CSS Cascading Style Sheets

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation semantics (the look and formatting) of a document written in a markup language.

Its most common application is to style web pages written in HTML and XHTML, but the language can also be applied to any kind of XML document, including plain XML, SVG and XUL.

CSS is designed primarily to enable the separation of document content (written in HTML or a similar markup language) from document presentation, including elements such as the layout, colors, and fonts.

This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for tableless web design).

CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices.

It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS style sheet, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified.

CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities or weights are calculated and assigned to rules, so that the results are predictable.

CSS Terminology

Creating a CSS rule starts with the selector for the element you want to style such as the h1 for a heading or p for a paragraph, then you create a declaration block which includes a property such as a color or font-size and a value which is the color or font-size of your choice, this is wrapped inside a pair of curly braces { },

The example declaration declares a property in this case color and font-size and a value which in this case is black (hexadecimal shorthand #000), and 2em for the font size and all of this is known as a rule, note: make sure you include the semi-colon after the curly braces to make the syntax of the rule complete

Selector	Declaration
	Property Value
h1	{ color: #000;}
h1	{ font- size: 2em;}

Styling a Document

Embedded Styles

An embeded style rule is inserted between the head tags of the document, the (p) is the element selector which is followed by the declaration block which consists of the property (color) and a value (#0000ff which is hexadecimal for the colour of blue), these are enclosed between two curly braces and a semi-colon is placed at the end of each rule.

```
<html>
  <head>
    <title>Exercise 1</title>
    <style type="text/css">
      p {color:#0000ff;}
    </style>
  </head>
   <body>
      <p>This paragraph should be coloured blue</p>
   </body>
</html>
```

This paragraph should be coloured blue

Inline Styles

Inline styles are placed within the body of the document to target specific elements

```
  <p style="background-color:#ccc; color:#f00;">This paragraph should
  have a background colour of grey and the text is coloured red this is
  achieved by using an inline style</p>
```

This paragraph should have a background colour of grey and the text is coloured red this is achieved by using an inline style

External Style Sheets

External style sheets are linked to an external document within the head of the HTML document using the following code

```
   <link rel="stylesheet" type="text/css" href="style.css"
media="all">
```

This paragraph should be coloured green and italic and is styled from an external style sheet

You can link more than one style sheet to a document

```
    <link rel="stylesheet" type="text/css" href="style.css"
media="all">

   <link rel="stylesheet" type="text/css" href="secondarystyle.css"
media="all">
```

External style sheets and embedded style sheets can also be used together, but the embedded styles should be placed under the linked styles within the head of the document.

```
<head>
   <link rel="stylesheet" type="text/css" href="secondarystyle.css"
media="all">
   <style type="text/css">
   p {color:#0000ff;}
   </style>
</head>
```

A style sheet can also be imported into the document using

```
@import url( style.css);
```

You can also import more than one style sheet, this would maybe be used for linking style sheets together

```
@import url( style.css) ;
@import url( secondarystyle.css);
```

Classes and Ids

IDs can only be used once on a page although you can use an ID with a different name on the same page, the link to take you to the top of the page uses an ID of top written **id="top"** in the h1 heading Building WebSites at the top of the page and the link is written as ** Back to the top of the page.** Classes though can be used more than once on a page **class="center"** has been used to center the headings on this page.

The Id is written with an hash tag before the name in the style sheet such as

```
#blue {
  color: #0000CD;
}
```

The class is written with an full stop before the name in the style sheet such as

```
.center {
   text-align: center;
}
```

Verticle Navigation Bar

Here we will be creating a vertical navigation bar an unordered list as been created in between div tags given the ID of navigation with anchor tags to create the links to the other web pages within the li tags.

```
<div id="navigation">
  <ul>
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
    <li><a href="#">Services</a></li>
    <li><a href="#">Contact us</a></li>
  </ul>
</div>
```

Next we start creating the CSS code by identifying the different areas where the coding takes effect. A container div, a ul inside the div, the list li elements and the anchor elements inside the li elements.

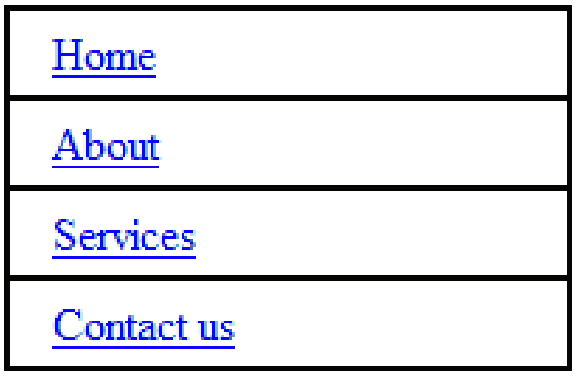
```
#navigation {
}

#navigation ul {
}

#navigation li {
}

#navigation a {
}
```

We begin by removing the bullets from the list by applying list-style-type:none; to the li element. We then set the list at the edge of the page by setting the margin:0; and padding:0; to the ul element and we give the container a border of 1px solid #000; and a reduced width of 200px.

The next step would be styling the anchor element by applying padding of 5px on the top and bottom and 15px to the left and right because the anchor element is an inline element and padding can't be applied to the top and bottom of the element we overcome this problem by using display:block; we will also apply a border of 1px solid #000;

```
#navigation {
  width:200px;
  border:1px solid #000;
}

#navigation ul {
  margin:0;
  padding:0;
}

#navigation li {
  list-style-type:none;
}

#navigation a {
  padding:5px 15px;
  display:block;
  border:1px solid #000;
}
```

The navigation bar should now resemble the picture below



Now background and text colour can be added background-color:#ccc; color:#000; The borders can be removed from the navigation and the a element. But this creates a navigation bar with no separation of the buttons to resolve this we add margin-bottom:1px; to the anchor element. To remove the underline from the text we use text-decoration:none; applied to the anchor element.

And finally creating a change of colour to the buttons when you move the mouse over them by using the pseudo class selector #navigation a:hover

The finished CSS for the vertical navigation bar navigation bar

```
#verticlenavigation {
      font-family: arial, sans-serif;
      width: 50%;
      font-size: 14px;
      color: #000;
      margin-left: 25%;
   }

   #verticlenavigation ul {
      list-style-type: none;
   }

   #verticlenavigation ul li a {
      text-align: center;
      border-bottom: 1px solid #000;
      border-right: 1px solid #000;
      border-left: 1px solid #000;
      border-top: 1px solid #000;
      width: 70%;
      padding: 12px;
      display: inline-block;
      text-decoration: none;
      background-color: #FFF;
      font-weight: bold;
      color: #000;
   }

   #verticlenavigation ul li a:hover {
       background-color: #FFFACD;
       color: #000;
   }
```

Horizontal Navigation Bar

Here we will be creating a horizontal navigation bar the HTML is the same as in the vertical navigation an unordered list as been created in between div tags which as been given the ID of navigation with anchor tags to create the links to the other web pages within the li tags.

```
<div id="horizontalNavigation">
  <ul>
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
    <li><a href="#">Services</a></li>
    <li><a href="#">Contact</a></li>
  </ul>
</div>
```

Next we start creating the CSS code the body element has been styled, but it's the navigation div area that we will be setting up, the different areas where the coding takes effect. The navigation div, the ul tag inside the div, the list li elements and the a elements.

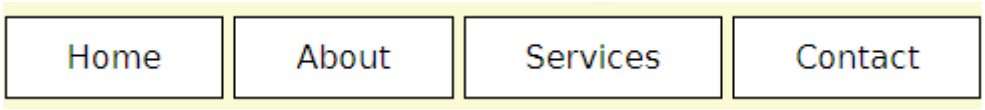
Here we have given a width to the navigation div, added margin and padding of 0px and removed the bullets on the ul, the li is given the displayed inline property and value. The a element is floated left this changes the inline element giving it a block like element to give it dimension and padding is added to the top and bottom of 5px and the left and right hand sides of 15px notice that the ul as collapsed but this will be rectified later. Some text and background colour is added and the underline is removed using text-decoration:none; Now we will remove the border and space the buttons out a bit more by adding margin:0 2px 0 0;

Here we have added a background and text colour for when the mouse is moved over the buttons. To correct the collapsed ul we add float left to the navigation div this is because the container is the parent of the a element which was floated earlier causing the container to collapse and in order to correct this we need to also float the parent container. And finally remove the border from the ul and alter the border of the navigation div.

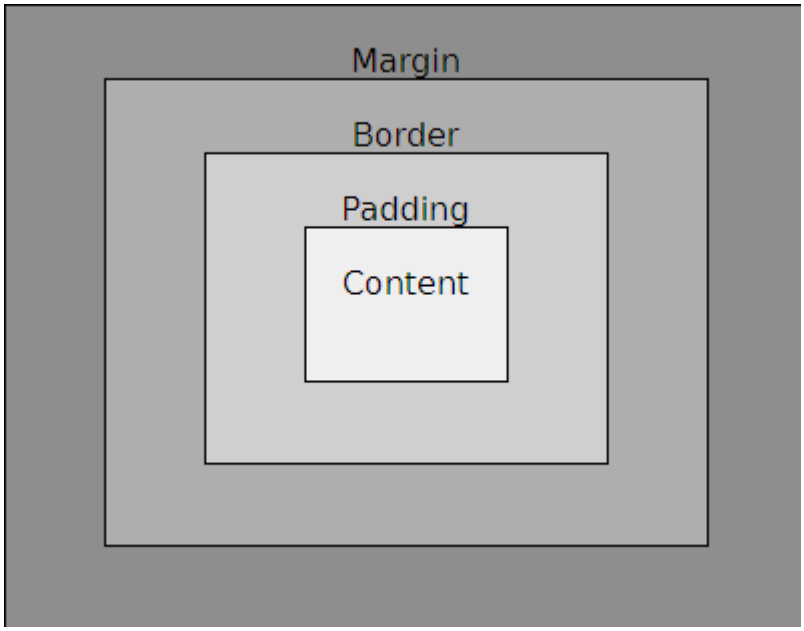
The CSS for the horizontal navigation

```
#horizontalnavigation {
        width:75%;
        float:left;
        margin:0 0 20px 200px;
 }

 #horizontalnavigation ul {
        margin:0px;
        padding:0px;
        list-style-type:none;
 }

 #horizontalnavigation li {
        display:inline;
 }

 #horizontalnavigation a {
        border-bottom:1px solid #000;
        border-right:1px solid #000;
        border-left:1px solid #000;
        border-top:1px solid #000;
        float:center;
        width:20%;
        padding:10px 30px;
        color:#000;
        background:#fff;
        text-decoration:none;
        margin:auto ;
 }

 #horizontalnavigation a:hover {
        color:#000;
        background:#FFFACD;
 }
```

The finished navigation bar



The Box Model



Margins are transparent space that goes around a given element, in the box model they are outside of the border of an element and can be used to help separate adjoining boxes on a web page, the border goes around the padding and content area, the padding clears an area around the content, and the content area is where the text and images appear.

You should know that when you specify the width and height of an element, you are just setting the width and height of the content area, to know the full size of the element, you must also add the padding, border and margin to the size of the box.

A web browser is a software application for retrieving, presenting, and traversing information resources on the World Wide Web. An information resource is identified by a Uniform Resource Identifier (URI) and may be a web page, image, video, or other piece of content.

Hyperlinks present in resources enable users easily to navigate their browsers to related resources. A web browser can also be defined as an application software or program designed to enable users to access, retrieve and view documents and other resources on the Internet.

Although browsers are primarily intended to use the World Wide Web, they can also be used to access information provided by web servers in private networks or files in file systems. The major web browsers are Firefox, Google Chrome, Internet Explorer, Opera, and Safari.

CSS Colours

A browser by default sets the text colour to black, un-visited links to blue and visited links to purple and a background colour of white, these can all be changed in the style sheet.

Colour Theory

The Primary colours are Red, yellow and blue, in traditional colour theory, these are the three pigment colours, all other colours are derived from these 3 hues, the Secondary colours are Green, orange and purple, these are the colours formed by mixing the primary colours, and the Tertiary colours are Yellow-orange, red-orange, red-purple, blue-purple, blue-green and yellow-green, these are the colours that are formed by mixing a primary and a secondary colours. For more information on the theory of colour.

Five ways to define colours in CSS

Using the Keyword for example black, white or yellow etc
Hexadecimal (see chart below)

A shortened version of Hexadecimal such as #0F0 this is used when two values next to each other share the same value as in the example which would be #00FF00 in Hexadecimal and then shortened to #0F0 to produce a green
RGB decimal values such as rgb(255,255,255) for white and rgb(0,0,0) for black
RGB percentages such as rgb(100%,100%,100%) for white and rgb(0%,0%,0%) for black

Web colours are colours used in designing web pages, and the methods for describing and specifying those colours. Colours may be specified as an RGB triplet or in hexadecimal format (a hex triplet). They may also be specified according to their common English names in some cases.

Often a colour tool or other graphics software is used to generate colour values. Hexadecimal colour codes begin with a number sign (#). A colour is specified according to the intensity of its red, green and blue components, each represented by eight bits. Thus, there are 24 bits used to specify a web colour, and 16,777,216 colours that may be so specified.

Hexadecimal Colour Values

Aqua	#00FFFF	
Navy	#000080	
Black	#000000	
Olive	#808000	
Blue	#0000FF	
Purple	#800080	
Fuchsia	#FF00FF	
Red	#FF0000	
Grey	#808080	
Silver	#C0C0C0	
Green	#008000	
Teal	#008080	
Lime	#00FF00	
White	#FFFFFF	
Maroon	#800000	
Yellow	#FFFF00	
Orange	#FFA500	