

## Content vs. Presentation

### Original intent for HTML

Author: specify document **content** and **structure**

Browser: present the **content** and **structure** using default values

- Formatting (layout) is based on its environment: desktop, laptop, palmtop, web phone, etc.

### In reality

Authors want much more control over **layout** and **presentation**

- Colour and font
- Alignment and spacing of text

**Ad hoc tags** and attributes are added by browser vendors

**Browser-specific extensions** are a nightmare for portability

HTML “**degenerated**” into a markup language for **format** Against its designed purpose

## Style Sheets

Separates the **structure/content** from the **presentation**

Attach **formatting/style** to structured documents

- Fonts, colours, spacing, ...

Remove the requirement for further formatting tags

## Advantages

Capability of imposing consistency on style

Precise control over presentation

Separation of content and presentation.

Create multiple views of your content,

- e.g. for screen, print or mobile devices.

Design modular styles for Web sites or documents, e.g. styles can refer to elements, attributes or to a class.

Easier to alter the style of a site.

Simplify site maintenance

Faster downloads

## Cascading Style Sheets

**Cascading Style Sheets (CSS)** are a standard set by the World Wide Web Consortium (W3C) for managing the design and formatting of Web pages in a Web browser

A single piece of CSS formatting information, such as text alignment or font size, is referred to as a **style**

Some of the style capabilities of CSS include the ability to **change fonts, backgrounds, and colors**, and to **modify the layout of elements** as they appear in a Web browser

CSS information can be added directly to documents or stored in separate documents and shared among multiple Web pages  
The term “**cascading**” refers to the Web pages’ ability to use CSS information from more than one source

## Style Sheets

Each element on a page has a **style** defined for it.  
The style is defined by a set of **attribute: value** pairs.  
Style attributes can control:

- Typeface and font properties
- Background properties
- Box-related properties
- List properties

## A Quick History - CSS Levels (Versions)

### CSS1:

- Selectors, properties and values

### CSS2:

- Media, extended visual formatting and improved positioning

### CSS3:

- becoming widely supported in Browsers
- Enhancements, layout models, audio, effects

## Specifying Colours

Before we examine CSS in detail – we will look at the use of colours on websites.

Colour can be specified in two ways: by **Colour Name** or by **24-bit RGB** value.

Using RGB values, the colours are represented by a set of **red**, **green** and **blue** colour values.

Every colour can be composed from the 3 primary colours : **red**, **green** and **blue**.

These colour values are represented by an **8 bit number** expressed as **two hexadecimal numbers**.

the value of **each Byte** represents how much of that colour is being used.  
each byte – can have any value from **0 to 255** (decimal) or **00 to FF** (Hex)  
Allows 16,777,216 different colours!!!

## RGB Codes

- Need a value for each colour :
- white is #FFFFFF or rgb(255, 255, 255)
- black is #000000 or rgb(0, 0, 0)
- red is #FF0000 or rgb(255, 0, 0)
- blue is #0000FF or rgb(0, 0, 255)

- purple is #800080 or rgb(128,0,128)
- brown is #A52A2A or rgb(165,42,42)

## HTML Colour Names

- Black = "#000000"
- Silver = "#C0C0C0"
- Gray = "#808080"
- White = "#FFFFFF"
- Maroon = "#800000"
- Red = "#FF0000"
- Purple = "#800080"
- Fuchsia = "#FF00FF"
- Green = "#008000"
- Lime = "#00FF00"
- Olive = "#808000"
- Yellow = "#FFFF00"
- Navy = "#000080"
- Blue = "#0000FF"
- Teal = "#008080"
- Aqua = "#00FFFF"

## HTML Colours - Shortcut

Can use the following shortcut if the **TWO digits** for a RGB colour are the same :

For example:

- #FF33AA can be shortened to : #F3A
- (used in the Lynda.com videos )

## Online Colour Charts

Colour Names:

[http://www.w3schools.com/colors/colors\\_names.asp](http://www.w3schools.com/colors/colors_names.asp)

Colour Hex Values :

[http://www.w3schools.com/colors/colors\\_hex.asp](http://www.w3schools.com/colors/colors_hex.asp)

<http://www.somacon.com/p142.php>

<http://www.december.com/html/spec/color.html> (colours organized in groups that go well together)

## Notes on Using Colours

The use of **HTML** elements and attributes for specifying colour is **deprecated** - **Use style sheets instead.**

Don't use colour combinations that cause problems for people with colour blindness in its various forms.

If you use a background image or set the background colour, also set the various text colours as well.

Colours may look different on various platforms, e.g. on Macs, Windows, or LCD panels.

**ALWAYS** use the American spelling ..... **color**

- Now back to CSS .....

## CSS - Ways to define styles

1. **Default** : provides values for all element properties, unless you change it. (Note: user can customise browser to change defaults!)
2. **Inline** : style is defined as an attribute of the element in-place. **Use this for “one-off” or special styles.**
3. **Embedded** : styles defined in the head portion of web page. Use this if you don't have many web pages, or for styles that are useful only for the given page.
4. **External** style sheet : styles defined in a separate file. Use this to centralise style definitions and provide uniformity across all pages of a web site.

## Inline Styles

Defined for individual elements, at the point of use (in the HTML). Useful for “one-off” styles that are not likely to be used elsewhere

- Inefficient .... So hardly ever used !!!!

To implement inline styles requires the use of the style attribute.

```
<tag style="attribute:value; attribute:value ...">HTML text </tag>
```

For example if the colour of a specific heading is to be changed then the heading element <h1> can be extended as shown below:

```
<h1 style="color: #00FF00"> Brian Shields </h1>
```

In this example the colour of the text is set to **Green**.

This will only affect the text encapsulated within the <h1> tags which have the CSS Inline Style.

```
<body>
<h1> Brian Shields </h1>
<br/>
<h1 style=" color: #00FF00">Brian Shields </h1>
<br/>
<h1> Brian Shields </h1>
</body>
```

## Embedded Styles

To implement embedded styles requires the definition of the style to be declared inside the <head>...</head> tags.

To do this requires the use of the <style> tag,

For example:

```
<style type="text/css">
  h3 {color: purple;}
  h4 {color: #4D3232;}
</style>
```

## Embedded Styles - Example

```
<html>
<head>
<title>Example 2 - embedded style</title>
<style type="text/css">
  h1 {color: red;}
  h2 {color: #0000FF;}
</style>
</head>
<h1>Brian Shields</h1>
<br/>
<h2>Glasgow Caledonian University</h2>
</html>
```

Here the selectors are simply tag names. The style rules will apply to elements defined by those tags.

## A Basic CSS Rule

Syntax:

- selector { property : value;}

**selector** is the HTML element(s) to which the rule applies, e.g. **body**

**property** is the property of the element that we want to affect with a style, e.g.

**color**

**value** is the specification for the property, e.g. **maroon (dark red color)**

## External Style Sheets

In the following examples – we will apply various styles to this file:

```
<body>
<h1>The story of my first styled page</h1>
<h2>Welcome to my styled page,</h2>
<p>It lacks images; it has no links but at least it has style.
<br />
  There should be more here, but I don't know what yet.
</p>
</body>
```

A style sheet can be placed in a separate file (usually named with suffix **.css**) and referenced by HTML files that need it.

Useful for centralizing control of style and ensuring uniform appearance across many pages of a web site.

The contents of the file are what would go between **<style> ... </style>** of an embedded style layout.

**Note: this file is not HTML!**

The file is referenced using a **<link>** tag in the HTML document's head portion.

## Example of using style sheet

```
<html>
<head>
<title>Style Example</title>
<link rel="stylesheet" type="text/css" href="style.css">
</head>
... <p class="excerpt">affected text</p> ...
</html>
```

The **rel** attribute specifies the relationship of the referenced file to this page.

The **type** attribute must be **"text/css"**.

The **href** attribute is a URL pointing to the external style sheet.

## Example of style sheet

Here is what an external style sheet (named first\_try.css) could contain:

```
/* sample style sheet */
body {
    color : maroon;
}
```

Note that there is no HTML in this file!

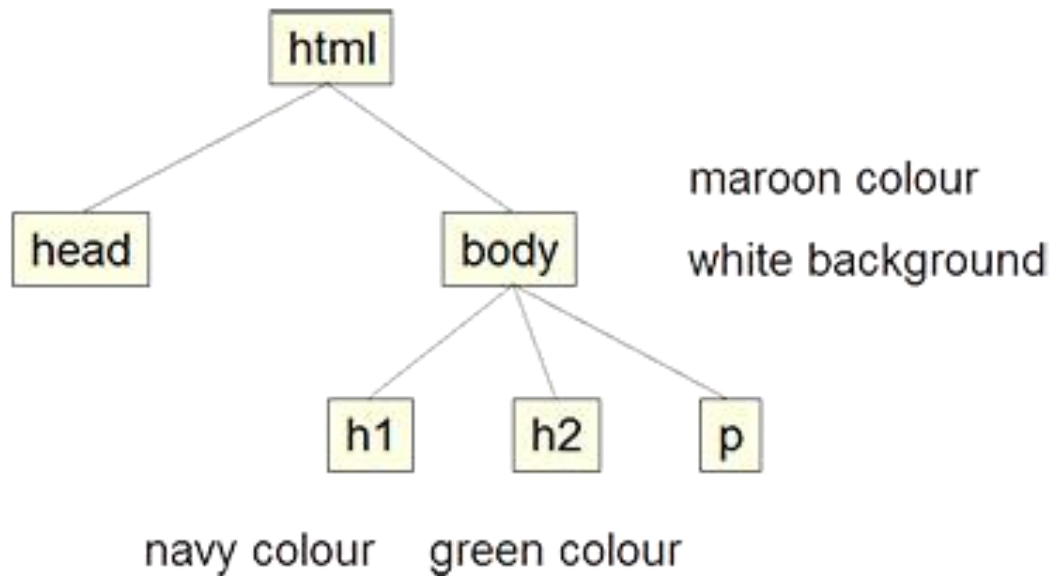
This example also illustrates a CSS comment between **/\*** and **\*/**. Such comments can be placed in external or embedded style sheets.

## Second Try

```
// Always use a semi-colon:
body {
    color: #800000;
    background: #FFFFFF;
}
h1 {
    color: #000080;
}
h2 {
```

```
color: #00FF00;
}
```

## Specific Rules > General Rules



## Third Try

```
body {
  color: #800000;
  background: #FFFFFF;
  font-family: cursive;
}
//Grouping Selectors - Always use a comma
h1, h2 {
  color: #000080;
  font-family: arial, sans-serif;
}
```

## Font Properties

modify the appearance of text

- font-family : courier or sans-serif
- font-size : 12pt or 120% or +2pt or medium
- font-stretch :ultra-condensed to ultra-expanded
- font-style : italic
- font-variant : small caps or normal
- font-weight : normal, bold, bolder, lighter, 100 (lightest) to 900 (boldest)

## CSS Units - Measurement Values

Unit	Description
%	percentage
in	inch
cm	centimeter
mm	millimeter
pt	point (1 pt is the same as 1/72 inch)
pc	pica (1 pc is the same as 12 points)
px	pixels (a dot on the computer screen)
em	see next slide
ex	one ex is the x-height of a font (x-height is usually about half the font-size)

### Unit em

#### Description

1em is equal to the current font size.

2em means 2 times the size of the current font.

E.g., if an element is displayed with a font of 12 pt, then '2em' is 24 pt.

The 'em' is a very useful unit in CSS, since it can adapt automatically to the font that the reader uses

## Text Properties

- letter-spacing : 2px
- line-height : 14pt or 120% or 2.0 (scaling factor)
- text-align : right or left or center or justify
- text-decoration : underline or overline
- text-indent : 20px
- vertical-align : sub or super or middle or top
- word-spacing : 25px
- text-transform : uppercase or capitalize or lowercase
- [http://www.w3schools.com/css/css\\_text.asp](http://www.w3schools.com/css/css_text.asp)

## Background Properties

define the **background colour** for elements

```
p {  
  background-color : #DDDDDD;  
}
```



define **background images** for elements

```
p {  
  background-image : url(backgrounds/marble.gif);  
}
```

- [http://www.w3schools.com/css/css\\_background.asp](http://www.w3schools.com/css/css_background.asp)

## List Properties - Examples

Specify an **image** as list item marker

- list-style-image : url(/images/bullet.gif)

Specify bullets for an **unordered list**

- list-style-type : square or disc or circle

Specify **lower case roman numerals** for an ordered list

- list-style-type : lower-roman

## Fourth Try

```
body {  
  color: #800000;  
  background: #FFFFFF;  
  font-family: cursive;  
}  
h1, h2 {  
  color: #000080;  
  font-family: arial, sans-serif;  
}  
ol {  
  background-color: #C8F526;  
}  
li {  
  list-style-type : lower-roman;  
}
```

## CSS Box Model

Each element is contained in an invisible rectangle box

The 'html' element is the outermost box.

The 'head' and 'body' elements are the second layer of boxes.

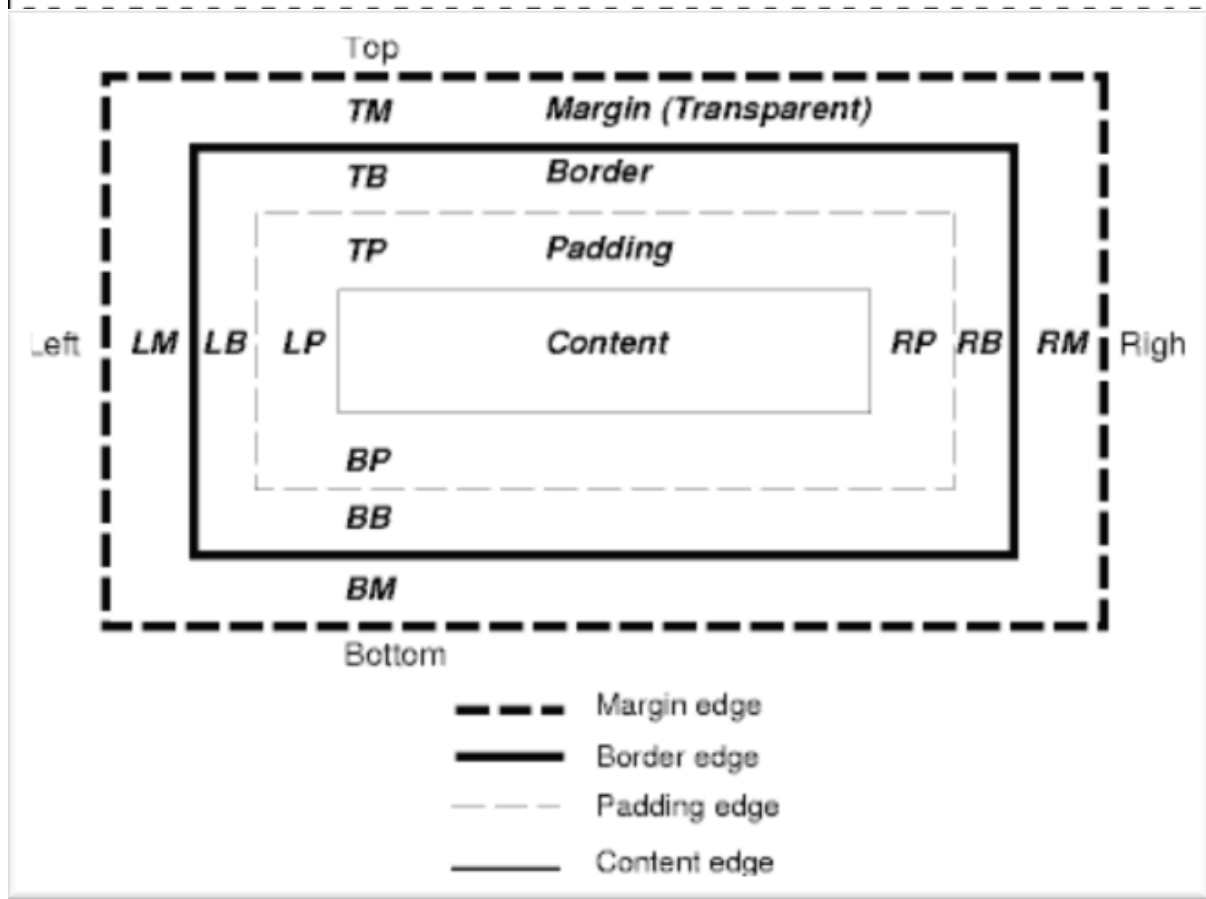
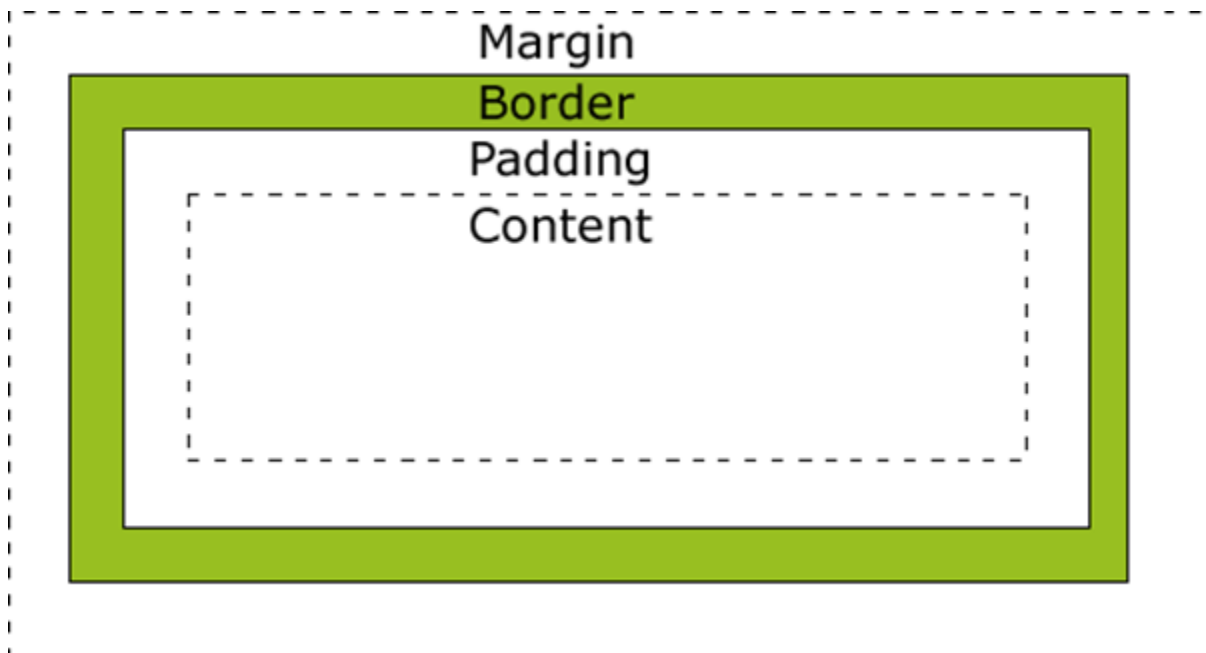
The 'body' box contains boxes for paragraphs (p), divs, spans, headers (h1, h2, h3), etc.

Each box can contain other boxes with their corresponding elements inside.

Each box is made up of four components:

- Content
- Padding
- Borders

- Margins (transparent)



## Fifth Try - The Border Properties

```
/* other rules as before */  
p {  
  background-color: yellow;  
  border-color: green;  
  border-style: double;  
  border-width: medium;  
}
```

## Sixth Try

```
p {  
  background-color: #C8F526;  
  border-color: #800000;  
  border-style: solid;  
  border-width: medium;  
  padding: 10px;  
  margin: 30px;  
}
```

## Style Classes

These allow you to control which elements of a given type should use a style rule. This method has two parts:

- In the style sheet, the selector defines the class name, which is preceded by a period.
- In the HTML, the tag includes the class attribute and specifies the value of the class name

For example we may wish to create two paragraph definitions that we can use when we want to indicate danger and information

```
p.warning {  
  background-color: #FFE4E1;  
  color: #000000;  
  border: #DC143C 3px dashed;  
}  
p.info {  
  background-color: #FFD700;  
  color: #000000;  
  border: #B8860B 3px solid;  
}
```

The class “**warning**” has a background colour of **light red** and a text colour of **black**

The class “**info**” has a background colour of **gold** and a text colour of **black**.

Both have a **THREE** pixel border – one is **dashed** – the other is **solid**

Note the **full stop** separating the tag and the class.

Having declared these classes we can now use them inside our own HTML pages.

To do this, the **<p>** tag must be extended using the class attribute :

```
<p class="warning">This is a Warning !!!</p>
```

```
<p class="info"> This is for Information </p>
```

In the above example the styles were explicitly defined for the **<p>** tag

However, styles can be defined by omitting the tag, thus generating a style that can be used by many elements

- not just <p>

```
.large {font-size: xx-large;}
```

This defines a font size, which is extra, extra large - defined in

## Validation

You should always validate CSS files :

<http://jigsaw.w3.org/css-validator/>

Use this to validate your external style-sheet (.css file)

## References

### Tutorials:

<http://www.w3schools.com/css/default.asp>

<http://www.wpdfd.com/editorial/basics/index.html>

### Detailed References:

<http://www.w3.org/TR/REC-CSS2/>

<http://www.w3.org/MarkUp/Guide/Style>

<http://www.w3.org/StyleSheets/Core/preview>