Web Development

Week 7: CSS Units and Media Queries + Intro to Project

Notes By: Jonathan McCarthy

Overview

- CSS Units
- Media Queries
- Project Overview

CSS Units

- CSS has a number of different units for expressing lengths and heights.
- There are a variety of CSS properties that take a length value:
  - width, height, margin, padding, font-size etc…
- There are two types of lengths:
  - Relative Lengths
  - Absolute Lengths

Relative Lengths

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        html, body {
7          height: 100%;
8        }
9
10       div {
11         height: 50%;
12         border: 1px black solid;
13       }
14     </style>
15   </head>
16   <body>
17     <div>Hello World</div>
18   </body>
19 </html>
20
21
```

- A relative length unit will specify a length relative to the length value of another element.

Relative Length Types

Unit Type	Description
%	Relative to the length specified by parent element
em	Relative to the font-size of the element
rem	Relative to the font-size of the root element
vw	1vw = 1% of viewport width. The viewport is the browser width.
vh	1vh = 1% of viewport height. The viewport is the browser height.

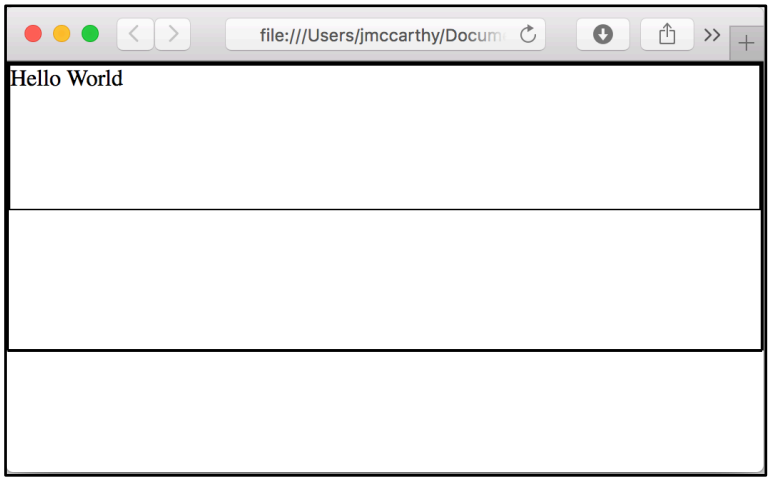
Percentage

- Percentage values are relative to the containing block. (ie the parent container).
- The percentage value works very well for images and layout containers.

Parent with Percentage length

index.html

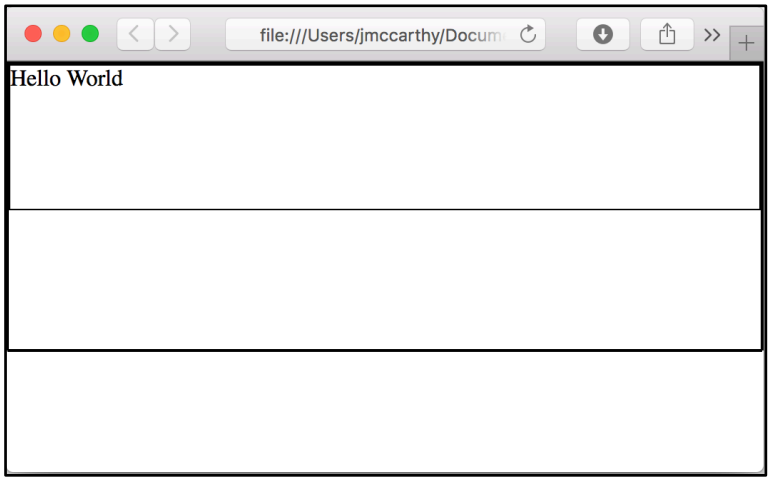
```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        html, body {
7          margin: 0px;
8          padding: 0px;
9          height: 100%;
10         border: 1px black solid;
11       }
12
13       div {
14         height: 50%;
15         border: 1px black solid;
16       }
17     </style>
18   </head>
19   <body>
20     <div>Hello World</div>
21   </body>
22 </html>
```



Parent with PX length

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        html, body {
7          margin: 0px;
8          padding: 0px;
9          height: 200px;
10         border: 1px black solid;
11       }
12
13       div {
14         height: 50%;
15         border: 1px black solid;
16       }
17     </style>
18   </head>
19   <body>
20     <div>Hello World</div>
21   </body>
22 </html>
```



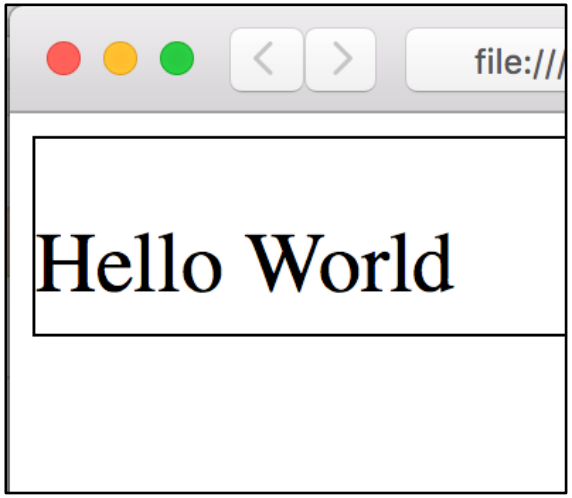
em

- Relative to the font-size of the element (2em means 2 times the size of the current font)
- The em units is very good for creating a scalable layout

em Example

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        div {
7          font-size: 60px;
8          border: 1px solid black;
9        }
10
11       span {
12         font-size: 0.5em;
13       }
14     </style>
15   </head>
16   <body>
17     <div>
18       <span>Hello World</span>
19     </div>
20   </body>
21 </html>
22
```



rem

- rem stands for “root em”
- Equal to the computed value of font-size on the root element. When specified on the font-size property of the root element, the rem units refer to the property’s initial value.
- Eg. 1 rem equals the font size of the html element (which for most browsers has a default value of 16px).

rem example

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        html {
7          font-size: 60px;
8        }
9
10       div {
11           border: 1px solid black;
12       }
13
14       span {
15           font-size: 0.5rem;
16       }
17     </style>
18   </head>
19   <body>
20     <div>
21       <span>Hello World</span>
22     </div>
23   </body>
24 </html>
```

VW

- Vw sets the size of the font relative to 1% of the width of the browser (viewport).
- Eg. If the viewport is 50cm wide, 1vw = 0.5cm

vw Example

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        span {
7            font-size: 10vw;
8        }
9      </style>
10   </head>
11   <body>
12     <div>
13       <span>Hello World</span>
14     </div>
15   </body>
16 </html>
```

vh

- vh sets the size of the font relative to 1% of the height of the browser (viewport).
- Eg. If the viewport is 50cm height, 1vh = 0.5cm

vh Example

index.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title>Example</title>
5      <style>
6        span {
7          font-size: 10vh;
8        }
9      </style>
10   </head>
11   <body>
12     <div>
13       <span>Hello World</span>
14     </div>
15   </body>
16 </html>
```

Media Queries

- The @media rule, introduced in CSS2, made it possible to define different style rules for different media types.
- This will allow for different style rules different types of devices, eg. PC, laptops, tablets, phones etc…
- Media queries can be used to access:
  - width and height of the viewport
  - width and height of the device
  - orientation (landscape or portrait)
  - resolution

CSS3 Media Types

- CSS3 Media Types
  - **all**
    - Used for all media type devices
  - **print**
    - Used for printers
  - **screen**
    - Used for computer screens, tablets, smart-phones etc.
  - **Speech**
    - Used for screen readers

Media Query Structure

```
@media screen and (min-width: 480px) {
    body {
        background-color: lightgreen;
    }
}
```

Examples

```
@media screen and (max-width: 1000px) and (min-width: 700px) {
    /* CSS code goes here */
}
```

Example

```
<style>

  @media screen and (max-width: 699px) and (min-width: 200px) {
    #lollipop {
      width: 25%;
    }
  }

  @media screen and (max-width: 1000px) and (min-width: 700px) {
      #lollipop {
      width: 50%;
    }
  }

  @media screen (min-width: 1001px) {
      #lollipop {
      width: 100%;
    }
  }
```

```
<body>
  <div>
    <span>Hello World</span>
    <img id="lollipop" src="Lollipop.jpg" alt="Lollipops" />
  </div>
</body>
```

Project Overview

- ***Submission date: 8th December 2016 @ 6pm***
- ***Late Submissions:***
  - Rules for late submissions:
  - Week 1: 4% for the first day, 1% for each day thereafter.
  - Week 2: 2% for each day thereafter.
  - Week 3: No submissions accepted, zero grade.
  - Note: All penalties are calculated per day started.

Project Brief

- You are required to develop a website for any topic of your own choice. Potential ideas could be hobbies, websites for a club, business website etc…

Project Overview

- This is an individual project.
- A weekly log must be completed and uploaded to Webcourses on a weekly basis. The log should describe and discuss the work completed on the project for the given week and any issues or difficulties that may have arisen. There is a template on Webcourses that must be used to complete the log.
- A project report needs to be completed. The report details are listed below.
- ***(Note: the topic chosen must be clean, appropriate and non-offensive. If you are unsure about your project topic please contact your lecturer)***

Project Requirements

- **Site Requirements**

  5 content pages demonstrating the following functionality:

  - Header section
  - Menu Bar
  - Footer section
  - Ordered List
  - Unordered List
  - Tabular data structure
  - Images
  - Videos
  - Variety of good HTML tags and content.

Project Requirements

- **Contact Form**
  - A contact form must be added to the site demonstrating the following:
  - text input
  - radio buttons
  - checkbox
  - textarea
  - Dropdown list
  - Button
  - (Use JavaScript to validate three different types of form fields)

Project Requirements

- **Best Practices**
- HTML / CSS / JavaScript must be kept completely separate.
-
- **Site Content**
- The content for your site must be meaningful. Placeholder content is not acceptable.

Project Report

- **Problem Description (10%)**
  - Detailed description of the website and the content on offer.
  - Describe the archetypical users of the site.
  - What problem does the site solve?
-
- **Research (10%)**
  - Research other websites similar to your site.
  - Evaluate the site layout and site content.
  - You must look at 3 websites as part of your research.

Project Report

- **Technology Selection and Site Architecture (20%)**
  - Version of HTML/CSS to be used
  - Plan for site layout and responsive design.
  - How do we expect users to view the site (Phone/tablet/PC etc...)?
  - Cross Browser Compatibility strategy?
-
- **Low Fidelity Prototype (10%)**
  - Create a Lo-Fi prototype to describe the site content and layout for the customer/stakeholder.
  - You must evaluate your prototype using appropriate heuristics.

Project Report

- **Development Plan (10%)**
  - Describe the process of how the site will be created.
- **Testing Plan (10%)**
  - Explain in detail the strategies used to test the website. (eg. HTML validation, CSS validation).
  - Is the site Cross Browser Compatible?
- **Site Evaluation (10%)**
  - You must describe how you evaluated your website using appropriate heuristics.

Project Report

- **Deployment (10%)**
  - Describe how the website was made available online.
  - Describe the techniques used for Search Engine Optimisation (SEO)

- **Weekly Logs (10%)**
  - Your weekly logs must be included in the Appendices section of your report. (ie. At the end)

Grading Rubric

	70+	60-69	50-59	40-49	0-39
Quality of Markup 20%	Site validates with no errors or warnings	Site validates with minor warnings	Site validates with minor errors	Site validates with many errors	No DOCTYPE used on the html pages. Many errors in the HTML of a very basic nature.
Functionality and Content 20%	Advanced content and functionality. Many sections with clearly differentiated functionality included	Good content and functionality, with some advanced features not included	Adequate content and functionality	Poor content and functionality, little variety between the different pages	Few pages submitted, all with the same functionality
Interface Quality 15%	UI very professional looking in appearance and renders exactly the same in multiple browsers	UI almost professional in appearance and renders exactly the same in most browsers	UI is adequate in appearance. Page renders OK in some browsers.	UI lacks styling and is appearing as the browser dictates.	UI has little styling and is not fit for purpose.
Project Document 30%	Very complete project document. All sections completed to a very high standard.	Good project document. All sections completed with appropriate content.	Adequate project document. Some sections not completed or not enough content included.	Minimal project document. Sections not completed or not enough content included.	Project document not completed and not fit for purpose.
Complexity 15%	Excellent advanced usage of HTML/CSS/JavaScript	Some evidence of advanced use of HTML/JavaScript /CSS	HTML, CSS and JavaScript usage based entirely on in class examples and Lab Work	Little use of advanced usage of HTML/CSS/Java Script	No CSS or JavaScript used in the project

Questions