

COMP519 Practical 4

Cascading Style Sheets (2)

Introduction

- This worksheet contains exercises that are intended to further familiarise you with Cascading Style Sheets (CSS). While you work through the tasks below compare your results with those of your fellow students and ask for help and comments if required.
- You might proceed more quickly if you cut-and-paste code from that PDF file. Note that a cut-and-paste operation may introduce extra spaces into your code. It is important that those are removed and that your code exactly matches that shown in this worksheet.
- The exercises and instructions in this worksheet assume that you use the Department's Linux systems.
- To keep things simple, we will just use a text editor and a terminal. You can use whatever text editor you are most familiar or comfortable with.
- If you do not manage to get through all the exercises during this practical session, please complete them in your own time before the next practical takes place.
- Use the HTML5 Specification [7], the CSS 2.2 Specification [1], the COMP519 Lecture Notes [2, Lectures 5–8], Stack Overflow [5] and W3Schools [6] as references for any information on HTML that you might need.

Exercises

1. We want to improve the visual appearance of the HTML document page02A.html we created in [Practical 2, Exercise 1](#).
 - a. To preserve the work we did on page02A.html, first create a copy of this file called page04A.html with the same access rights.
 - b. Open page04A.html in a web browser.
 - c. Open page04A.html in a text editor and add the following HTML markup in the head-element and save the file.

```
<link rel="stylesheet" type="text/css" href="practical04.css">
```

- d. Using the text editor, create a new file practical04.css in the same directory as the file page04A.html.
- e. First, we want to change the font used by the document. The default font should be Open Sans Regular 400 from <https://fonts.google.com/>. For h1- and h2-elements we want to use Open Sans Bold 700. Follow the instructions on <https://fonts.google.com/> to add @import CSS at-rule to practical04.css that allows us to use these fonts.

Then add the following style directives to practical04.css.

```
body {  
  font-family: 'Open Sans', sans-serif;  
}
```

```

h1 {
    font-size: 2.0em;
    color: Navy;
    margin-top: 1em;
}

h2 {
    font-size: 1.8em;
    color: Navy;
}

nav ol {
}
nav li {
}
nav li a {
}
nav li a:hover {
}

```

- f. Save `practical04.css` and reload `page04A.html` in the web browser. Observe how the font has changed.

When you work with external style sheets, it can happen that the web browser does not reliably pick up changes to those style sheets. Most web browser allow you to force a reload of associated files via a particular combination of keys, for example, `Ctrl + Shift + F5`.

- g. Next we want to improve the presentation of the navigational aid. It consists of an ordered list with two entries that are hyperlinks. The entries are currently arranged vertically with ordinal numbers in front of each item.

Instead we want to arrange the entries horizontally, without numbers in front of the items, the background colour of the item should be `#CCD`, the padding to the left and right of each item should be `1em` and should have colour `#AAB`. Finally, if the mouse hovers over a link, its background colour should change to `yellow`.

Modify the style directives already present for the `nav`-element so that you get the desired effect. The end result should look like in [Figure 1](#).

- h. Part 1 of the HTML document contains three paragraphs. These should get a `lightyellow` background, a padding of `0.5em` on all four sides, margins of `0.5em` at the top and bottom, margins of `0.0em` at the left and right, and rounded edges with `1.0em` radius. Refer to [Figure 1](#) for the look we want to achieve. Add style directives to `practical04.css` that achieve this effect. Hint: Look up the `border-radius` property.

- i. In Part 2 of the HTML document we have a list with two items stating the departments of our school. We want the margin between the first list item and the line above it to be `0.0em`. We also want to get rid of the space to the left of the list items. Create a style directive for a new class `deps` that achieves the desired effect and associate the list with that class.

If you search on-line for how you might remove the space to the left of the list items, you probably find at least two distinct solutions. One is to set `padding-left` to `1.0em` [4], the other is to set `list-style-position` to `inside` and `padding-left`

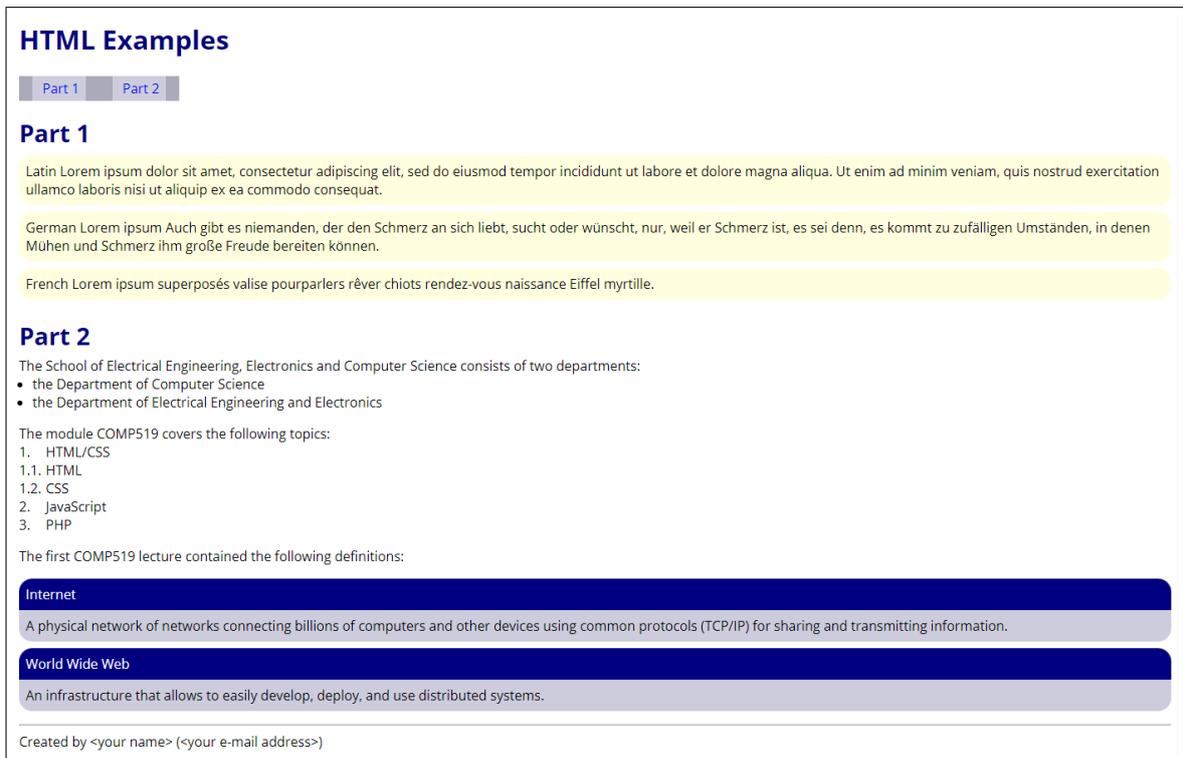


Figure 1: page04A.html

to 0.0em [3]. Try both solutions and, in particular, compare the result in Microsoft Internet Explorer, Mozilla Firefox, and Google Chrome.

- j. Part 2 then contains an ordered list and the first item of that list contains another ordered list. The items of this inner list are numbered ‘1.’ and ‘2.’, just as items of the outer list, which is very confusing. Instead, the items of the inner list should be numbered ‘1.1.’ and ‘1.2.’. We would also like to get rid of the space to the left of the numbers and of the margin between the text and the first list item. Optionally, we would like to align the text of the items vertically (this a bit tricky).

Use [1, Section 12.4.1], to devise style directives for this. See Figure 1 for the desired look.

- k. Finally, Part 2 contains definitions of the terms ‘Internet’ and ‘World Wide Web’. We want the line showing these terms to have a navy blue background and a white font with rounded corners at the top-left and top-right, but sharp corners at the bottom-left and bottom-right. The defining text should use the background colour #CCD with a black font. The bottom-left and bottom-right corners should be rounded, the other two corners are sharp. Between the two there should be no space. See Figure 1 for the desired look.

Devise style directives to achieve this.

2. Let us now consider the overall layout of a web page.

- a. Create a file name page04B.html in your public_html directory with the following content:

```
<!DOCTYPE html>
<html>
<!-- File: page04B.html
      Creation: 2023-01-28
      Description: Page Layout
```

```

-->
<head>
  <title>Page Layout</title>
  <style>
article { display: grid;
          grid-template-rows:    100px  50px  auto  50px;
          grid-template-columns:  auto  800px 200px auto;
          grid-template-areas:  ".      header header ."
                               ".      nav   nav   ."
                               ".      content ads  ."
                               ".      footer footer .";
}
header { grid-area: header;  background-color: blue;  }
nav     { grid-area: nav;    background-color: green;  }
section { grid-area: content; background-color: yellow; }
aside   { grid-area: ads;    background-color: orange; }
footer  { grid-area: footer; background-color: blue;  }
  </style>
</head>
<body>
  <article>
    <header> </header>
    <nav>    </nav>
    <section> </section>
    <aside>  </aside>
    <footer> </footer>
  </article>
</body>
</html>

```

- b. Make sure that the permissions for the file are set correctly

```
chmod og-rwx ~/public_html/page04B.html
```

- c. In a web browser, open the URL

<https://student.csc.liv.ac.uk/~<user>/page04B.html>

where you need to replace `<user>` with your username.

- d. You should see three rectangles, blue, green, and blue. Use the inspect functionality of the web browser to figure out which parts of the HTML markup these rectangles correspond to.
- e. Resize the browser window horizontally and see how the rectangles behave.
- f. According to the HTML markup, there should also be a yellow rectangle for content and an orange rectangle for ads. Why are they not visible?
- g. Add some arbitrary text to the section element and the aside element of the HTML markup. What effect does that have?

3. The page layout in the previous exercise used a content area of fixed size, quite a common layout on the web. However, such a layout is problematic for users of mobile devices. A more responsive layout would better cater for such users.

- a. In a web browser, open the URL

<https://student.csc.liv.ac.uk/~uhustadt/COMP519/examples/uol.html>

- b. Note that in the footer of the page there is information about the screen orientation, screen width and window width.
- c. Resize the width of web browser window so that it fits the width of your screen. Then resize the width of the web browser window so that is half the width of your screen or less. See what the effect on the layout of the HTML document is. If there appears to be no effect, reload the HTML document after resizing the window. Take note of the information in the footer.
- d. If possible, open the web page in a web browser on a smartphone. Change the orientation of the smartphone from portrait to landscape. See if there is any effect on the layout of the HTML document. Take note of the information in the footer.
- e. Look at the HTML markup of the document and use the inspect functionality of your web browser to figure out how the changes to the layout are achieved.
- f. Copy the files `uol.html`, `uol.js`, `wide.css`, `narrow.css` to your own `public_html` directory. Make sure that you set the file permissions of the copied files correctly.
- g. The visual design of the navigation bar is suboptimal: Once the window width is such that `narrow.css` applies, the three entries of the navigation bar are shown side by side, even if there is not enough space to properly fit them. Modify the visual design so that the entries of the navigation bar are arranged vertically if the window width gets too narrow.

Test your solution also on a smartphone.

References

- [1] B. Bos, ed. *Cascading Style Sheets Level 2 Revision 2 (CSS 2.2) Specification*. W3C First Public Working Draft 12 April 2016. URL: <https://www.w3.org/TR/CSS22/> (accessed 28 January 2023).
- [2] U. Hustadt. *COMP519 Web Programming: Lecture Notes*. Department of Computer Science, University of Liverpool. URL: <https://canvas.liverpool.ac.uk/courses/60872/modules> (accessed 24 January 2023).
- [3] j08691. *How to remove indentation from an unordered list item?* Stack Exchange Network. 15 March 2019. URL: <https://stackoverflow.com/a/13939142> (accessed 28 January 2023).
- [4] Jpsy. *How to remove indentation from an unordered list item?* Stack Exchange Network. 07 November 2018. URL: <https://stackoverflow.com/a/26213863> (accessed 28 January 2023).
- [5] Stack Overflow. *Stack Overflow Site*. 24 January 2023. URL: <https://stackoverflow.com/> (accessed 24 January 2023).
- [6] Refsnes Data. *W3Schools Site*. 24 January 2023. URL: <https://www.w3schools.com/> (accessed 24 January 2023).
- [7] WHATWG, ed. *HTML Living Standard*. 24 January 2023. URL: <https://html.spec.whatwg.org/multipage/> (accessed 24 January 2023).