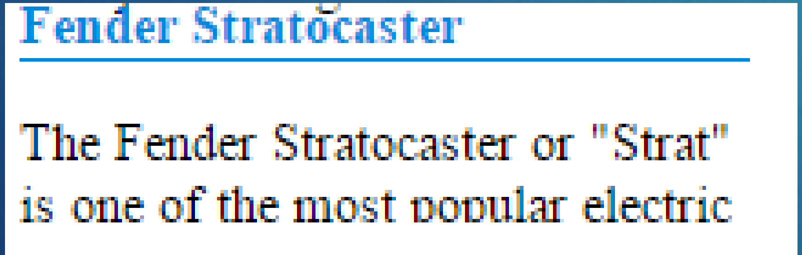
Fender Mustang

The Fender Mustang was introduced in 1964 as the basis of a major redesign of Fender's ...

Fender Stratocaster

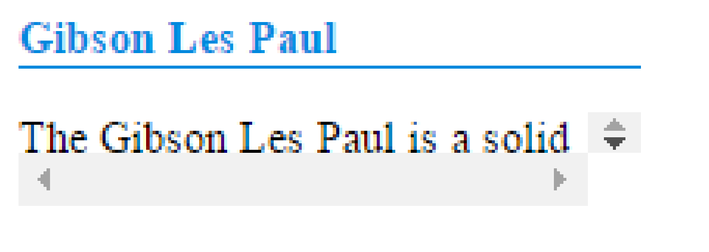
Overflowing Content

- In order to fix content that is bleeding into the next element, we use the ***overflow*** property
- ***Overflow*** has two properties
  - ***Hidden***
    - This property simply hides any extra content that does not fit it the box
  - ***Scroll***
    - this property adds a scrollbar to the box so the users can scroll to see the missing content



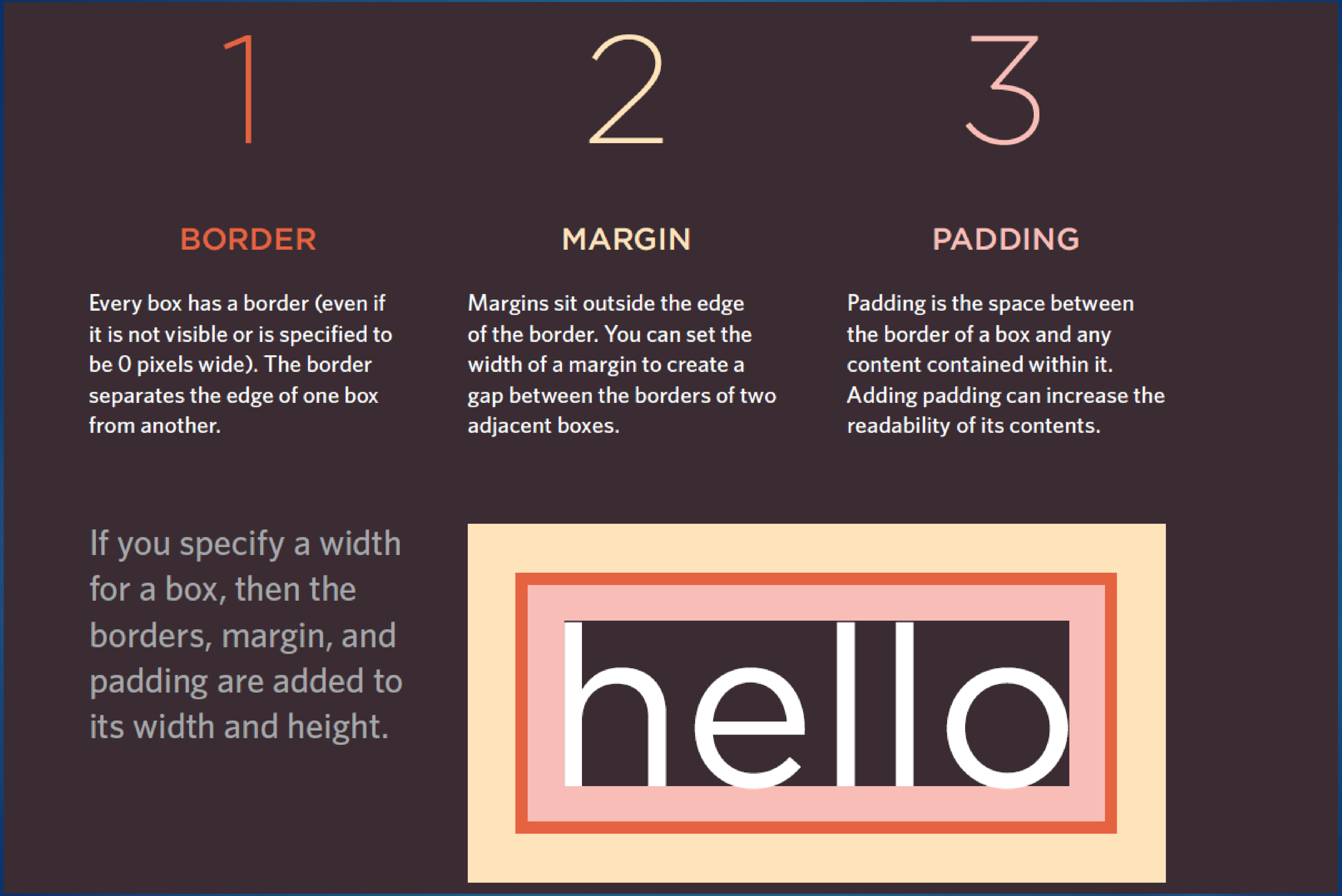
Fender Stratocaster

The Fender Stratocaster or "Strat" is one of the most popular electric



Gibson Les Paul

The Gibson Les Paul is a solid



1

BORDER

Every box has a border (even if it is not visible or is specified to be 0 pixels wide). The border separates the edge of one box from another.

2

MARGIN

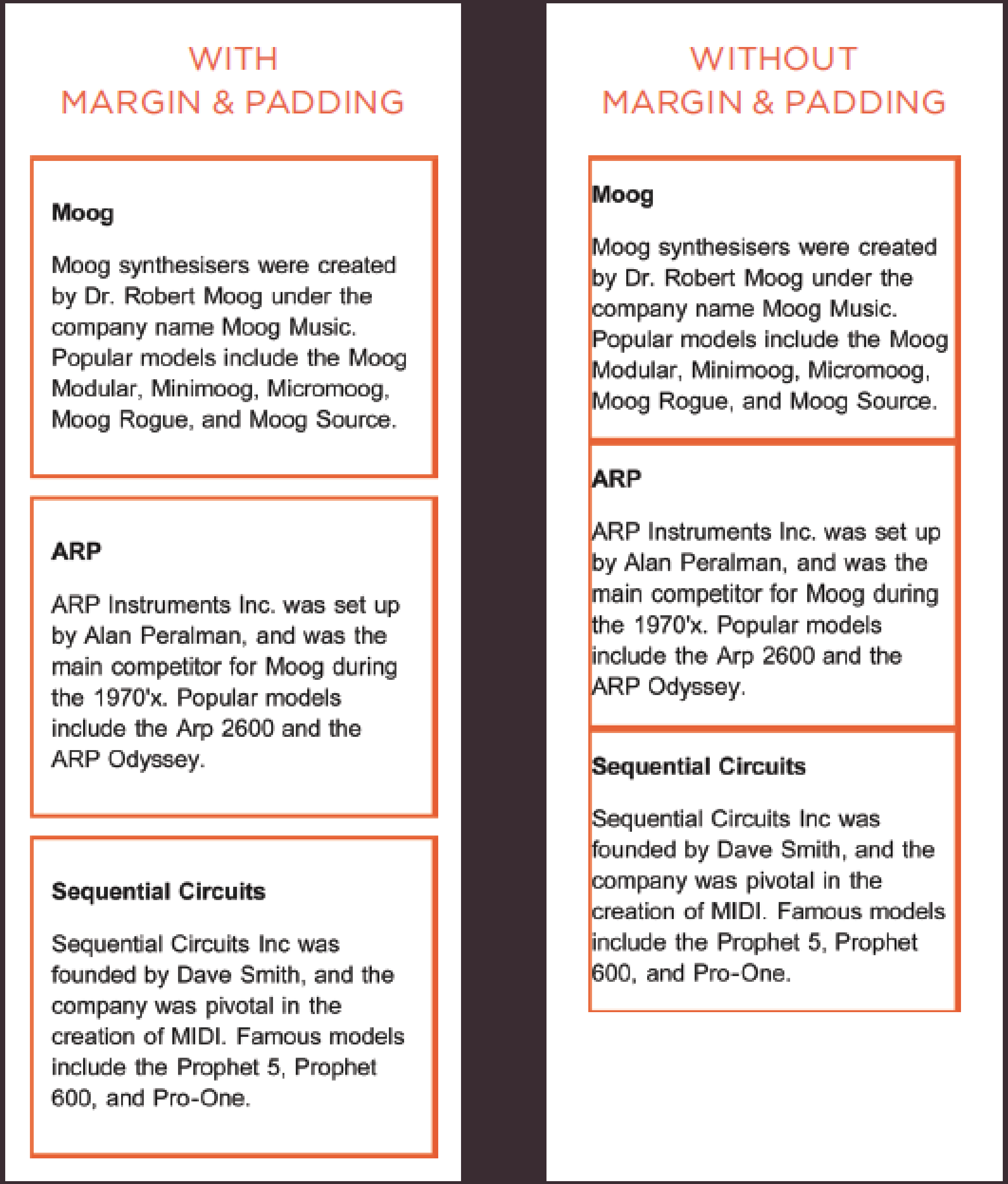
Margins sit outside the edge of the border. You can set the width of a margin to create a gap between the borders of two adjacent boxes.

3

PADDING

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

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



WITH
MARGIN & PADDING

Moog

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

ARP

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

Sequential Circuits

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

WITHOUT
MARGIN & PADDING

Moog

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

ARP

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

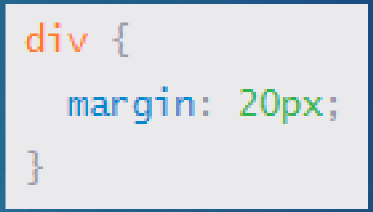
Sequential Circuits

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

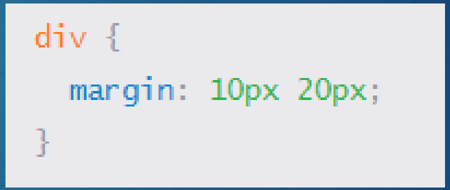
The `padding` and `margin` properties are very helpful in adding space between various items on the page.

Margin

- The ***margin*** property allows us to set the amount of space that surrounds an element.
- Margins for an element fall outside of any border and are completely transparent in color.
- For inline-level elements, the top and bottom margin property will not work
- Syntax:
  - Margin: 20px;
    - Applies margin of 20px on all four sides
  - Margin: 10px 20px
    - Applies margin of 10px to the top and bottom and 20px to left and right sides
  - Margin: 10px 20px 10px 20px
    - Applies margin of 10px to the top and bottom and 20px to left and right sides
  - Margin-top, margin-right, margin-bottom, margin-left



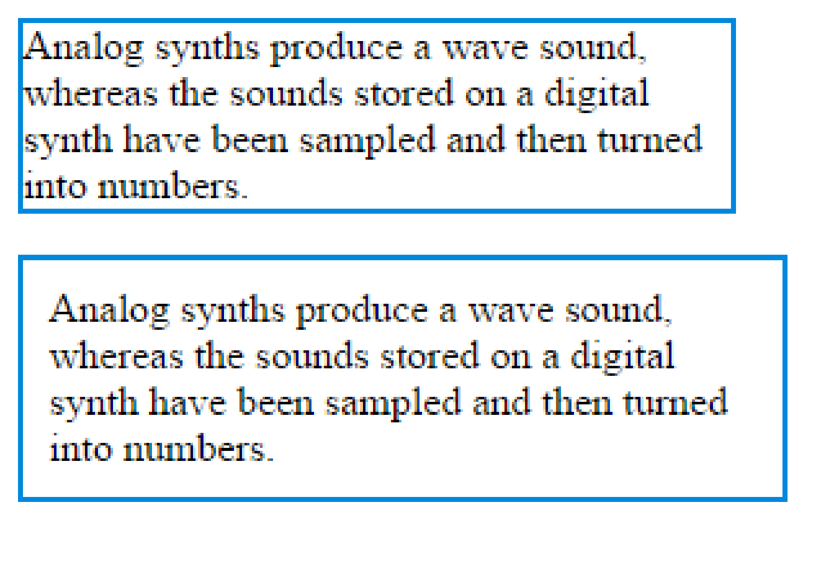
```
div {
  margin: 20px;
}
```



```
div {
  margin: 10px 20px;
}
```

Padding

- Very similar to the ***margin*** property; however, it falls inside of an element's border, should an element have a border.
- Used to provide spacing directly within an element
- Unlike ***margin*** property, the top and bottom properties will work on inline-level elements
  - Bleeding may occur if there is not adequate space for padding when used with inline-level elements
- Syntax is exactly same as margin.
  - Padding: 20px;
  - Padding: 10px 20px;
  - Padding: 10px 20px 10px 20px;
  - Padding-top, padding-right, padding-bottom, padding-left

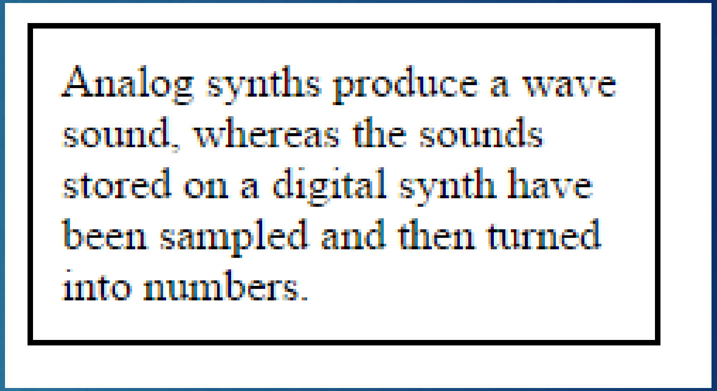


Analog synths produce a wave sound, whereas the sounds stored on a digital synth have been sampled and then turned into numbers.

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

Border Width

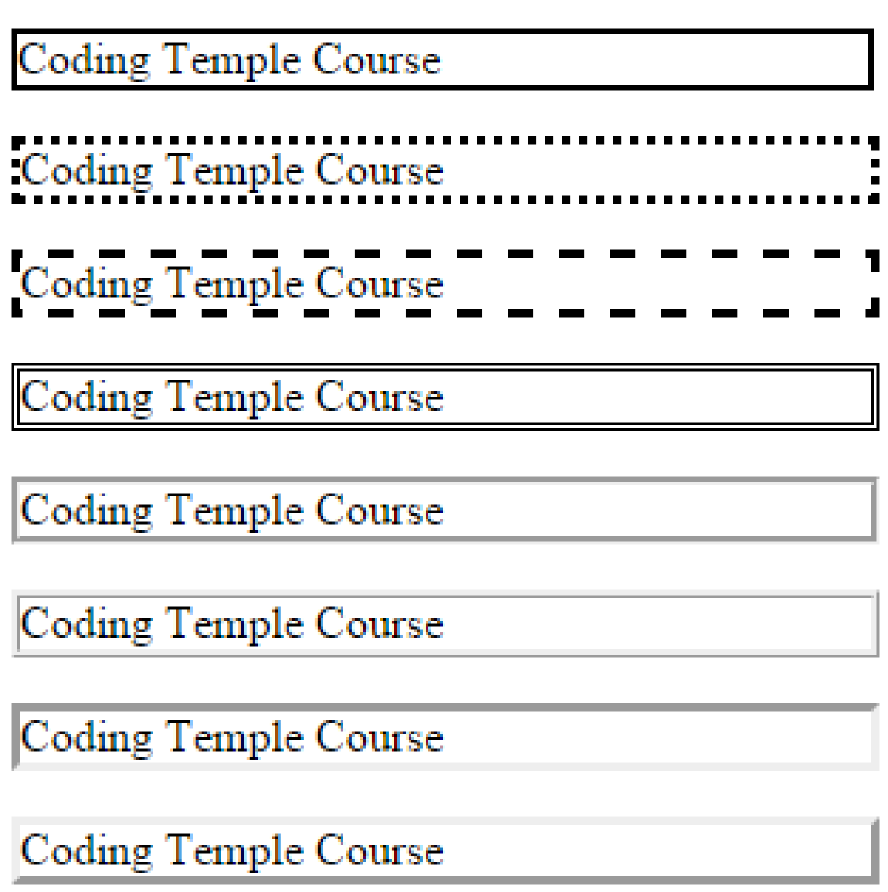
- The ***border-width*** property is used to control the width of a border.
- The value of this property can either be given in pixels of using of the following values:
  - Thin, medium or thick
- You can control the individual size of borders using four separate properties
  - Border-top-width, border-right-width
  - Border-bottom-width, border-left-width
- You can also specify different widths for the four border values
  - Border-width: 2px;
  - Border-width: 2px 3px;
  - Border-width: 1px 2px 3px 4px;



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

Border Style

- You can control the style of a border using the ***border-style*** property.
- This property can take the following values
  - Solid – a single solid line
  - Dotted – series of squared dots (border-width determines size of dots and gap in between them
  - Dashed – a series of short lines
  - Double – two solid lines
  - Groove – appears to be carved into the page
  - Ridge – appears to stick out from the page
  - Inset – appears embedded into the page
  - Outset – looks like it is coming out of the screen
  - Hidden/none – no border is shown
- You can individually change the styles of each border
  - Border-top-style, border-right-style, border-bottom-style, border-left-style



Coding Temple Course

Coding Temple Course

Coding Temple Course

Coding Temple Course

Coding Temple Course

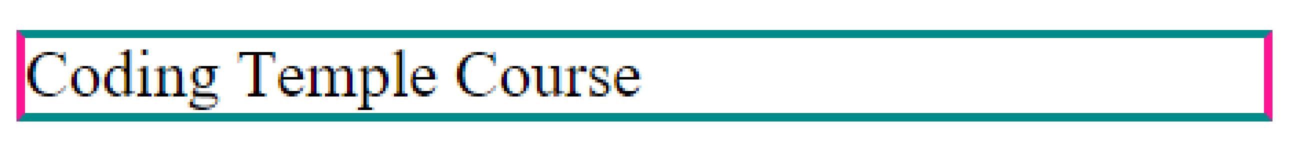
Coding Temple Course

Coding Temple Course

Coding Temple Course

Border Color

- You specify the color of a border using either RGB values, hex values or CSS color names
- It is possible to individually control the colors of the borders on different sides of a box
  - Border-top-color
  - Border-right-color
  - Border-bottom-color
  - Border-left-color

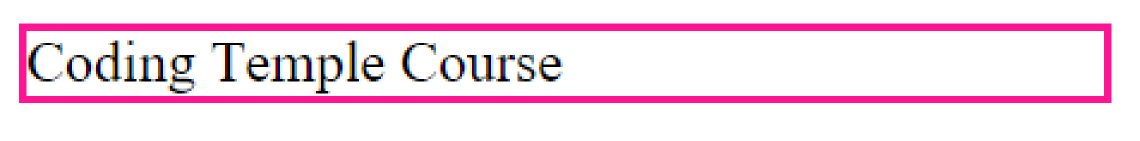


Coding Temple Course

- It is possible to use a shorthand to control the border colors
  - Border-color: darkcyan deeppink darkcyan deeppink
  - Border-color: darkcyan deeppink
  - Border-color: darkcyan

Border Shorthand

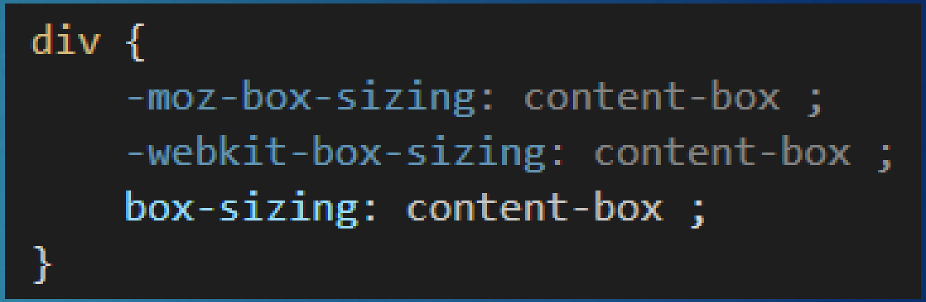
- The ***border*** property allows you to specify the width, style and color of a border in one property.
  - The values should be coded in that specific order
  - Width -> style -> color
- The ***border*** property will apply the style to all four sides of the box
- Syntax:
  - Border: 2px solid deeppink



Coding Temple Course

Box Sizing

- Allows us to change exactly how the box model works and how an element’s size is calculated
- This property accepts three values:
  - Content-box, padding-box, border-box
  - Content-box being the default value



```
div {
    -moz-box-sizing: content-box ;
    -webkit-box-sizing: content-box ;
    box-sizing: content-box ;
}
```

- Take a closer look at the example to the right, ***box-sizing*** has been declared three different times there with a prefix in front of it
  - The extra tags are referred to as vendor prefixes
  - They determine which browser that property will affect
  - Mozilla Firefox: -moz-
  - Microsoft Internet Explorer: -ms-
  - Webkit (Google Chrome and Apple Safari): -webkit-

Content-Box

- This value is the default value, leaving the box model as an additive design.
- If we don’t use the ***box-sizing*** property, this will be the default value for all elements
- The size of an element begins with the ***width*** and ***height*** properties, and then any ***padding, border,*** or ***margin*** property values are added on from there

Padding-Box

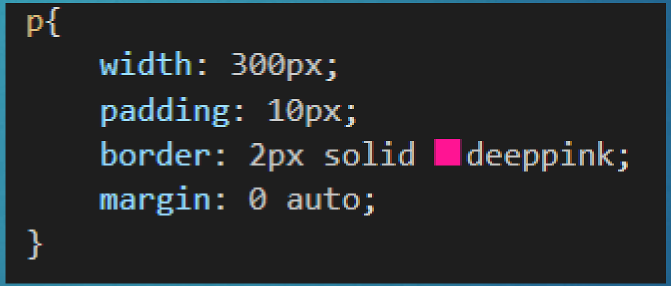
- The ***padding-box*** value alters the box model by including the ***padding*** property values within the ***width*** and ***height*** of an element.
- If an element has width of **400** pixels and **padding** of **20** pixels around every side, the actual width will remain **400** pixels.
  - Instead the content inside the box will shrink proportionately
  - In this case the content will go from being **400** pixels to **360** pixels
  - **Content = Width – (padding-left + padding-right)**
- If we add **border** or **margin,** those values will be added to the **width** or **height** properties to calculate the full box size
  - If we add a **border** of **10** pixels and a **padding** of **20** pixels with a **width** of **400** pixels, the actual full width will become **420** pixels

Border-Box

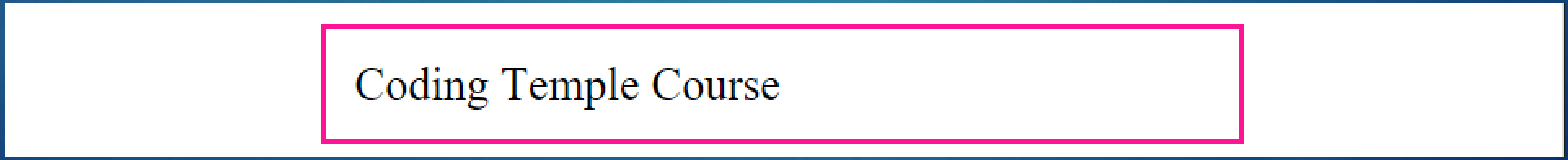
- The ***padding-box*** value alters the box model so that any ***padding*** or ***border*** property values are included within the ***width*** and ***height*** of an element.
- If an element has width of **400** pixels and **padding** of **20** pixels around every side and a **border** of **10** pixels, the actual width will remain **400** pixels.
- If we add **margin,** those values will need to be added to calculate the full box size

Centering Content

- In order to center a box on the page (or center it inside the element that it sits in), you can set the *left-margin* and *right-margin* to ***auto***
- In order to center a box on the page, you need to set a ***width*** for the box (otherwise it will take up the full width of the page.)
- Once you have specified the ***width*** of the box, setting the left and right margins to auto will make the browser put an equal gap on each side of the box.
- This centers the box on the page.



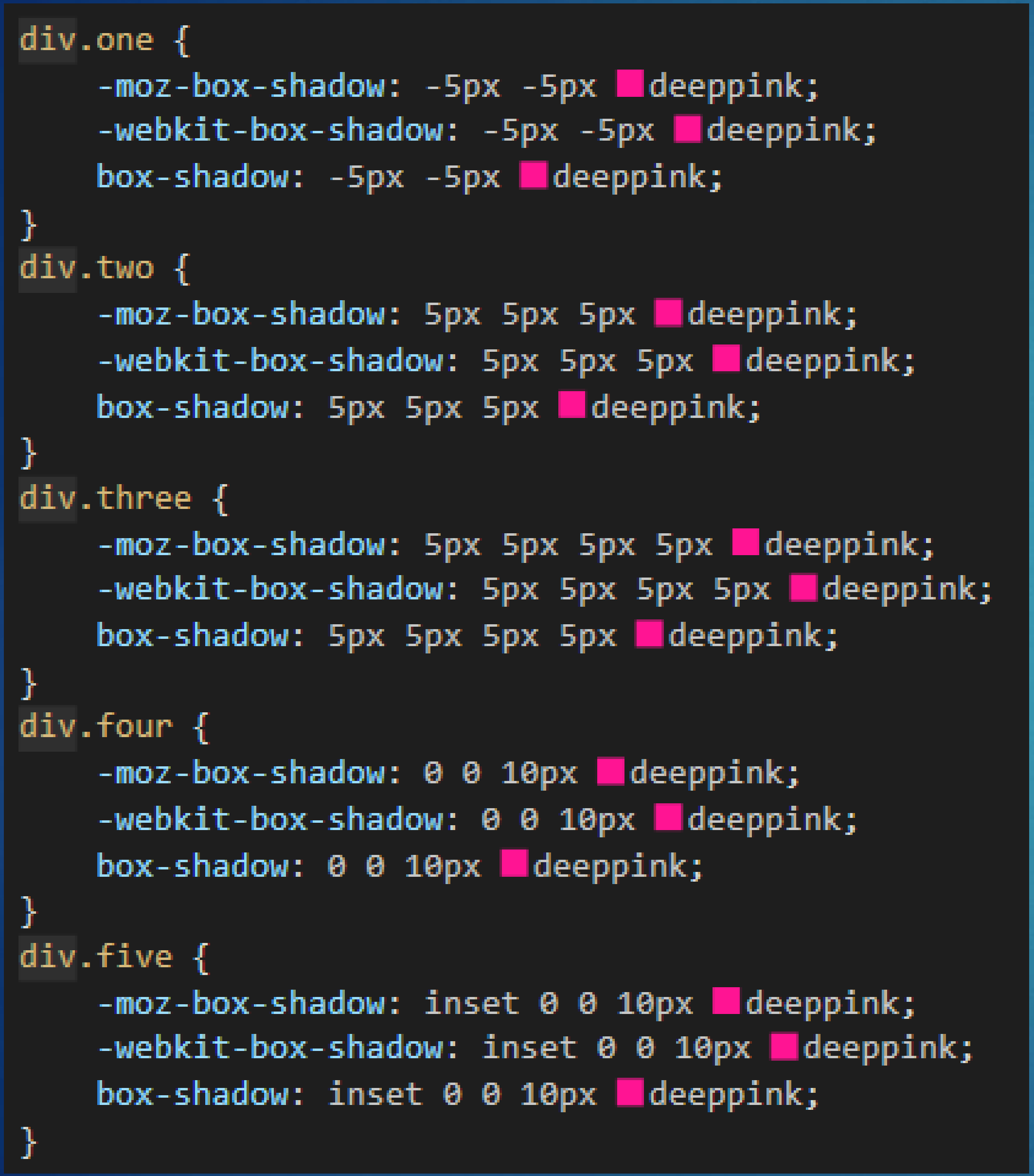
```
p{
    width: 300px;
    padding: 10px;
    border: 2px solid ■deeppink;
    margin: 0 auto;
}
```



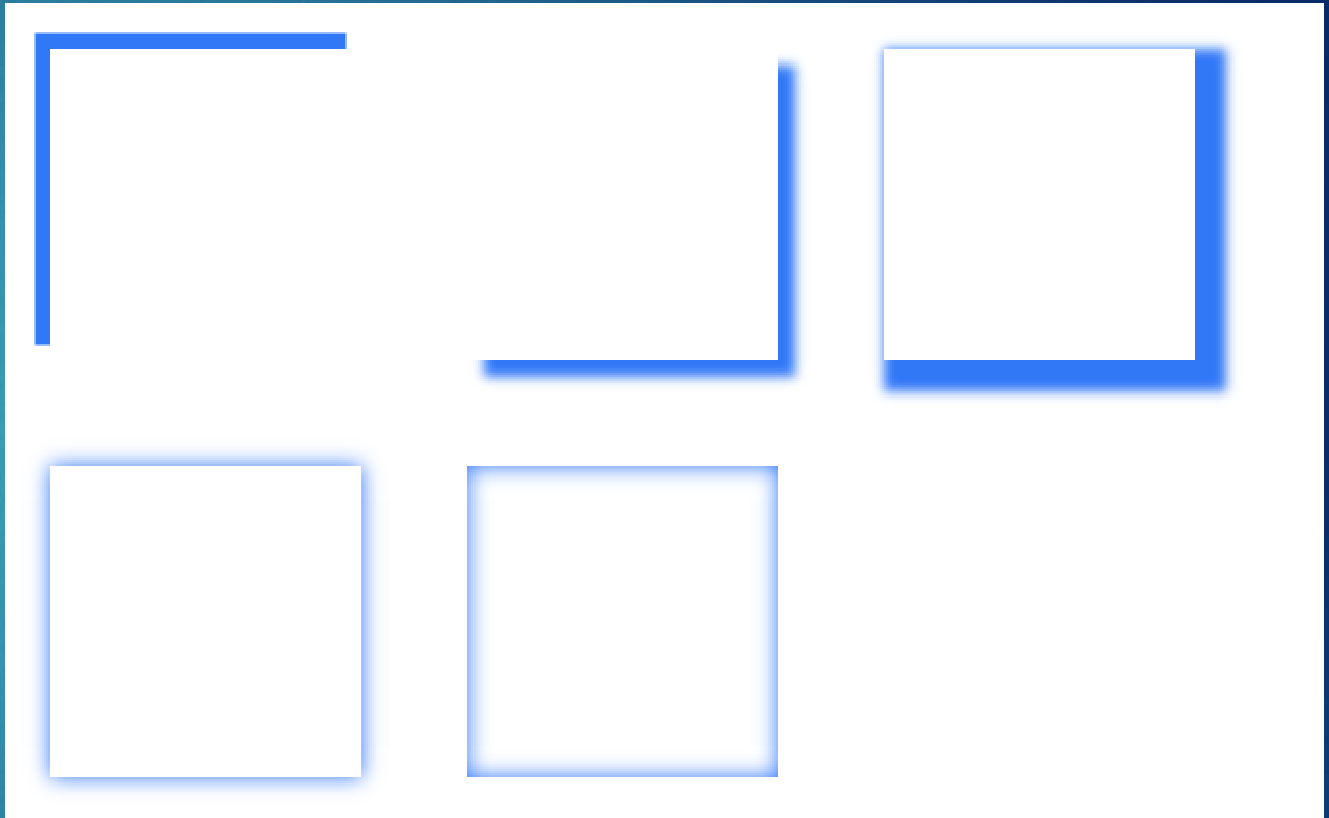
Coding Temple Course

Where to put my shadow

- The ***box-shadow*** property allows you to add a drop shadow around a box. It works just like ***text-shadow*** property.
  - Box-shadow: inset 5px 5px 5px 5px deeppink
  - At least the first two values and the color are required
  - Horizontal Offset – positions the shadow from the left side of the box
  - Vertical Offset – positions the shadow from the top of the box
  - Blur Distance (optional) – blurs the shadow
  - Spread of Shadow (optional) – positive values causes the shadow to expand and negative values to contract the shadow
  - Inset – causes the shadow to occur inside the box

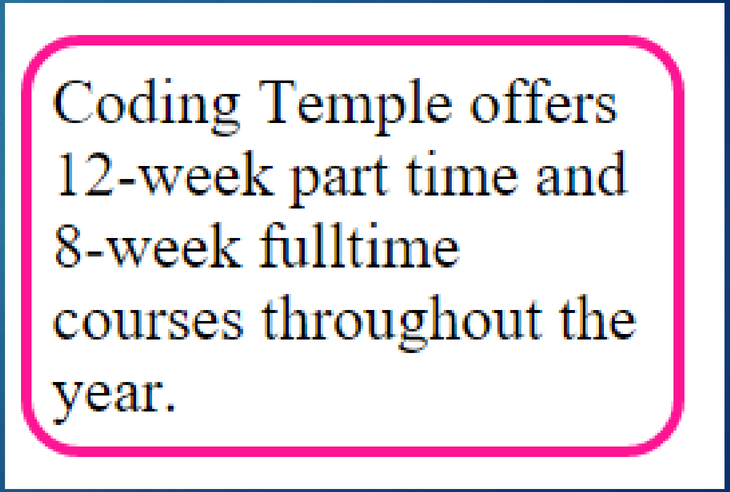


```
div.one {
    -moz-box-shadow: -5px -5px ■deeppink;
    -webkit-box-shadow: -5px -5px ■deeppink;
    box-shadow: -5px -5px ■deeppink;
}
div.two {
    -moz-box-shadow: 5px 5px 5px ■deeppink;
    -webkit-box-shadow: 5px 5px 5px ■deeppink;
    box-shadow: 5px 5px 5px ■deeppink;
}
div.three {
    -moz-box-shadow: 5px 5px 5px 5px ■deeppink;
    -webkit-box-shadow: 5px 5px 5px 5px ■deeppink;
    box-shadow: 5px 5px 5px 5px ■deeppink;
}
div.four {
    -moz-box-shadow: 0 0 10px ■deeppink;
    -webkit-box-shadow: 0 0 10px ■deeppink;
    box-shadow: 0 0 10px ■deeppink;
}
div.five {
    -moz-box-shadow: inset 0 0 10px ■deeppink;
    -webkit-box-shadow: inset 0 0 10px ■deeppink;
    box-shadow: inset 0 0 10px ■deeppink;
}
```



Corner Me

- Using the ***border-radius*** property, you can create rounded corners on any box.
- The value indicates the size of the radius in pixels
- You can specify individual values for each corner of a box using:
  - Border-top-right-radius
  - Border-bottom-right-radius
  - Border-bottom-left-radius
  - Border-top-left-radius
- You can also use a shorthand of these four properties
  - Border-radius: 5px 10px 5px 10px;



Coding Temple offers 12-week part time and 8-week fulltime courses throughout the year.

Challenge

- Open up CodingTempleWebsite project
- Change all elements box sizing to be: border-box
- Create a class called container
    - Add the following properties
    - Width: 960px
    - Padding-right: 30px
    - Padding-left: 30px
    - Margin: 0 auto
        - This will center the element in the page
- Assign the container class to both the **<header>** and **<footer>** elements
- Assign the container class to each of the **<section>**