CM1102 Web Applications

Exercise 2: Setting styles with CSS

Objectives of the exercise:

To gain experience of some aspects of the following types of CSS:

a) Colour properties of text
b) Background colours of elements
c) Styling list properties to remove bullets and create inline lists
d) Pseudo classes
e) Box model properties for the border, margin and padding
f) Text alignment relative to its containing element
g) Table style properties for borders, text and background

1) Make sure the contents of the zipfile are in a separate folder (Windows) or directory (Linux). Inspect the contents of the style sheet (`week07.css`), and see how this file is applied (using the `link` tag) in the HTML files. Try loading one of the HTML files with a browser, to see if everything is working properly and that the style sheet is actually applied. When using Firefox, selecting `Tools` → `Web Developer` → `Inspector` will allow you to see for each element what style has been applied to it. This can also be useful for the other exercises.

   Now apply the style sheet (`week07.css`) to the pages that you modified last week. That is, add the relevant `link` tag to each of your three pages of the previous exercise. Make sure everything works properly before continuing.

2) Change the main header of the web site to text and background colours of your choice, using the `color` and `background-color` properties.

   For help with setting colours refer to colour guidance resources such as

   http://www.w3schools.com/HTML/html_colornames.asp

   and the W3Schools Color Picker :
   http://www.w3schools.com/tags/ref_colorpicker.asp

   Experiment with changing the colour and width of the border of the main header, for example to set a solid border only along the base of the element (this line might replace the `<hr>` element that was inserted in the original version of the page).

3) Change the menu to be in a single horizontal format beneath the main header. Recall that bullets can be removed from lists using `{list-style: none;}`, and to make the list horizontal use `{display: inline;}` (the latter is applied to `<li>` elements). You may find it useful to set `{margin: 0;}` Experiment with the border property to create different styles of list – for example to create a vertical line separator between items, you could use the `border-left:` or `border-right:` property.
   Note that the offset of the horizontal menu from the left margin can be set with `margin-left` attribute, and the space between menu items will be affected by

the setting for padding. Vertical separation of the menu from the header element above could be set with `margin-top` property applied to the `<ul>` element.

4) Use the pseudo classes `a:hover`, `a:active` and `a:visited` to modify the colors of the anchor text in the menu.

5) Use the `:hover` pseudo-class to change the background colour of menu items when the user moves their mouse over them.

6) For the table on the Education page, use CSS to set various styles such as:
   - set a solid 1 or 2 pixel width border with a colour of your choice;
   - change the font characteristics (`font-family`, `font-size`)
   - change the background colours of the cells – ensure that there is good contrast with the text colour.
     Try combining a pale background colour such as `rgb(200, 255,255)` with setting the cell borders (for `th` and `td`) to be white.
   - the padding (i.e. space around the text) of the `th` and `td` cells
   - the text alignment with for example `text-align:left`, `text-align:center, text-align:right`

7) For the table use CSS to change the border characteristics so that only horizontal lines are used (to separate rows), with no vertical lines between columns. Note that all three properties (thickness, style, color) of one side of a border can be set with the `border-top:, border-bottom:, border-left:, border-right:` properties, while an individual property of one side of a border can be set with for example `border-right-style`:

8) Ensure that you understand the CSS used to create the example menu provided towards the end of the first set of lecture notes on CSS. If in doubt, implement the menu, adding properties incrementally to see what their effects are.

Additional exercises: the following exercises are intended for people who get through the previous exercises very quickly. They use some functionality that has not been covered in the lectures and therefore may require reference to the recommended book ("Beginning HTML and CSS" chapters 7, 8 and 9) or to the W3Schools web site (http://www.w3schools.com/css/) for additional material on CSS.

9) Use the `nth-child` or `nth-of-type` pseudo-class (or some of the variations on those selectors) to set alternate rows of the table to have different colours. [see second set lecture slides for CSS and note that the selector takes a form such as `tr:nth-child`].

10) Assuming that you created vertical separators between menu items in your horizontal menu using either `border-right` or `border-left`, remove the last or first separator (so they are only between menu items) using either the `last-child` or the `first-child` pseudo-class applied to the relevant list items.

11) Experiment with the gradient property to create colour gradient effects for a block of colour such as that used in the header (banner) of the web site created in the demo. For a simple example try
```
background-colour: linear-gradient(red, blue);
```
For details of a range of different types of gradient see : http://www.w3schools.com/css/css3_gradients.asp . Check out how to create a gradient from one corner to another; how to create a gradient that passes from one colour to another via a third colour and how to create a gradient that passes through multiple colours. You can also try radial gradient. Note that you will see various browser-specific versions of many CSS3 properties – however the standard (non-browser-specific) versions usually work with the latest versions of browsers such as Firefox and Chrome.

12) Add rounded corners to the main header (banner). This can be done with the `border-radius` property, which takes two values, the x radius and the y radius that can be specified in `px` units. If you specify just one value then x and y are assumed to be equal. Each corner can be controlled individually with `border-top-left`, `border-top-right`, `border-bottom-right` and `border-bottom-left`. Experiment with different radius values. Note that although all corners can be specified with a single declaration `border-radius`, the effects may not be what you had intended.

13) Create tool tips for individual menu items in your horizontal menu. One way to do this is to follow the anchor element of the respective list item with a span element that contains the text you wish to display when the user hovers over the menu item. You will need to do several things:
    a. set the position property of the parent list item to be relative (`position: relative;`),
    b. set a position property for the span element to be absolute and with a position that is specified relative the location of the list item – this is done

with for example `left: 0px; top: -30px;` - note that `top` is the vertical distance where upwards is negative and downwards positive. You will need to experiment with these values to put the tool tip where you want it. You can also set the font size of the span to be smaller than the normal size and you can give it a background colour. To ensure that the span text prints on top of any adjacent elements you can set the `z-index` to a value such as 2, but this may not be necessary.
See notes in the second set of lecture `note` on CSS for some information about positioning and about layers and the z-index.

c. Set the `visibility` property of the span element to be `hidden`.
d. Use the `:hover` pseudo class to trigger changing the visibility to visible, i.e. `visibility: visible;` – this can be done with selectors with a form such as `li:hover span`

14) Apply a transition to an element of your web site. Transitions allow you to change the value of a property of an element, such as its size or color in response to an action such as hover. To allow a transition to take place the element must have a transition property set, which specifies what property (one or more) is to be subject to transition and how long the transition should take in seconds (s) or milliseconds (ms). You can also specify the nature of the transition in various ways, for example with values such as `ease`, `ease-in` and `ease-out`. For example to change the size of a heading identified with `id="head1"`, from its initial value of `16pt` to a size of `24pt` temporarily over a period of 2 seconds when the mouse hovers over it :

```
h1#heading {font-size: 16pt;
            transition: font-size 2s ease;
            }
h1#heading:hover {font-size: 24pt;}
```

Note that there are other controls over transitions – see http://www.w3schools.com/css/css3_transitions.asp
Transitions can also be applied to `transforms` that, for example, translate, scale or rotate an element. For example, in the above example, change the first parameter of `transition` from `font-size` to `transform` and change the declaration for the `h1#heading:hover` rule to a transform property with a value such as `translate(30px,40px).` Then try another type of transformation such as rotate. See http://www.w3schools.com/cssref/css3_pr_transform.asp for options on types of transformation.

15) There are plenty of other CSS properties. Read chapters 7, 8 and 9 of the recommended book ("Beginning HTML and CSS", Rob Larsen) or browse the content of the web site http://www.w3schools.com/css/ for an overview with examples.