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# Background and Borders

## Contents

## Overview

In this module, we will be discussing the background and border property within CSS.

Styles in CSS Background and Borders module allow filling backgrounds with colour or an image (clipped or resized), or modifying them in other ways. These styles can also decorate borders with lines or images, and make them square or rounded.

## Backgrounds

The `background-color` property specifies the background colour of an element.

The background colour of a page is set like this:

```
body {
    background-color: lightblue;
}
```

N.B. Note the spelling of the property - we use american spelling.

We can specify the transparency by using the `opacity` property. It can take a value from 0.0 - 1.0. The lower the value, the more transparent:

```
body {
    background-color: green;
    opacity: 0.3;
}
```

N.B. When using the `opacity` property to add transparency to the background of an element, all of its child elements inherit the same transparency. This can make the text inside a fully transparent element hard to read.

## Background-Image

The `background-image` property specifies an image to use as the background of an element.
By default, the image is repeated so it covers the entire element.

```
body {
    background-image: url('https://i.imgur.com/bDmlINb.gif');
}
```

N.B. When using a background image, use an image that does not disturb the text on the screen.

## Background-Repeat

By default, the `background-image` property repeats an image both horizontally, and vertically.
Some images should be repeated only horizontally or vertically, or they will look strange.

```
body {
    background-image: url('https://i.imgur.com/FNuk0nJ.png');
}
```

If the above image is repeated only horizontally (`background-repeat:repeat-x`), the background would look better:

```
body {
    background-image: url('https://i.imgur.com/FNuk0nJ.png');
    background-repeat: repeat-x;
}
```

Tip: To repeat an image vertically, set `background-repeat:repeat-y`.

To show the background only once, use the property `no-repeat`

```
 {
    background-image: url('https://i.imgur.com/FNuk0nJ.png');
    background-repeat: no-repeat;
}
```

## Background-Position

The `background-position` property is used to specify the position of the background image.

```
body {
    background-image: url('https://i.imgur.com/xl8kqbg.png');
    background-repeat: no-repeat;
    background-position: right-top;
}
```

## Background-Attachment

The `background-attachment` property specifies whether the background image should scroll or be fixed (not scroll with the rest of the page)

```
body {
  background-image: url("https://i.imgur.com/xl8kqbg.png");
  background-repeat: no-repeat;
  background-position: right top;
  background-attachment: fixed;
}
```

To specify that the background image should scroll with the rest of the page use the value `scroll`

```
body {
    ...
    ...
    ...
    background-attachment: scroll;
}
```

## Shorthand property

To shorten code, it is possible to specify all of the background properties in one single property. This is called **shorthand property**.

Instead of writing:

```
body {
    background-color: #f9f9f9;
    background-image: url('https://i.imgur.com/xl8kqbg.png');
    background-repeat: no-repeat;
    background-position: right top;
}
```

You can use the shorthand property `background` which is set in one declaration:

```
body {
    background: #f9f9f9 url('https://i.imgur.com/xl8kqbg.png') no-repeat right top;
}
```

When using the shorthand property the order of the property value is:

- `background-color`
- `background-image`
- `background-repeat`
- `background-attachment`
- `background-position`

It doesn't matter if one of the property values is missing, as long as the other ones are in this order.

*Note: We didn't use the `background-attachment` property in the example above, as it doesn't have a value.*

## All CSS Background Properties

| Property | Description |
| --- | --- |
| `background` | Sets all the background properties in one declaration |
| `background-attachment` | Sets whether a background image is fixed or scrolls with the rest of the page |
| `background-clip` | Specifies the painting area of the background |
| `background-color` | Sets the background colour of an element |
| `background-image` | Sets the background image for an element |
| `background-origin` | Specifies where the background image(s) is/are positioned |
| `background-position` | Sets the starting position of a background image |

| Property | Description |
|---|---|
| background-repeat | Sets how a background image will be repeated |
| background-size | Specifies the size of the background image(s) |

## Borders

The CSS `border` properties allow you to specify the style, width and colour of an element's border.

```css
p.normal {
    border: 5px solid black;
}
p.bottom {
    border-bottom: 3px solid red;
}
p.round {
    border: 2px solid green;
    border-radius: 8px;
}
p.left {
    border-left: 5px solid blue;
}
```

The `border-style` property specifies what kind of border to display.
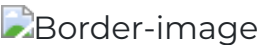
The following values are allowed:

- `dotted` - Defines a dotted border
- `dashed` - Defines a dashed border
- `solid` - Defines a solid border
- `double` - Defines a double border
- `groove` - Defines a 3D grooved border. **\***
- `ridge` - Defines a 3D ridged border. **\***
- `inset` - Defines a 3D insert border.**\***
- `outset` - Defines a 3D outset border. **\***
- `none` - Defines no border.
- `hidden` - Defines a hidden border.

*N.B.* \ - Effects dependent on the border-colour value.*

The `border-style` property can have one to four values (for the top border, right border, bottom border and left border).

```css
p.dotted {border-style: dotted;}
p.dashed {border-style: dashed;}
p.solid {border-style: solid;}
p.double {border-style: double;}
p.groove {border-style: groove;}
p.ridge {border-style: ridge;}
p.inset {border-style: inset;}
p.outset {border-style: outset;}
p.none {border-style: none;}
p.hidden {border-style: hidden;}
p.mix {border-style: dotted dashed solid double;}
```

Result:

![Border-image]

## Border Width

The `border-width` property specifies the width of the four borders.
The width can be set as a specific size (in px, pt, cm, em, etc) or by using one of the three pre-defined values: thin, medium, or thick:

```css
p.one{
    border-style: solid;
    border-width: 5px;
}
p.two {
  border-style: solid;
  border-width: medium;
}
p.three {
  border-style: dotted;
  border-width: 2px;
}
p.four {
  border-style: dotted;
  border-width: thick;
}
```

## Specific Side Widths

The `border-width` property can have one to four values (for the top border, right border, bottom border, and the left border):

```css
p.one {
  border-style: solid;
  border-width: 5px 20px; /* 5px top and bottom, 20px on the sides */
}
p.two {
  border-style: solid;
  border-width: 20px 5px; /* 20px top and bottom, 5px on the sides */
}
p.three {
  border-style: solid;
  border-width: 25px 10px 4px 35px; /* 25px top, 10px right, 4px bottom and 35px left */
}
```

## Border Colour

The `border-color` property is used to set the colour of the four borders.

The colour can be set by:

- name - Specify a name, like "blue"
- HEX - Specify a HEX value, like "#ff0000"
- RGB - Specify a RGB value, like "rgb(0,255,0)"
- HSL - Specify a HSL value, like "hsl(0,100%,50%)"
- Transparent

**Note:** If `border-color` is not set, it inherits the colour of the element.

```css
p.one {
  border-style: solid;
  border-color: red;
}
p.two {
  border-style: solid;
  border-color: green;
}
p.three {
  border-style: dotted;
  border-color: blue;
}
```

## Specific Side colours

To set specific colours to each side we supply multiple parameters:

```
p.one {
    border-style: solid;
    border-color red green blue yellow; /* red top, green right, blue bottom and
yellow left */
}
```

## Shorthand Property

To shorten code, it is also possible to specify all the individual border properties in one property.

The `border` property is a shorthand property for the following individual border properties:

- `border-width`
- `border-style` (required)
- `border-color`

For example:

```
p {
    border: 5px solid red;
}
```

You can also specify all the individual border properties for just one side:

### Left border

```
p {
    border-left: 6px solid grey;
    background-color: lightgrey;
}
```

### Bottom border

```
p {
    border-bottom: 6px solid red;
    background-color: lightgrey;
}
```

## All CSS Border Properties

| Property | Description |
| --- | --- |
| border | Sets all the border properties in one declaration |
| border-bottom | Sets all the bottom border properties in one declaration |
| border-bottom-color | Sets the colour of the bottom border |
| border-bottom-style | Sets the style of the bottom border |
| border-bottom-width | Sets the width of the bottom border |
| border-color | Sets the colour of all four borders |
| border-right | Sets the right border properties in one declaration |
| border-right | Sets the right border properties in one declaration |
| border-top | Sets the top border properties in one declaration |
| border-radius | Sets all four-*- border radius properties for rounded corners |

| Property | Description |
|----------|-------------|
| `border-width` | Sets the width of the four borders |
| `border-style` | Sets the style of the four borders |

Additional Resources available [here](#)

# Tutorial

1. Create a simple HTML document

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Background - Tutorial</title>
</head>
<body>
    <h1> Hello Friends </h1>
    <p> How ya doing? </p>
    <p> Meet Sir Barks A Lot: </p>
    <img src="https://i.imgur.com/aTpWlhW.png" alt="cute pup"/>
</body>
</html>
```

2. Set the background-colour to grey using the `background-color` property:

```html
<style>
  body{
    background-color: #D7D2CE;
  }
</style>
```

3. Set the background to a picture of bows, make the image repeat vertically

```html
<style>
  body{
    background-color: #D7D2CE;
    background-image: url('https://i.imgur.com/FUYef2G.png');
    background-repeat: repeat-y;
  }
</style>
```

4. Change the position of the background image to right of the page

```html
<style>
  body{
    background-color: #D7D2CE;
    background-image: url('https://i.imgur.com/FUYef2G.png');
    background-repeat: repeat-y;
    background-position: right;
  }
</style>
```

5. Shorten the code you have written to specify all of the background properties in one single property.

```html
<style>
  body{
    background: #D7D2CE url('https://i.imgur.com/FUYef2G.png') repeat-y right;
  }
</style>
```

6. Apply a 6px wide dotted red border to the image - using the shorthand property.

```
<style>
  ...
  img {
    border: 6px dotted #ff0000;
  }
</style>
```

The final code should look like this:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Background - Tutorial</title>
    <style>
      body{
        background-color: #D7D2CE;
        background-image: url('https://i.imgur.com/FUYef2G.png');
        background-repeat: repeat-y;
        background-position: right;
      }
      img {
        border: 6px dotted #ff0000;
      }
    </style>
</head>
<body>
    <h1> Hello Friends </h1>
    <p> How ya doing? </p>
    <p> Meet Sir Barks A Lot: </p>
    <img src="https://i.imgur.com/aTpWlhW.png"/>
</body>
</html>
```


Output from tutorial

## Exercises

1. Write the HTML/CSS code to achieve this output:
   
   Exercise1_Image

   ▼ Solution

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <style>
      p.one {
          border: 2px solid black;
      }
      p.two {
          border-bottom: 1px solid red;
      }
      p.three {
          border: 1px solid grey;
          border-radius: 4px;
      }
      p.four {
          border-left: 5px solid blue;
          background-color: lightblue;
      }
  </style>
</head>
<body>
    <p class="one"> I have borders on all sides.</p>
    <p class="two"> I have a red bottom border.</p>
    <p class="three"> I have rounded borders.</p>
    <p class="four"> I have a blue left border.</p>
</body>
</html>
```

2. Create a HTML document which uses the `background` property, and satisfies the following requirements:

   1. The image mustn't repeat

   2. The image mustn't scroll with text

   3. The image must resize when the browser is resized.

      ▼ Solution

```html
<!DOCTYPE html>
<html>
<head>
<style>
h2,p{
    color: white;
}
body {
  background-image: url('https://i.imgur.com/6FkrESf.png');
  background-repeat: no-repeat;
  background-attachment: fixed;
  background-size: 100% 100%;
}
</style>
</head>
<body>

<h2>Background Stretch</h2>

<p>Set the background-size property to "100% 100%" and the background
image will be stretched to cover the entire element, in this case the
body element.</p>

</body>
</html>
```