

**Software and
Web Development**

Web Development

CSS

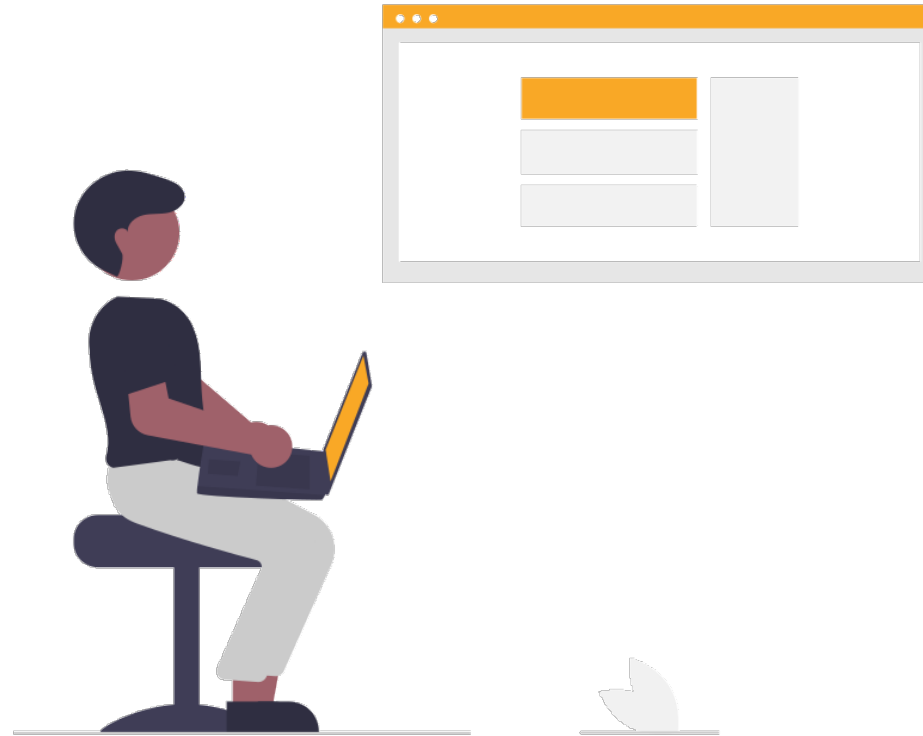
Learning Objectives

- } To understand what CSS is and its use
- } To know how to apply CSS syntax to HTML

Cascading Style Sheets

Cascading Style Sheets are used to style websites.

CSS works alongside HTML to define the visual representation of the content. For example colour, margins, borders, backgrounds and position in the page.



CSS does nothing on its own – it must be attached to HTML. There are three ways to include CSS.

Inline

This is a paragraph.

```
1 <p style="color:red;">This is a paragraph.</p>
```

Inline CSS uses the style attribute to add CSS to an individual element.

It is not recommended – it's time consuming, and difficult to maintain. It's repetitive, and it mixes responsibilities.

Internal

This is a paragraph.

```
1 <head>
2 <style>
3
4 p {
5   color: red;
6 }
7
8 </style>
9 </head>
```

Internal CSS is including CSS syntax in `<style>` tags on your individual HTML pages.

It can be useful if one page has unique styling, but it shares many of the issues inline CSS has.

External

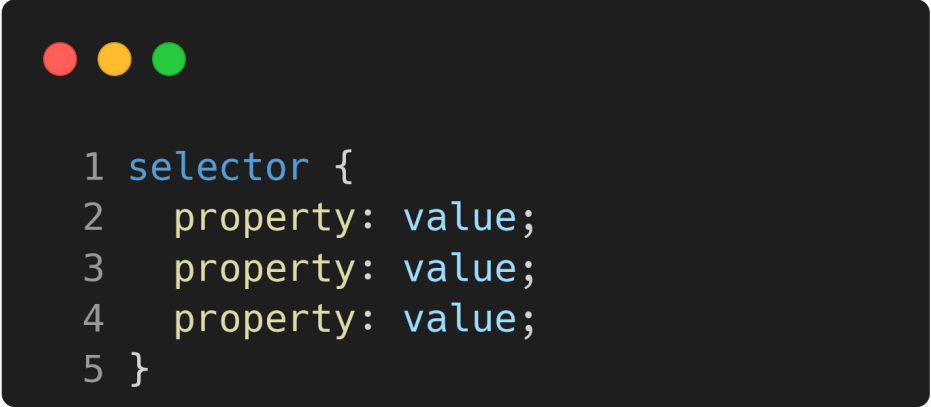
This is a paragraph.



```
1 <head>
2 <link rel="stylesheet" href="mystyle.css">
3 </head>
```

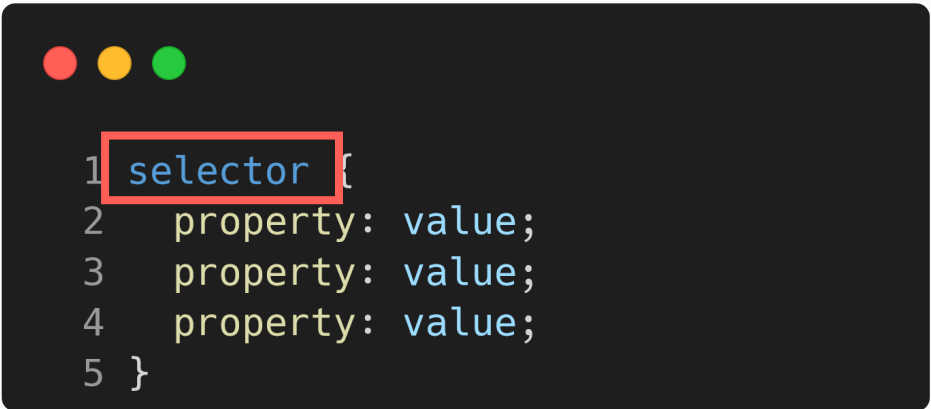
External CSS is the preferred method. You create a CSS file, and attach it to your HTML pages. This way, one stylesheet can style the whole website. It's easier to maintain, quick to change, and separates responsibility.

CSS Syntax

A dark-themed code editor window with three colored window control buttons (red, yellow, green) at the top left. It contains five lines of CSS code with syntax highlighting: line 1 is '1 selector {' in blue, line 2 is '2 property: value;' in yellow and blue, line 3 is '3 property: value;' in yellow and blue, line 4 is '4 property: value;' in yellow and blue, and line 5 is '5 }' in blue.

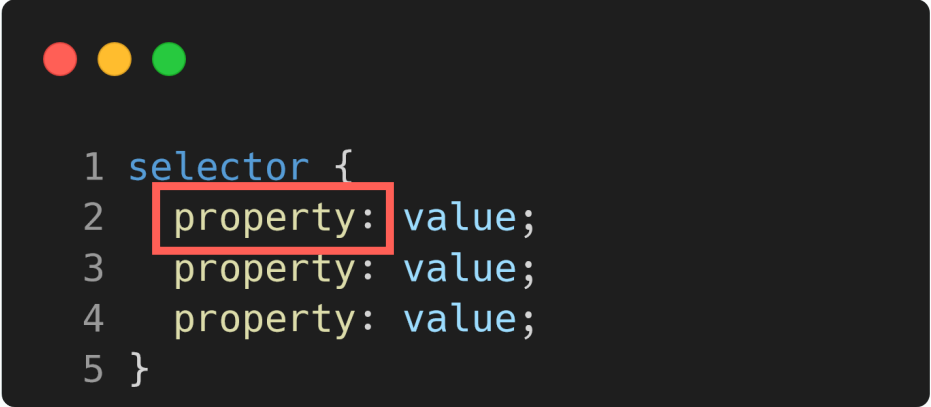
```
1 selector {  
2   property: value;  
3   property: value;  
4   property: value;  
5 }
```

CSS enables you to pick out elements of your HTML, and change the visual properties of those elements – like the element's colour, font-size, background etc.



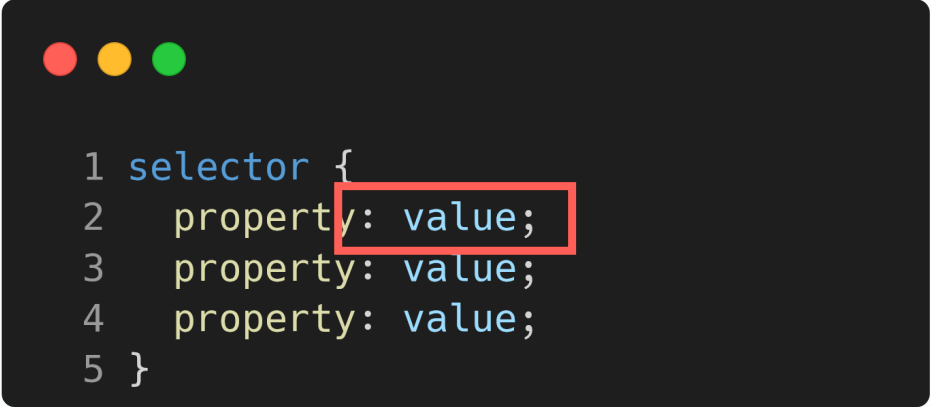
```
1 selector {  
2   property: value;  
3   property: value;  
4   property: value;  
5 }
```

The selector is written first – what part of the page are you changing? There are many kinds of selectors.

A code editor window with a dark background and three colored window control buttons (red, yellow, green) in the top-left corner. It contains five lines of CSS code. The first line is a selector followed by an opening curly brace. The next three lines are property-value pairs, each indented. The last line is a closing curly brace. The text 'property:' in the first property-value pair is highlighted with a red rectangular box.

```
1 selector {  
2   property: value;  
3   property: value;  
4   property: value;  
5 }
```

Then you declare the property – what about the thing you've selected are you wanting to change?

A code editor window with a dark background and three colored window control buttons (red, yellow, green) in the top-left corner. It contains five lines of CSS code. The second line, 'property: value;', is highlighted with a red rectangular box.

```
1 selector {  
2   property: value;  
3   property: value;  
4   property: value;  
5 }
```

Then you declare the value – what are you changing that property to?



```
1 selector {  
2   property: value;  
3   property: value;  
4   property: value;  
5 }
```

The image shows a code editor window with a dark background and three colored window control buttons (red, yellow, green) at the top left. The code is written in a light blue font. The first line is '1 selector {', the second is '2 property: value;', the third is '3 property: value;', the fourth is '4 property: value;', and the fifth is '5 }'. There are five colored boxes highlighting specific parts: a red box around the opening curly brace '{' on line 1, a purple box around the colon ':' on line 3, a blue box around the semicolon ';' on line 3, a red box around the closing curly brace '}' on line 5, and a red box around the opening curly brace '{' on line 5.

The properties and values are wrapped in **{ }**
curly brackets.

The property is split from its value by **:** a colon.
Values end with a **;** semi-colon.

Important!

You are not expected to remember all the properties and values used in CSS.
There are simply too many of them.

As long as you know what you want to do, and how to structure CSS, you'll be able to do it!
(With a little help from search engines!)

Selectors

Element Selector

You can use tag names as a selector.

Using a tag name will apply the new values to every element of that tag.

```
1 p {  
2   color: red;  
3   font-size: 18px;  
4 }
```

This is a paragraph element

This is also a paragraph element

This is not a paragraph element, so its properties aren't changed



```
1 p{
2     /* Selector for all paragraphs */
3 }
4
5 h1{
6     /* Selector for H1 */
7 }
8
9 a {
10    /* Selector for all anchors */
11 }
12
13 img {
14    /* Selector for all images */
15 }
16
17 body{
18    /* Selector for the body */
19 }
20
21 div {
22    /* Selector for all divs */
23 }
```

Class Selector

Classes allow us to create sets of properties and values, and assign them as needed.

This paragraph should be red


This paragraph should be red

This paragraph should be purple - how?

Class Selector

In CSS, class names begin with a .

Without the . The browser would be looking for an element of that name!



```
1 .purple-text{  
2     color: purple;  
3 }
```

Class Selector

Once we've defined that class in our CSS, we can apply it to any and as many HTML elements as we like using the **class** attribute.



```
1 .purple-text{  
2     color: purple;  
3 }
```



```
1 <p class="purple-text">  
2     This paragraph is purple now  
3 </p>  
4
```

Class Selector

The last paragraph still has the properties defined in our p selector, but it also has any extra properties defined in the class.

This paragraph should be red

This paragraph should be red

This paragraph is purple now

Class Selector

Class has a higher specificity than an element. Even though both selectors change the **color property**, it will be the value declared in the class that is used.

```
1 p {  
2   → color: red;  
3     font-size: 18px;  
4 }  
5  
6 .purple-text{  
7   → color: purple;  
8 }
```

```
1 <p class="purple-text">  
2   ↑ This paragraph is purple now  
3   ↓ </p>  
4
```

Class Selector

We can add as many classes as we need to an element.

```
1 .purple-text{
2     color: purple;
3 }
4
5 .underlined-text{
6     text-decoration: underline;
7 }
```

```
1 <p class="purple-text underlined-text">
2     This paragraph is purple and
3     underlined
4 </p>
```

This paragraph is purple and underlined now


ID Selector

The HTML attribute **id** allows us to use a name to uniquely identify an element on a page.

```
1 <p id="info-section">
2     Very important information goes
   here
3 </p>
4
```

ID Selector

We cannot use the id "info-section" anywhere else on this HTML page – so we can use this id to target this paragraph specifically.



```
1 <p id="info-section">  
2     Very important information goes  
3     here  
3 </p>  
4
```

ID Selector

Ids are typically used alongside JavaScript, or to create "jump-links".

We can use them in CSS too.

```
1 <p id="info-section">
2     Very important information goes
3     here
4 </p>
```

```
1 #info-section{
2     color: blue;
3     font-size: 20px;
4     background-color: beige;
5 }
```

ID Selector

In terms of CSS, there's nothing an ID does that a class can't do.

The only difference is precedence – an ID is the most important selector.

```
1 <p id="info-section">
2     Very important information goes
3     here
4 </p>
```

```
1 #info-section{
2     color: blue;
3     font-size: 20px;
4     background-color: beige;
5 }
```

Selector	Example	Example description
<u>.class</u>	.intro	Selects all elements with class="intro"
<u>.class1.class2</u>	.name1.name2	Selects all elements with both <i>name1</i> and <i>name2</i> set within its class attribute
<u>.class1 .class2</u>	.name1 .name2	Selects all elements with <i>name2</i> that is a descendant of an element with <i>name1</i>
<u>#id</u>	#firstname	Selects the element with id="firstname"
<u>*</u>	*	Selects all elements
<u>element</u>	p	Selects all <p> elements
<u>element.class</u>	p.intro	Selects all <p> elements with class="intro"
<u>element,element</u>	div, p	Selects all <div> elements and all <p> elements
<u>element element</u>	div p	Selects all <p> elements inside <div> elements
<u>element>element</u>	div > p	Selects all <p> elements where the parent is a <div> element
<u>element+element</u>	div + p	Selects the first <p> element that is placed immediately after <div> elements
<u>element1~element2</u>	p ~ ul	Selects every element that is preceded by a <p> element

[Part of the reference table from w3 Schools.](#)

There are many different kinds of selectors. They allow you to be really specific with what you are selecting.

```
1 p {  
2   color: red;  
3   font-size: 18px;  
4 }  
5  
6 .purple-text{  
7   color: purple;  
8 }  
9  
10 .underlined-text{  
11   text-decoration: underline;  
12 }  
13  
14 #info-section{  
15   color: blue;  
16   font-size: 20px;  
17   background-color: beige;  
18 }
```

```
1 <p id="info-section" class="purple-text underlined-text">  
2   This is my paragraph  
3 </p>
```

What colour will the paragraph text be?

A) Red B) Purple C) Blue

```
1 p {  
2   color: red;  
3   font-size: 18px;  
4 }  
5  
6 .purple-text{  
7   color: purple;  
8 }  
9  
10 .underlined-text{  
11   text-decoration: underline;  
12 }  
13  
14 #info-section{  
15   color: blue;  
16   font-size: 20px;  
17   background-color: beige;  
18 }
```

This is my_paragraph

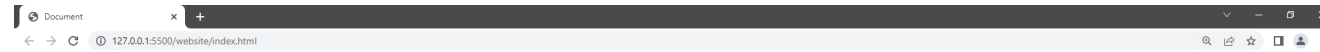
```
1 <p id="info-section" class="purple-text underlined-text">  
2   This is my paragraph  
3 </p>
```

What colour will the paragraph text be?

A) Red B) Purple C) Blue

Properties and Values

The Box Model



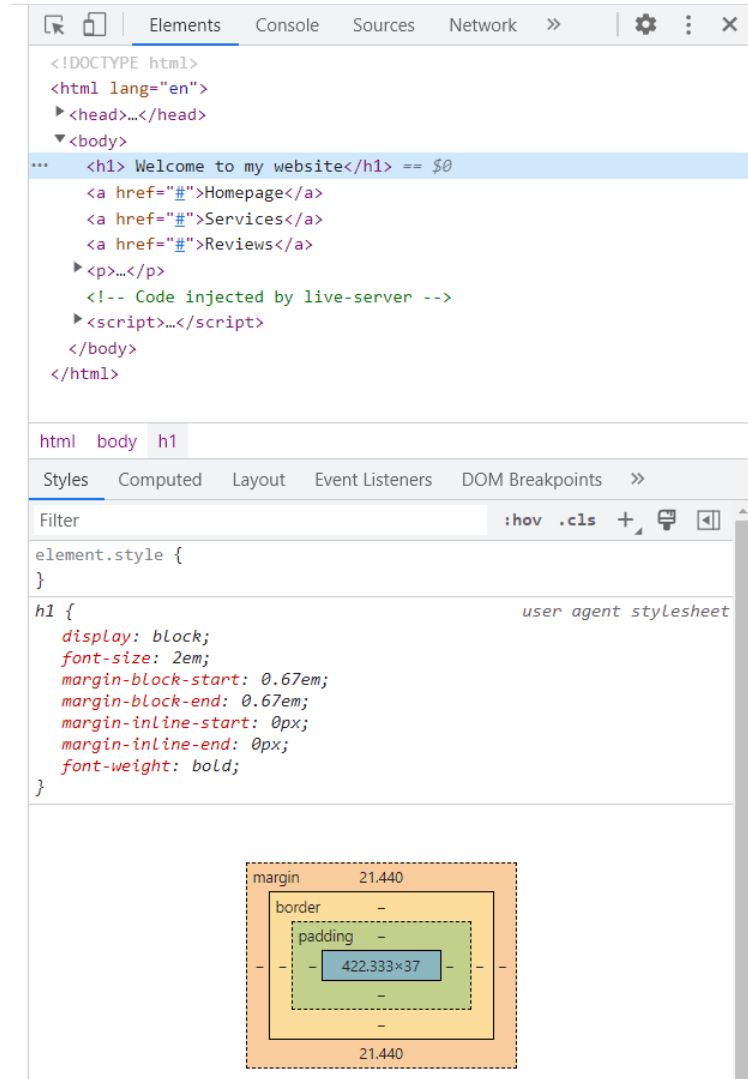
HTML elements get some default stylings as part of their properties.

For example; a hyperlink will be blue and underlined. Headings have space above and below them.

Inspect

We can use browser tools to help us inspect our page. The pane shows the HTML at the top, and the CSS at the bottom.

We can see the properties and values associated with our H1 element.



Document

127.0.0.1:5500/website/index.html

Welcome to my website

h1422.33 × 37

[Homepage](#)[Services](#)[Reviews](#)

Lorem ipsum dolor sit amet consectetur, adipisicing elit. Eaue alias suscipit vitae nemo repudiandae ut eum dolores autem, quidem debitis, facere rem quam libero eveniet aperiam consequatur magni animi ex. Pariatur cumque ratione ipsa eius voluptates, repellat dignissimos atque sapiente.

Elements

```
<!DOCTYPE html>
<html lang="en">
  <head>...</head>
  <body>
...    <h1> Welcome to my website</h1> == $0
        <a href="#">Homepage</a>
        <a href="#">Services</a>
        <a href="#">Reviews</a>
        <p>...</p>
        <!-- Code injected by live-server -->
        <script>...</script>
      </body>
    </html>
```

htmlbodyh1

Styles

Filter: :hov .cls +

element.style { }

h1 {
 display: block;
 font-size: 2em;
 margin-block-start: 0.67em;
 margin-block-end: 0.67em;
 margin-inline-start: 0px;
 margin-inline-end: 0px;
 font-weight: bold;
}

margin21.440

border-

padding-

422.333×37

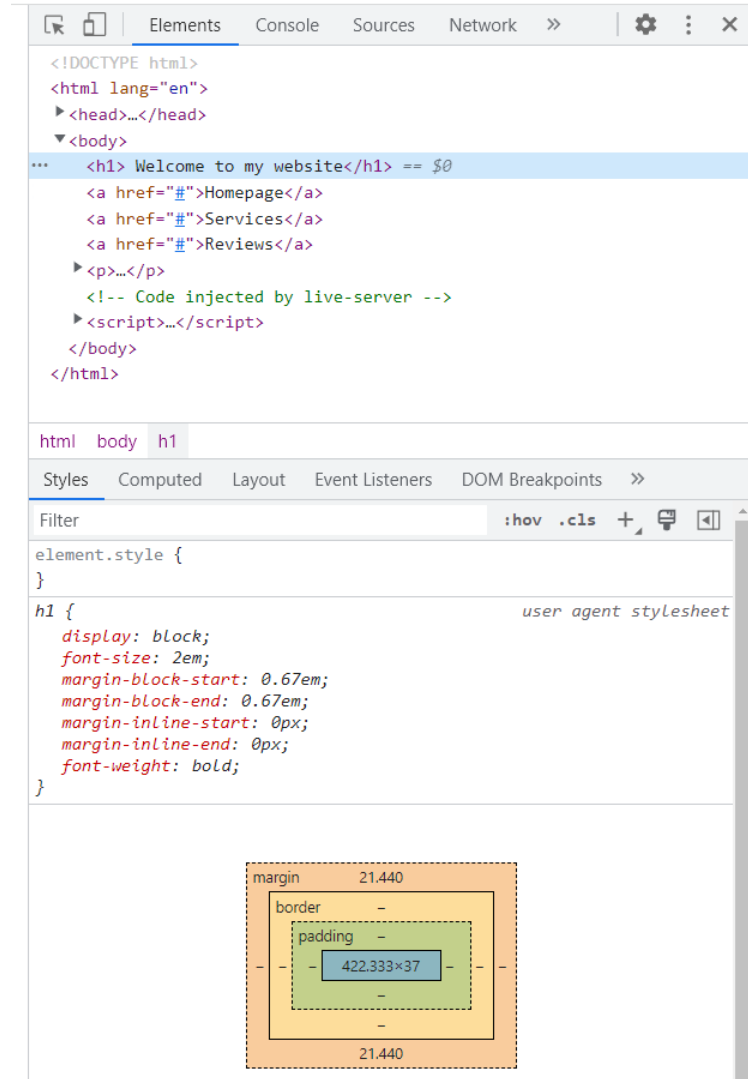
21.440

ConsoleWhat's New

Inspect

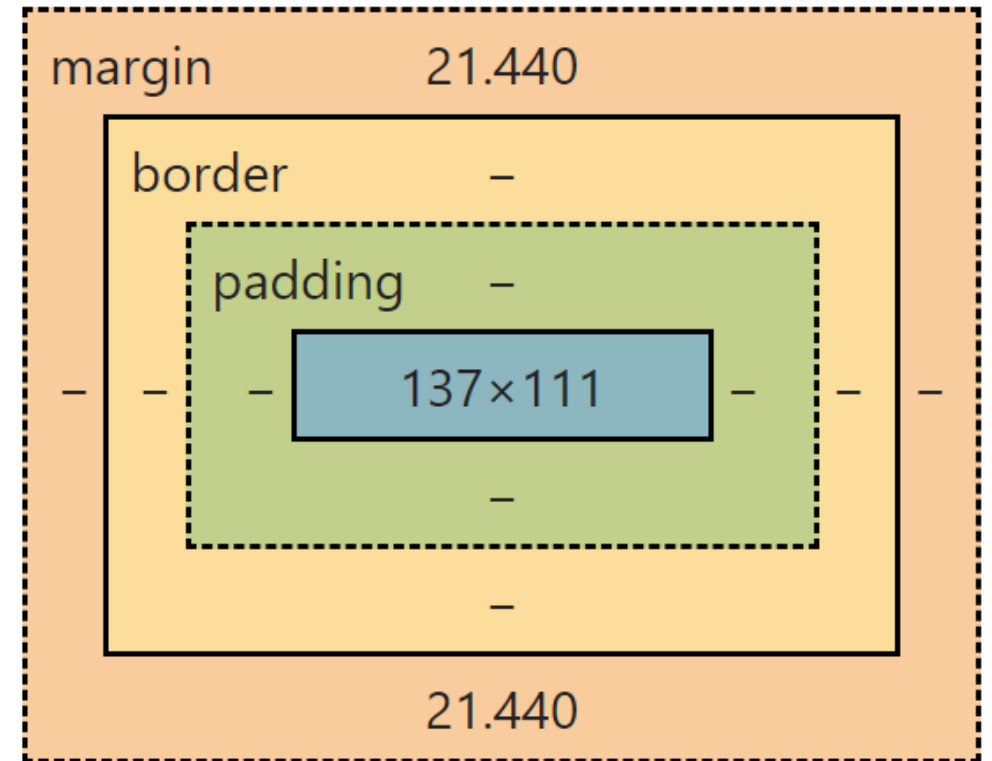
It also shows us the box model.

Each element is its own box.



The Box Model

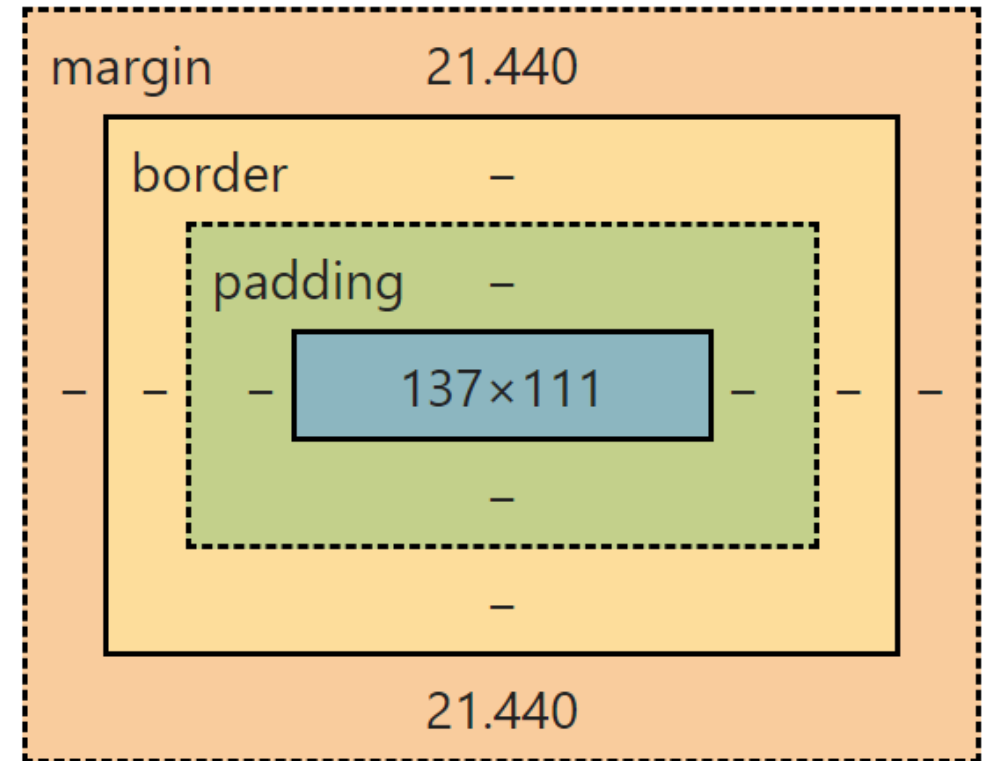
The content represents the text or image that makes up the contents of that element.



The Box Model

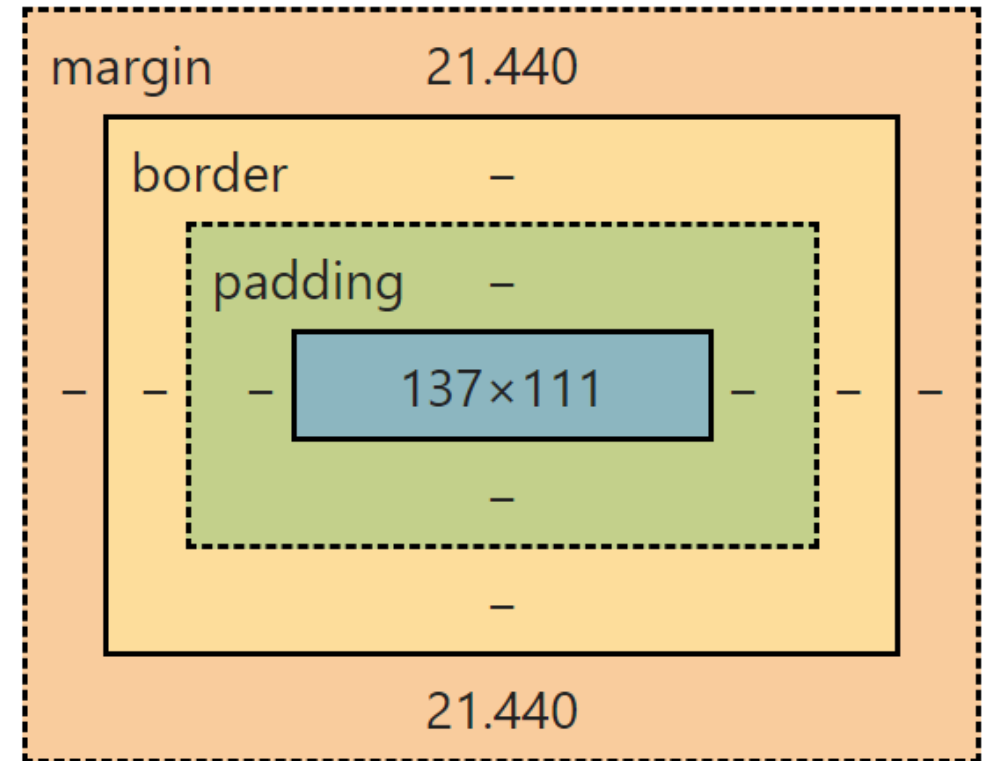
Padding is
transparent space
between the content
and its border.

It stops the content
touching the border.



The Box Model

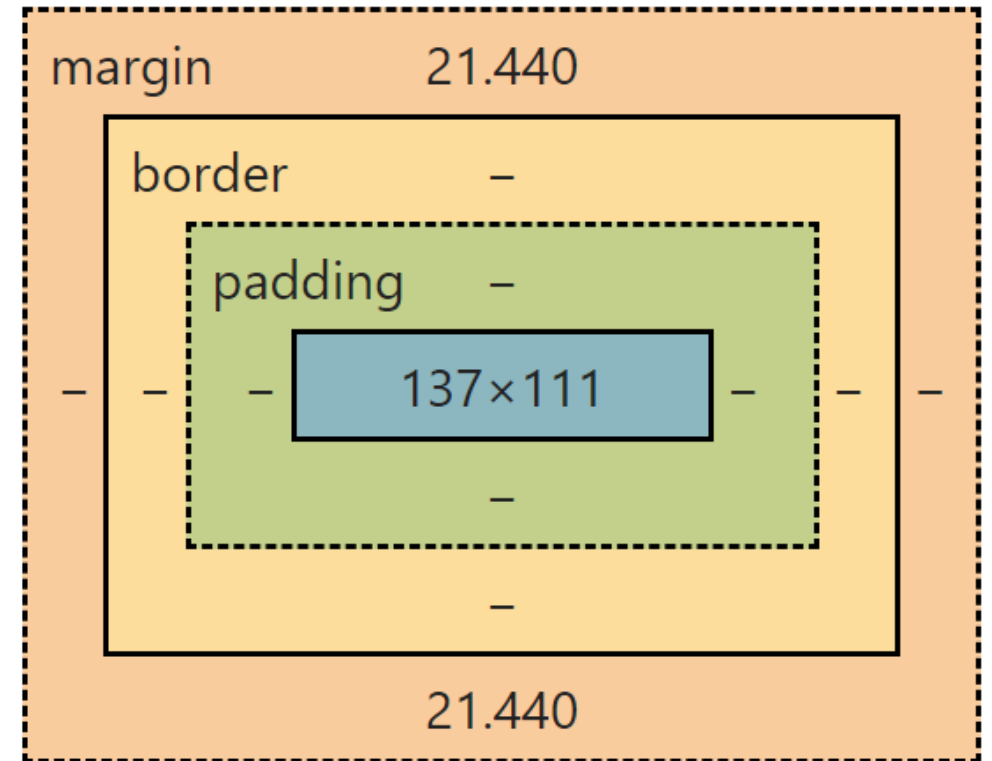
The border surrounds the content and the padding.



The Box Model

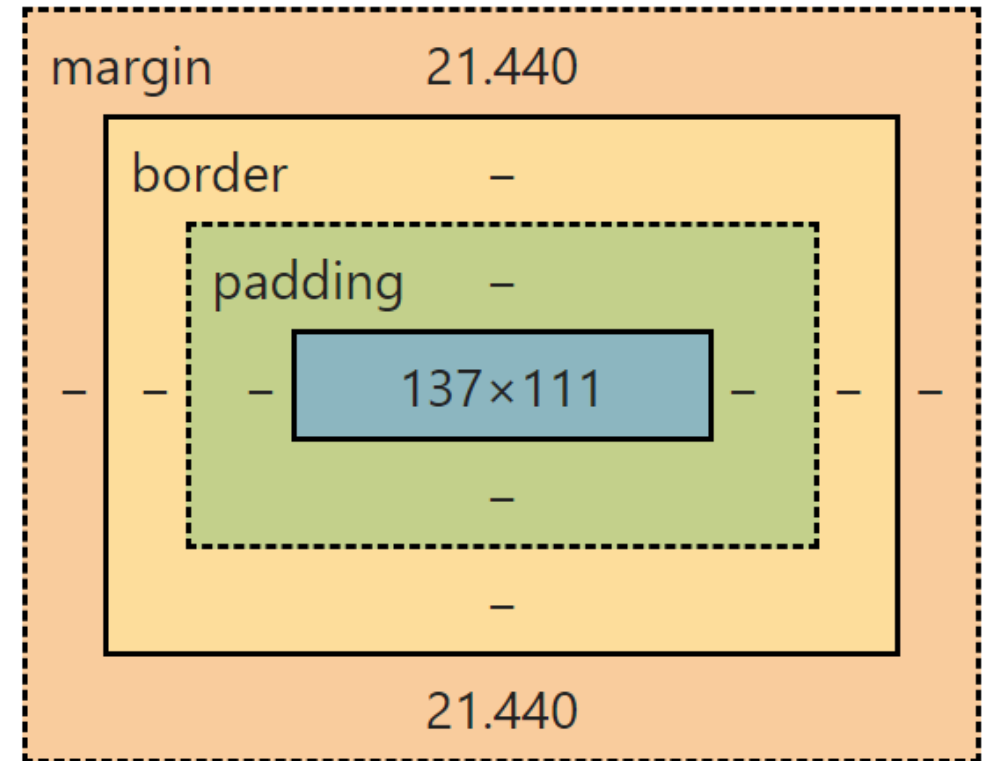
The margin is transparent space outside of the border.

This space can be used to stop elements touching each other.

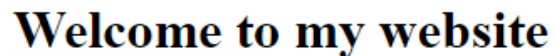


The Box Model

We can change all of those properties. We can add padding, borders, and margins to our content to help improve our layouts.



The Box Model

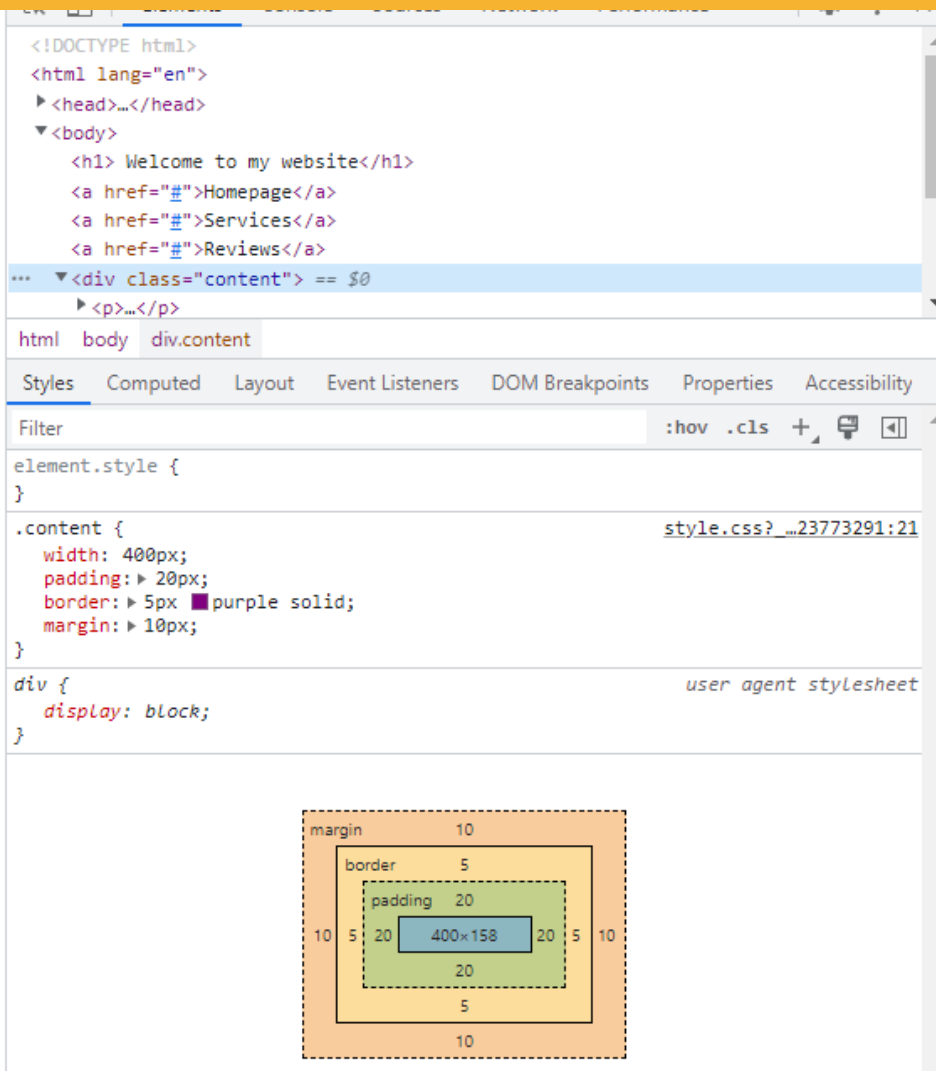


div.content 450 × 208

11. neopage services reviews

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 dolorum!



Height and Width

We can change the size of the content with the height and width properties.

We can specify this in pixels (fixed) or percentages (responsive.)

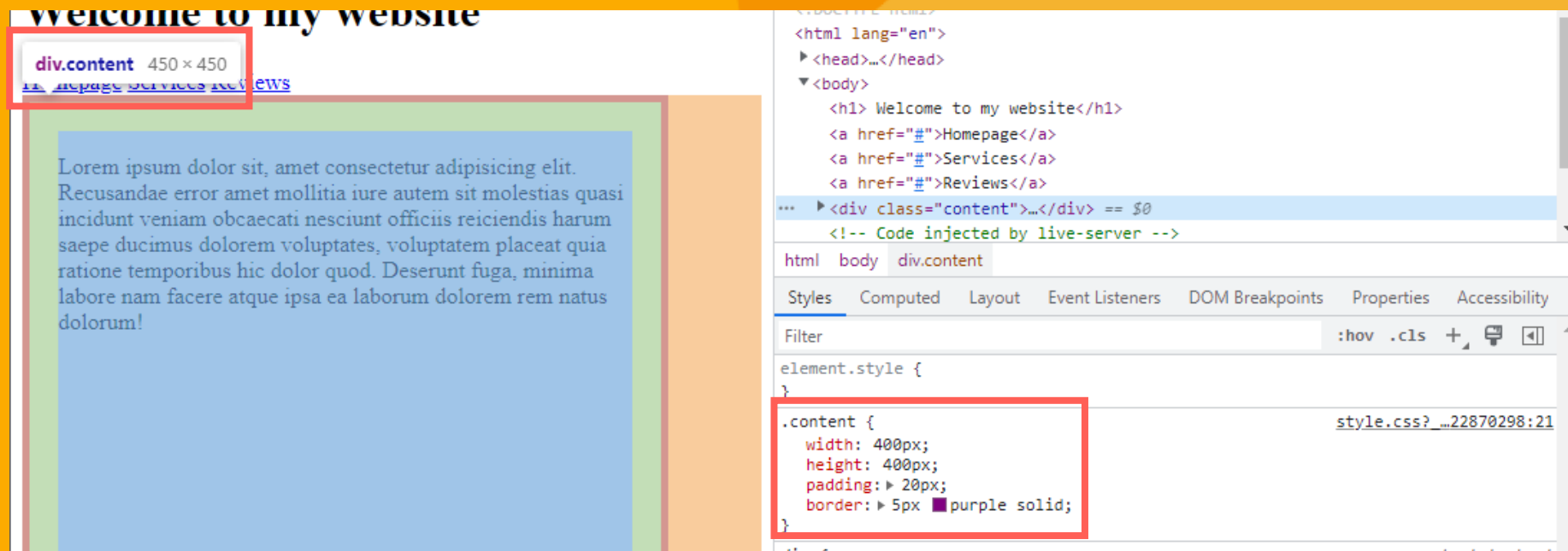
```
1 .content{
2     width: 400px;
3     height: 400px;
4     padding: 20px;
5     border: 5px purple solid;
6 }
```

```
1 <div class="content">
2   <p>Lorem ipsum dolor sit,
   amet consectetur adipisicing
   elit. Recusandae error amet
   mollitia iure autem sit
   molestias quasi incidunt veniam
   obcaecati nesciunt officiis
   reiciendis harum saepe ducimus
   dolorem voluptates, voluptatem
   placeat quia ratione temporibus
   hic dolor quod. Deserunt fuga,
   minima labore nam facere atque
   ipsa ea laborum dolorem rem
   natus dolorum!</p>
3 </div>
```

Welcome to my website

[Homepage](#) [Services](#) [Reviews](#)

Lorem ipsum dolor sit, amet consectetur adipisicing elit. Recusandae error amet mollitia iure autem sit molestias quasi incidunt veniam obcaecati nesciunt officiis reiciendis harum saepe ducimus dolorem voluptates, voluptatem placeat quia ratione temporibus hic dolor quod. Deserunt fuga, minima labore nam facere atque ipsa ea laborum dolorem rem natus dolorum!



When you specify the height and width, you are only specifying the size of the content. Any padding or borders will be added to that.

You can use the box-sizing property to change this.


Properties and Values

Colour✖

Colour values

There are many ways of choosing colours in CSS.

The three main ones are through recognised colour strings, hexadecimal values, or rgb.



```
1 selector {  
2   color: purple;  
3   color: #800080;  
4   color: rgb(128,0,128);  
5   color: rgb(128,0,128,0.5)  
6       /* the 4th value in rga is alpha */  
7       /* this controls opacity */  
8 }
```

Colour values

You do not have to learn these values! Visual Studio Code will prompt you with strings, and includes a colour mixer for RGB.

Many websites exist for generating hex values.



VSC's built in colour mixer

Colour values

Note the American spelling of color!

The **color** property always refers to a font color, but colours are used elsewhere – like the **background-color** property, or the **border-color** property.

```
1 selector {  
2   color: purple;  
3   color: #800080;  
4   color: rgb(128,0,128);  
5   color: rgb(128,0,128,0.5)  
6       /* the 4th value in rga is alpha */  
7       /* this controls opacity */  
8 }
```


Learning Objectives

} To understand what CSS is and its use

} To know how to apply CSS syntax to HTML

Activity 1

Style your 1-page website!

Include at least:

- } A background colour
- } A changed font – both text colour and font family
- } A border on something

Properties and Values

Common Questions

How do I.....

Centre text?

The [text-align](#) property allows you to align text.

```
1 selector {  
2   text-align: center;  
3 }
```

Lorem ipsum dolor sit, amet consectetur adipisicing elit. Recusandae error amet mollitia iure autem sit molestias quasi incidunt veniam obcaecati nesciunt officiis reiciendis harum saepe ducimus dolorem voluptates, voluptatem placeat quia ratione temporibus hic dolor quod. Deserunt fuga, minima labore nam facere atque ipsa ea laborum dolorem rem natus dolorum!

How do I.....

Have a background image?

```
1 selector{  
2   background-image: url('bg.png');  
3 }
```



How do I.....

Do x to my
background?

Backgrounds have
many associated
properties!

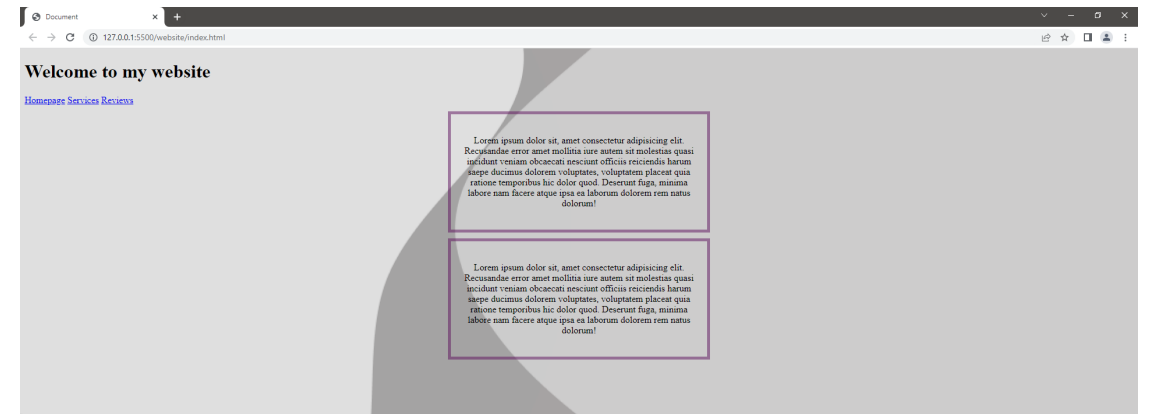
```
1 selector{
2     background-image: url('bg.png');
3     background-position: center;
4     background-repeat: no-repeat;
5     background-size: cover;
6     background-attachment: fixed;
7 }
```

How do I.....

Centre a div?

By letting the browser
work out the
whitespace with auto,
you can centre
content easily.

```
1 selector{
2     margin: auto;
3 }
4
5 /* or */
6
7 selector{
8     margin: 10px auto;
9 }
10
11 /* the first value will be the top and
    bottom margins - the second value is for
    left and right */
```



How do I.....

Make borders work?

[border](#) is a shorthand property – it combines the need for three properties into one line. You need to specify a style, colour, and width.

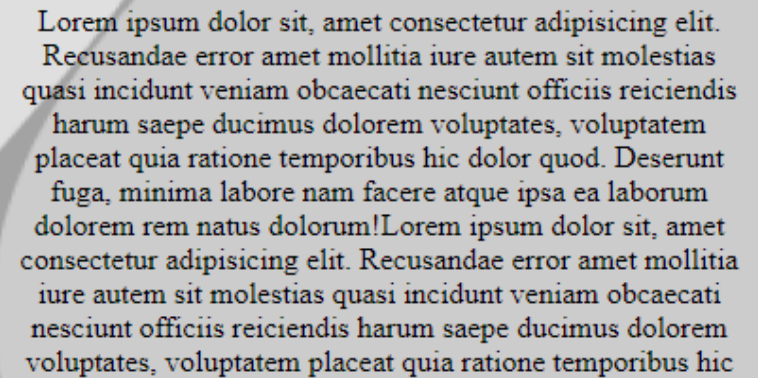
```
1 selector{
2     border: solid purple 5px;
3 }
4
5 /* or */
6
7 selector{
8     border-style: solid;
9     border-color: purple;
10    border-width: 5px;
11 }
```


How do I.....

Make a scrollbar?

The [overflow](#) property sets the rules for how content which spills from its container should be handled.

```
1 selector{  
2     overflow: auto;  
3 }  
4
```



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How do I.....

Wrap text and images?

The float property lets things wrap – but be aware of the flow of the page! It might take some tweaking to get it right.

```
1 selector{  
2     float: left;  
3 }
```



Lorem ipsum dolor sit, amet consectetur adipiscing elit. Recusandae error amet mollitia iure autem sit molestias quasi incidunt veniam obcaecati nesciunt officiis reiciendis harum saepe ducimus dolorem voluptates, voluptatem placeat quia ratione temporibus hic dolor quod. Deserunt fuga, minima labore nam facere atque ipsa ea laborum dolorem rem natus dolorum! Lorem ipsum dolor sit, amet consectetur adipiscing elit. Recusandae error amet mollitia iure autem sit molestias quasi incidunt veniam obcaecati nesciunt officiis reiciendis harum saepe ducimus dolorem voluptates, voluptatem placeat quia ratione temporibus hic dolor quod. Deserunt fuga, minima labore nam facere atque ipsa ea laborum dolorem rem natus dolorum!

How do I.....

Keep images in ratio

By default, setting the size of one side will make an image keep in ratio – but the aspect-ratio property can also be used

```
1 /* Keyword values */
2 aspect-ratio: auto; /* default */
3
4 /* Ratio values */
5 aspect-ratio: 1 / 1;
6 /* width and height are equal proportion */
7 aspect-ratio: 2 / 1;
8 /* width is twice the height*/
9 aspect-ratio: 1 / 2;
10 /* width is half the height */
11 aspect-ratio: 16 / 9
12 /* typical video aspect ratio */
13 aspect-ratio: auto 4 / 3;
14 /* width:height, unless it's a replaced element */
15 aspect-ratio: 0.5;
16 /* float value */
17
18 /* Global values */
19 aspect-ratio: inherit;
20 aspect-ratio: initial;
21 aspect-ratio: unset;
22
```

How do I.....

Change fonts?

The [font-family](#) property lets you change the font you're using. There are only a few default options.

```
1 selector{  
2   font-family: 'Gill Sans', sans-serif;  
3 }
```

Welcome to my website

How do I.....

We can use other resources to host fonts for us, and use them in our projects. One resource is [Google Fonts](#).

Whereas
recognition of
the inherent
dignity

Whereas recognition of the
inherent dignity

Raleway
Matt McInerney, Pablo Impallari, Rodrigo Fuenzalida

Variable

Whereas recognition
of the inherent dignity

Noto Sans
Google

18 styles

Whereas recognition
of the inherent dignity

Ubuntu
Dalton Maag

8 styles

Whereas recognition of
the inherent dignity

Roboto Slab
Christian Robertson

Variable

Whereas recognition
of the inherent dignity

How do I.....

Make links change colour?

Pseudo classes allow us to change the state of something – has it been visited? Is it being hovered over?

```
1 a:hover{  
2     color: orange;  
3 }  
4  
5
```

Homepage Services Reviews