

# Handout for “The Least You Need for a Responsive (Mobile First) Web Site”

Updated May 15, 2024.

## Contents

- Handout for “The Least You Need for a Responsive (Mobile First) Web Site” ..... 1
  - Title Slide (Slide 1)..... 4
  - Life is too short to be spent photographing PowerPoint slides. (Slide 2) ..... 5
  - QR Code for the web page where the handout can be downloaded. (Slide 3) ..... 6
- Description of the Presenter (Slide 4) ..... 7
  - Session Summary (Slide 5) ..... 8
  - Session Description (Slide 6) ..... 9
  - A few of the topics covered (Slide 7) ..... 10
  - About Bouton Jones (Slide 8)..... 11
  - Questions (Slide 9)..... 12
  - Why do we need responsive web design? (Slide 10) ..... 13
  - Some Numbers (Slide 11) ..... 14
  - More Numbers (Slide 12) ..... 15
  - Search Engine Optimization (i.e., Google Ranking) (Slide 13) ..... 16
  - Terms (Section Title Slide) (Slide 14) ..... 17
  - Responsive Web Design (RWD) (Slide 15) ..... 18
  - Adaptive Web Design (AWD) (Slide 16)..... 19
  - It’s wrong, I know but ... (Slide 17)..... 20
  - Three Demonstrations of RWD / AWD (Slide 18) ..... 21
  - What is Universal Design for Web Applications? (Slide 19) ..... 22
  - Book Recommendation for Universal Design (Slide 20) ..... 23
  - Before Applying Responsive Design (Section Title Slide) (Slide 21) ..... 24
  - Strict HTML (and CSS) (Slide 22)..... 25
  - Validators from the W3C (Slide 23) ..... 26
  - Semantic HTML Defined (Slide 24) ..... 27
  - Presentational HTML vs. Semantic HTML (Slide 25) ..... 28

- Additional Benefits to Strict and Semantic HTML (Slide 26) ..... 29
- Another Benefit: Machine Readable Web Pages (Slide 27) ..... 30
- The AI Hivemind Loves You (Slide 28) ..... 31
- Separation of Presentation and Content (HTML and CSS) (Slide 29) ..... 32
- HTML5 and CSS3 (Slide 30)..... 33
- Benefits of Separation (Slide 31) ..... 34
- Type and Typeface (Section Title Slide) (Slide 32) ..... 35
- Best Practice: Setting the Text Size in CSS (Slide 33) ..... 36
- CSS Spacing Best Practices (Slide 34) ..... 37
- CSS Margin Bottom Best Practice (Slide 35) ..... 38
- Why REM? Why not EM? (Slide 36) ..... 39
- Murach's HTML and CSS (5th Edition) by Anne Boehm and Zak Ruvalcaba (Slide 37) ..... 40
- And Now ... Responsive Design (Slide 38)..... 41
- What's the Viewport? (Slide 39)..... 42
- Why Viewport? (Slide 40) ..... 43
- Viewport META Tag (Slide 41)..... 44
- Breakpoints (Slide 42) ..... 45
- Breakpoint Example CSS (Slide 43)..... 46
- Four Common Breakpoints (Slide 44) ..... 47
- Wrapper and Container (Slide 45)..... 48
- Wrapper and Container HTML (Slide 46) ..... 49
- What's the optimal wrapper width? (Slide 47) ..... 50
- Converting Between PX and REM (Slide 48) ..... 51
- CSS for Wrapper and Two Breakpoints (Slide 49) ..... 52
- CSS for Images (Slide 50)..... 53
- A Quick and Dirty Hamburger Menu (Pure HTML, No JS) (Slide 51) ..... 54
- A Better Quick and Dirty Hamburger Menu (Slide 52) ..... 56
- New(ish) Breakpoint Alternatives (Slide 53) ..... 57
- Calc() CSS Function (Slide 54) ..... 58
- Tables (Slide 55)..... 59
- The Box Model (Slide 56)..... 60
- box-sizing: border-box; (Slide 57)..... 61
- Browser Debug Tools (Slide 58) ..... 62

An Automated Test (Slide 59) ..... 63

Section Header: Additional Resources (Slide 60) ..... 64

Responsive Web Design in 24 Hours (Slide 61) ..... 65

Responsive Web Design with HTML5 and CSS - Fourth Edition (Slide 62) ..... 66

When shopping for books on Web Design and Development (Slide 63)..... 67

Kevin Powell’s CSS Videos on YouTube (Slide 64) ..... 68

Any Questions? (Slide 65) ..... 69

Thank You. (Slide 66) ..... 70

## Title Slide (Slide 1)

**The Least You Need for a Responsive (Mobile First)  
Web Site**

By Bouton Jones

IT Business Systems Analyst Senior  
[bouton.jones@gmail.com](mailto:bouton.jones@gmail.com)  
My pronouns are he and him



John Slatin AccessU 2024  
10:15 AM to 11:45 AM  
Tue, May 14, 2024

**Presentation Title:** The Least You Need for a Responsive (Mobile First) Web Site

**Author:** Bouton Jones  
IT Business Systems Analyst Senior  
[bouton.jones@gmail.com](mailto:bouton.jones@gmail.com)  
My pronouns are he and him

John Slatin AccessU 2024  
10:15 AM to 11:45 AM  
Tue, May 14, 2024

## Life is too short to be spent photographing PowerPoint slides. (Slide 2)



A handout containing all the slides and speaker notes can be found at <http://bit.ly/2y0p5kj> . (or <http://www.boutonjones.com/pub/a11y.html> .)

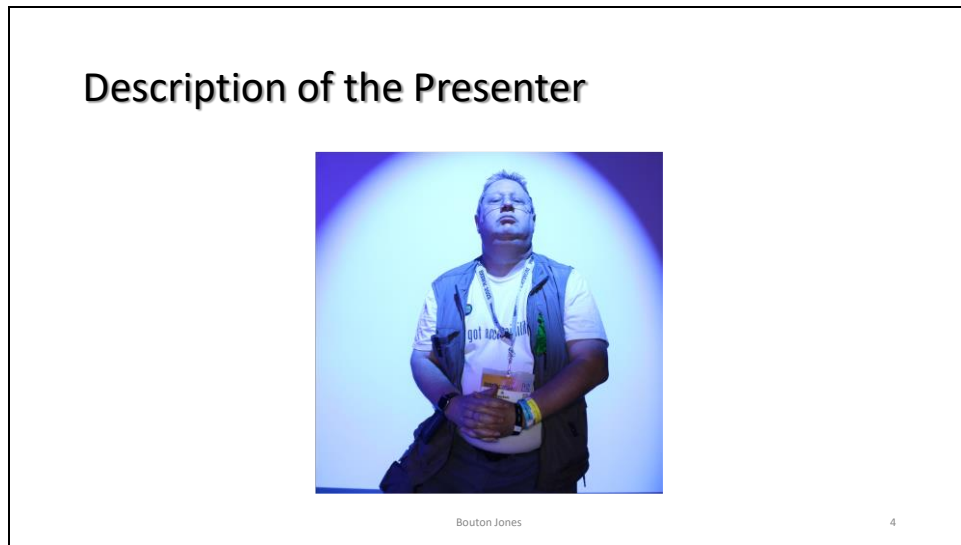
QR Code for the web page where the handout can be downloaded. (Slide 3)



Short URL: <http://bit.ly/2y0p5kJ>

Long URL: <http://www.boutonjones.com/pub/a11y.html>

## Description of the Presenter (Slide 4)



A white cis gen man of a certain age with the prosperous figure of a rich 19<sup>th</sup> century banker or robber barron.

## Session Summary (Slide 5)

### Session Summary

This will be presented from the perspective of web design. It is targeted at busy web designers with little to no JS experience or a lazy web developer who appreciates simplicity. Some knowledge of HTML and CSS will be necessary, but it will not be a deep dive into web design.

Bouton Jones

5

This will be presented from the perspective of web design. It is targeted at busy web designers with little to no JS experience or a lazy web developer who appreciates simplicity. Some knowledge of HTML and CSS will be necessary, but it will not be a deep dive into web design.

## Session Description (Slide 6)

### Description

With the ubiquity of smartphones for viewing the web, it's almost a necessity that most websites can be easily viewed on those small, handheld devices. This session will cover how to make websites using responsive design with the least blood, sweat, and tears as well as the least programming.

This will be presented from the perspective of a web designer. It is targeted at busy web designers with little to no JS experience or lazy web developers who appreciate simplicity. Some knowledge of HTML and CSS will be necessary but it will not be a deep dive into markup languages.

Bouton Jones

6

With the ubiquity of smartphones for viewing the web, it's almost a necessity that most websites can be easily viewed on those small, handheld devices. This session will cover how to make websites using responsive design with the least blood, sweat, and tears as well as the least programming.

This will be presented from the perspective of a web designer. It is targeted at busy web designers with little to no JS experience or lazy web developers who appreciate simplicity. Some knowledge of HTML and CSS will be necessary but it will not be a deep dive into markup languages.

## A few of the topics covered (Slide 7)

**A few of the topics covered:**

- Why do you need a mobile website?
- Why are we covering mobile website design in an accessibility conference?
- What is Universal Design and how does it relate to accessibility?

Bouton Jones

7

- Why do you need a mobile website?
- Why are we covering mobile website design in an accessibility conference?
- What is universal design and how does it relate to accessibility?

## About Bouton Jones (Slide 8)

### About Bouton Jones

- IT Business Systems Analyst since 2014.
- Previously a Web Designer and Web Developer. (Started web designing by “hand coding” HTML in the mid 1990’s.)
- Co-presenter of Accessibility sessions at
  - The Texas Association of Municipal Information Officers (TAMIO) Conference 2017
  - E-Records Conference 2020 in Austin
- Presented a total of three sessions on Accessibility at the Adobe ColdFusion Summit in 2017 and 2018.
- Variously a participant, mentor, and advisor in Knowbility’s Accessibility Internet Rally.




IMAGE: a detail of "Echo And Narcissus" by John William Waterhouse. Narcissus is in love with his reflection.

- I am *not* a lawyer (IANAL.) I do *not* have a degree or certification in ADA or Accessibility.
- IT Business Systems Analyst since 2014.
- Previously a Web Designer and Web Developer. (Started web designing by “hand coding” HTML in the mid 1990’s.)
- Co-presenter of Accessibility sessions at
  - The Texas Association of Municipal Information Officers (TAMIO) Conference 2017.
  - E-Records Conference 2020 in Austin
- Presented a total of three sessions on Accessibility at the Adobe ColdFusion Summit in 2017 and 2018.
- Variously a participant, mentor, and advisor in Knowbility’s Accessibility Internet Rally

## Questions (Slide 9)

### Questions

- If something is unclear, kindly ask for clarification immediately.
- If you have a different opinion, please share.
- If you know something I don't, please inform me.
- We will have time at the end for questions and answers.

Bouton Jones 9

- If something is unclear, kindly ask for clarification immediately.
- If you have a different opinion, please share.
- If you know something I don't, please inform me.
- We will have time at the end for questions and answers.

## Why do we need responsive web design? (Slide 10)

**Why do we need responsive web design?**

Bouton Jones

10

## Some Numbers (Slide 11)

### Some Numbers

- Smartphones capture 59.16 percent of global website traffic in the fourth quarter of 2022.
- In 73.1% of the cases, non-responsive design is why visitors leave a website.
- An estimated 1.71 billion websites are now responsive which accounts for 90% of all websites.
- According to Google research, 72% of people prefer mobile-friendly website navigation.

**SOURCE:** <https://diviflash.com/web-design-statistics/>

Bouton Jones 11

- Smartphones capture 59.16 percent of global website traffic in the fourth quarter of 2022.
- In 73.1% of the cases, non-responsive design is why visitors leave a website.
- An estimated 1.71 billion websites are now responsive which accounts for 90% of all websites.
- According to Google research, 72% of people prefer mobile-friendly website navigation.

**SOURCE:** <https://diviflash.com/web-design-statistics/>

## More Numbers (Slide 12)

### More Numbers

- In May 2023, mobile devices generated 65.49% of global website traffic. (<https://www.similarweb.com/platforms/>)
- Almost 60% of All Internet Access is Done Through the Phone (<https://www.infront.com/blog/8-statistics-that-prove-responsive-web-design-is-essential-to-seo/>)

Bouton Jones 12

- In May 2023, mobile devices generated 65.49% of global website traffic. CITE: <https://www.similarweb.com/platforms/>
- Almost 60% of All Internet Access is Done Through the Phone. CITE: <https://www.infront.com/blog/8-statistics-that-prove-responsive-web-design-is-essential-to-seo/>

## Search Engine Optimization (i.e., Google Ranking) (Slide 13)

### Search Engine Optimization (i.e., Google Ranking)

- Responsive design can improve visibility, higher click-through rates, and better search engine optimization (SEO.)
- Responsive design is Google's recommended design pattern.
- Google rewards webpages with a faster loading speed and ranks them higher in the search engine results.

Bouton Jones

13

- Responsive design can improve visibility, higher click-through rates, and better search engine optimization (SEO.)
- Responsive design is Google's recommended design pattern.
- Google rewards webpages with a faster loading speed and ranks them higher in the search engine results.

Terms (Section Title Slide) (Slide 14)

Terms

Bouton Jones

14

## Responsive Web Design (RWD) (Slide 15)

### **Responsive Web Design (RWD)**

Responsive web design or responsive design is an approach to web design that aims to make web pages render well on a variety of devices and window or screen sizes from minimum to maximum display size to ensure usability and satisfaction. (Wikipedia)

RWD is fluid and adapts to the size of the screen.

It uses CSS media queries to change styles based on the target device such as display type, width, height, etc.,

Bouton Jones

15

Responsive web design or responsive design is an approach to web design that aims to make web pages render well on a variety of devices and window or screen sizes from minimum to maximum display size to ensure usability and satisfaction. (Wikipedia)

RWD is fluid and adapts to the size of the screen.

It uses CSS media queries to change styles based on the target device such as display type, width, height, etc.,

## Adaptive Web Design (AWD) (Slide 16)

### **Adaptive Web Design (AWD)**

Adaptive web design promotes the creation of multiple versions of a web page to better fit the user's device, as opposed to a single static page which loads the same on all devices. (Wikipedia)

AWD uses static layouts based on breakpoints that don't respond once they're initially loaded.

Bouton Jones

16

Adaptive web design promotes the creation of multiple versions of a web page to better fit the user's device, as opposed to a single static page which loads the same on all devices. (Wikipedia)

AWD uses static layouts based on breakpoints that don't respond once they're initially loaded.

## It's wrong, I know but ... (Slide 17)

### **It's wrong, I know, but ...**

Let's forget the difference for now.

But I'm going to use the term responsive design to mean both.

I'm more concerned with the result than the specific technique.

Bouton Jones

17

Let's forget the difference for now.

But I'm going to use the term responsive design to mean both.

I'm more concerned with the result than the specific technique.

## Three Demonstrations of RWD / AWD (Slide 18)

### Three Demonstrations

1. Open <https://boutonjones.com/horror/index.html>
2. Open <https://boutonjones.com/pub/resume.cfm> .
3. Open <https://boutonjones.com/pub/responsive/problem.html>

Bouton Jones 18

- Open <https://boutonjones.com/horror/index.html> . No responsive or adaptive design used.
- Open <https://boutonjones.com/pub/resume.cfm> . Some responsive design used, but the site cuts off some content in the smallest screen size.
- 3. Open <https://boutonjones.com/pub/responsive/problem.html> . The best of the three.

## What is Universal Design for Web Applications? (Slide 19)

### What is Universal Design for Web Applications?

**Definitions:**

- Developing applications for a wide range of users and a variety of devices, including the mobile Web. (CITE: oreilly.com)
- Designing products and services that can be used by people with a range of characteristics, abilities, and disabilities. (CITE: washington.edu)
- It includes resources, tips, and tricks for designing products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (CITE: section508.gov)

**My loose umbrella term:**  
A11y + Responsive Design = Universal Design

### What is Universal Design for Web Applications?

#### Definitions:

- Developing applications for a wide range of users and a variety of devices, including the mobile Web. (CITE: oreilly.com)
- Designing products and services that can be used by people with a range of characteristics, abilities, and disabilities. (CITE: washington.edu)
- It includes resources, tips, and tricks for designing products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (CITE: section508.gov)

#### My loose umbrella term:

A11y + Responsive Design = Universal Design

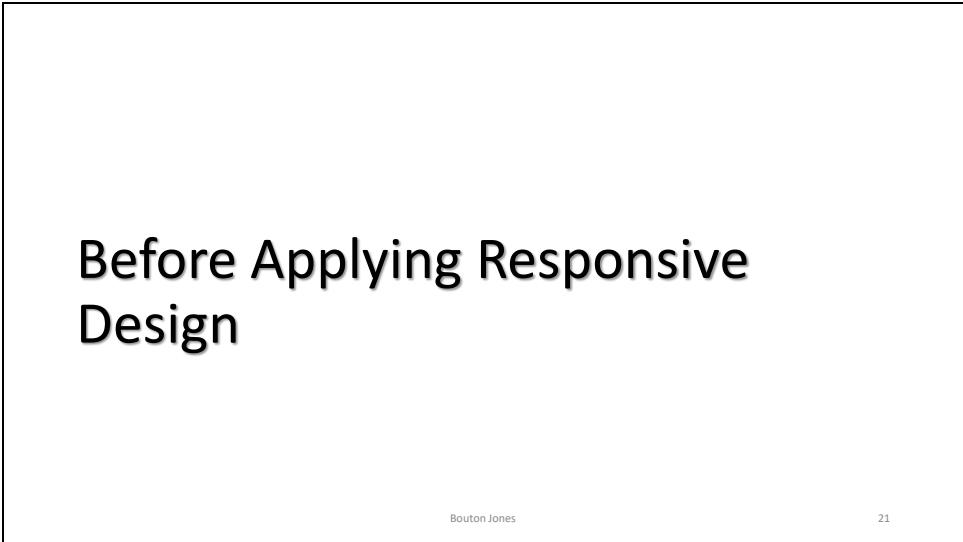
## Book Recommendation for Universal Design (Slide 20)



*Universal Design for Web Applications: Web Applications That Reach Everyone 1<sup>st</sup> Edition*  
by Wendy Chisholm and Matt May

Paperback: 198 pages  
Publisher: O'Reilly Media; 1 edition (November 24, 2008)  
Language: English  
ISBN-10: 0596518730  
ISBN-13: 978-0596518738  
\$21.17

Before Applying Responsive Design (Section Title Slide) (Slide 21)



## Strict HTML (and CSS) (Slide 22)

### Strict HTML (and CSS)

Starting with valid, strict HTML (and CSS) can eliminate many A11y problems --- as well as make responsive design go easier.

Bouton Jones 22

Starting with valid, strict HTML (and CSS) can eliminate many A11y problems --- as well as make responsive design go easier.

## Validators from the W3C (Slide 23)

### Validators from the W3C

- For Web documents in HTML, XHTML, etc., visit <https://validator.w3.org/>
- For CSS, try <https://jigsaw.w3.org/css-validator/>

- For Web documents in HTML, XHTML, etc., visit <https://validator.w3.org/>
- For CSS, try <https://jigsaw.w3.org/css-validator/>

## Semantic HTML Defined (Slide 24)

### Semantic HTML Defined

#### Semantic HTML:

Semantic HTML is the use of HTML markup to reinforce the semantics, or meaning, of the information in webpages and web applications rather than merely to define its presentation or look. (SOURCE: Wikipedia)

"In addition to the editability and performance of semantic markup, clean HTML benefits users with accessibility needs . Semantic HTML makes the hierarchy of content meaningful for browsers, search engines, and screen reader. With new HTML5 tags like post and aside, and through the implementation of existing semantic structures like heading, paragraphs, and lists, content on the Web can become more accessible to everyone .... If you are using a clean an semantic HTML hierarchy, you are well on your way to making your site accessible." (SOURCE: *Designing for Performance: Weighing Aesthetics and Speed* By Lara Callender Hogan)

Semantic HTML is the use of HTML markup to reinforce the semantics, or meaning, of the information in webpages and web applications rather than merely to define its presentation or look. (SOURCE: Wikipedia)

"In addition to the editability and performance of semantic markup, clean HTML benefits users with accessibility needs . Semantic HTML makes the hierarchy of content meaningful for browsers, search engines, and screen reader. With new HTML5 tags like post and aside, and through the implementation of existing semantic structures like heading, paragraphs, and lists, content on the Web can become more accessible to everyone .... If you are using a clean an semantic HTML hierarchy, you are well on your way to making your site accessible." (SOURCE: *Designing for Performance: Weighing Aesthetics and Speed* By Lara Callender Hogan)

## Presentational HTML vs. Semantic HTML (Slide 25)

Presentational HTML (Appearance)	Semantic HTML (Significance)
<ul style="list-style-type: none"><li>• Strong</li><li>• Bold</li><li>• Font size</li><li>• Font Color</li><li>• Background Color</li><li>• Strikethrough</li><li>• Underline</li></ul>	<ul style="list-style-type: none"><li>• Title</li><li>• Heading</li><li>• List</li><li>• Paragraph</li><li>• Blockquote</li><li>• Code</li><li>• Definition</li><li>• Cite</li></ul>

A table comparing presentational and semantic HTML.

### **Presentational HTML (Appearance)**

- Strong
- Bold
- Font size
- Font Color
- Background Color
- Strikethrough
- Underline

### **Semantic HTML (Significance)**

- Title
- Heading
- List
- Paragraph
- Blockquote
- Code
- Definition
- Cite

## Additional Benefits to Strict and Semantic HTML (Slide 26)

### **Additional Benefits to Strict and Semantic HTML**

- Inclusive Design
- Improved Usability
- Better Search Engine Optimization (SEO)
- Cross-browser Compatibility
- Future-Proof Development
- Easier Maintenance / Lower Maintenance Cost
- Improved Technical Performance
- Better AI

- Better Search Engine Optimization (SEO)
- Lower Maintenance Cost
- Improved Usability
- Mobile Friendly and Responsive Design (for multiple platforms)
- Inclusive Design
- Browser Compatibility or Cross-browser Compatibility
- Easier Maintenance / Future-Proof
- Improved Technical Performance
- Better AI

## Another Benefit: Machine Readable Web Pages (Slide 27)

### Another Benefit: Machine Readable Web Pages

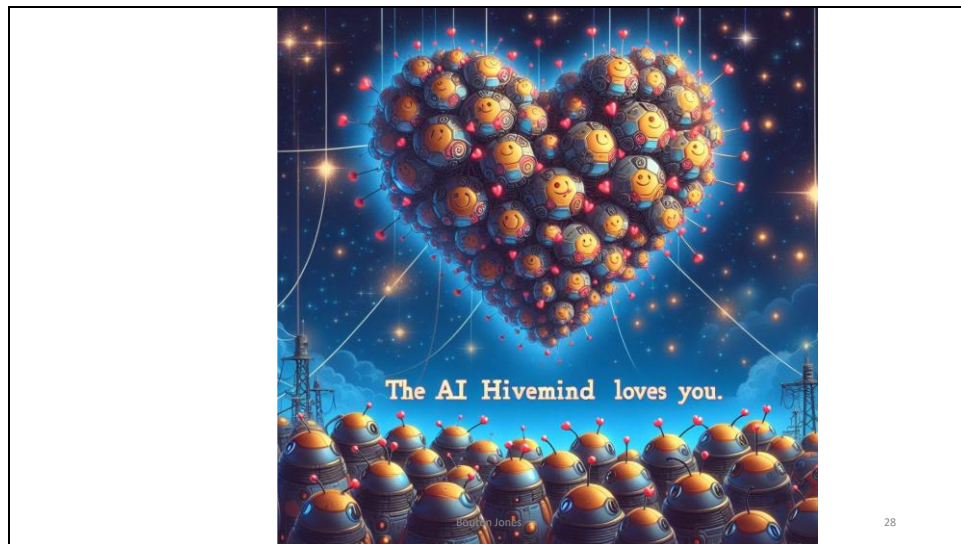
"The Web was designed as an information space, with the goal that it should be useful not only for human-human communication, but also that machines would be able to participate and help. One of the major obstacles to this has been the fact that most information on the Web is designed for human consumption, and even if it was derived from a database with well defined meanings (in at least some terms) for its columns, that the structure of the data is not evident to a robot browsing the Web. Leaving aside the artificial intelligence problem of training machines to behave like people, the Semantic Web approach instead develops languages for expressing information in a machine process-able form"

- Tim Berners-Lee, "The Semantic Web Roadmap"  
<https://www.w3.org/DesignIssues/Semantic.html>

"The Web was designed as an information space, with the goal that it should be useful not only for human-human communication, but also that machines would be able to participate and help. One of the major obstacles to this has been the fact that most information on the Web is designed for human consumption, and even if it was derived from a database with well defined meanings (in at least some terms) for its columns, that the structure of the data is not evident to a robot browsing the Web. Leaving aside the artificial intelligence problem of training machines to behave like people, the Semantic Web approach instead develops languages for expressing information in a machine process-able form"

- Tim Berners-Lee, "The Semantic Web Roadmap"  
<<https://www.w3.org/DesignIssues/Semantic.html>>

## The AI Hivemind Loves You (Slide 28)



A funny picture of an AI Hivemind hovering in the sky in the shape of a heart.

## Separation of Presentation and Content (HTML and CSS) (Slide 29)

### Separation of Presentation and Content (HTML and Styles)

- In the late 1990s the HTML files contained content (plain text), semantic markup, and presentational markup.
- Later it became possible (and preferable) to move all the presentational markup to Styles (e.g., CSS) leaving only plain text and semantic markup in the HTML files.
- JavaScript used to be embedded in the HTML documents. Later it was moved to .js files. And later still to JavaScript libraries (such as jQuery.)
- Currently Code Reuse through modular development (e.g., MVC, OOP, & Frameworks) is an accepted best practice.

- In the late 1990s the HTML files contained content (plain text), semantic markup, and presentational markup.
- Later it became possible (and preferable) to move all the presentational markup to the CSS files leaving only plain text and semantic markup in the HTML files.
- JavaScript used to be embedded in the HTML documents. Later it was moved to .js files. And later still to JavaScript libraries (such as jQuery.)
- Similarly in the early days of ColdFusion, it was the accepted standard to include the three elements of model, view, and controller in a single template. Look at Forta's earliest CFWACK books for confirmation.
- Currently Code Reuse through modular development (e.g. CFCs, MVC, & Frameworks) is an accepted best practice.

"CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation." <https://www.w3.org/standards/webdesign/htmlcss>

## HTML5 and CSS3 (Slide 30)

### HTML5 and CSS3

"In addition to the editability and performance of semantic markup, **clean HTML benefits users with accessibility needs** . Semantic HTML makes the hierarchy of content meaningful for browsers, search engines, and screen reader. With new HTML5 tags like post and aside, and through the implementation of existing semantic structures like heading, paragraphs, and lists, content on the Web can become more accessible to everyone .... **If you are using a clean an semantic HTML hierarchy, you are well on your way to making your site accessible.**"

**CITE:** *Designing for Performance: Weighing Aesthetics and Speed* By Lara Callender Hogan

"CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation."

**CITE:** <https://www.w3.org/standards/webdesign/htmlcss>

"In addition to the editability and performance of semantic markup, clean HTML benefits users with accessibility needs . Semantic HTML makes the hierarchy of content meaningful for browsers, search engines, and screen reader. With new HTML5 tags like post and aside, and through the implementation of existing semantic structures like heading, paragraphs, and lists, content on the Web can become more accessible to everyone .... If you are using a clean an semantic HTML hierarchy, you are well on your way to making your site accessible." (SOURCE: Designing for Performance: Weighing Aesthetics and Speed By Lara Callender Hogan)

"CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation." <https://www.w3.org/standards/webdesign/htmlcss>

## Benefits of Separation (Slide 31)


### Benefits of Separation

- Maximizes consistency across web sites and domains
- Reduces file sizes
- Makes development and maintenance easier and faster
- Requires less technical knowledge for most of your content authors
- Minimizes bad A11y by limiting bad markup, bling, and flair.

- Maximum consistency across web sites and domains
- Reduced file sizes
- Easier and faster development and maintenance
- Less technical knowledge requirements for most of your content authors
- Minimizing bad A11y by limiting bad markup, bling, and flair.

# Type and Typeface (Section Title Slide) (Slide 32)

**Text and Typeface**



Bouton Jones 32

## Best Practice: Setting the Text Size in CSS (Slide 33)

### Best Practice: Text Size in CSS

```
html {
  font-family: system-ui;
  font-size: 100%; // 100% of the browser's base font size
}

p, td, th, ul, ol, li, dl, dt, dd, span, div, caption {
  font-size: 1rem; // relative to the HTML font size
}

/* Avoid absolute lengths (in, cm, mm, pt, pc) except when
printing. They do not resize well. */
```

```
html {
  font-family: system-ui;
  font-size: 100%; // 100% of the browser's base font size
}

p, td, th, ul, ol, li, dl, dt, dd, span, div, caption {
  font-size: 1rem; // relative to the HTML font size
}

/* Avoid absolute lengths (in, cm, mm, pt, pc) except when printing.
They do not resize well. */
```

It's generally considered best practice for accessibility to set your base font-size to 100% on the <html> element, and use relative units to handle all other font-size rules in your CSS. This allows users to change the base font size in their browser, and have control over the font sizing for webpages."

#### CITE:

- <https://blog.logrocket.com/the-elements-of-responsive-typography/>
- <https://betterwebtype.com/articles/2019/06/16/5-keys-to-accessible-web-typography/>

## CSS Spacing Best Practices (Slide 34)

### CSS Spacing Best Practice

#### WCAG 2.1 1.4.12 Spacing

- o Line height (line spacing) to at least 1.5 times the font size;
- o Letter spacing (tracking) to at least 0.12 times the font size;
- o Word spacing to at least 0.16 times the font size.

```
P, DIV, SPAN, CAPTION, TD {  
  line-height: 1.5rem;  
  letter-spacing: .12rem;  
  word-spacing: .12rem;  
}
```

Bouton Jones

34

#### WCAG 2.1 1.4.12 Spacing

- o Line height (line spacing) to at least 1.5 times the font size;
- o Letter spacing (tracking) to at least 0.12 times the font size;
- o Word spacing to at least 0.16 times the font size.

```
P, DIV, SPAN, CAPTION, TD {  
  line-height: 1.5rem;  
  letter-spacing: .12rem;  
  word-spacing: .12rem;  
}
```

## CSS Margin Bottom Best Practice (Slide 35)

### CSS Margin Bottom Best Practice

**WCAG 2.1 1.4.12 Spacing**

- o Set spacing following the paragraphs to at least 2 times the font size

```
P {  
  margin-bottom: 2rem;  
}
```

Bouton Jones 35

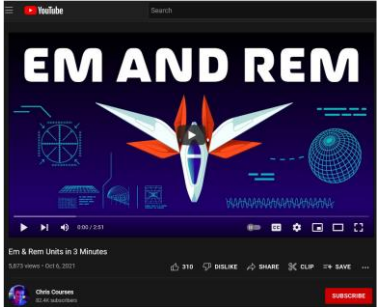
### WCAG 2.1 1.4.12 Spacing

- o Spacing following paragraphs to at least 2 times the font size

```
P {  
  margin-bottom: 2rem;  
}
```

## Why REM? Why not EM? (Slide 36)

### Why REM? Why not EM?



**EM** – The size is based on the element's parent tags

**REM** – The size is based on the root tag (i.e., the HTML or Body element.)

**URL:** [https://youtu.be/j7zf\\_iZjQB4](https://youtu.be/j7zf_iZjQB4)

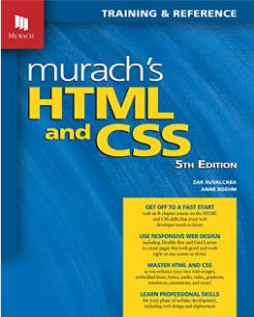
- EM – The size is based on the element's parent tags.
- REM – The size is based on the root tag (i.e., the HTML or Body element.)

For better explanation, view the **VIDEO**: "EM and REM" at [https://youtu.be/j7zf\\_iZjQB4](https://youtu.be/j7zf_iZjQB4)

For a longer explanation, view "Why you shouldn't set font-sizes using em" by Kevin Powell (13:42) at <https://youtu.be/pautqDqa54I>

## Murach's HTML and CSS (5th Edition) by Anne Boehm and Zak Ruvalcaba (Slide 37)

### **Murach's HTML and CSS (5th Edition)** by Anne Boehm and Zak Ruvalcaba



This is the most recent edition. It replaces *Murach's HTML5 and CSS3*

**Publisher** : Mike Murach & Associates; 5th edition (December 14, 2021)  
**Paperback** : 602 pages  
**ISBN-10** : 1943872864  
**ISBN-13** : 978-1943872862

I like the format of this book series. It embraces a variety of learning styles.

This is most recent edition. It replaces *Murach's HTML5 and CSS3*.

Publisher : Mike Murach & Associates; 5th edition (December 14, 2021)

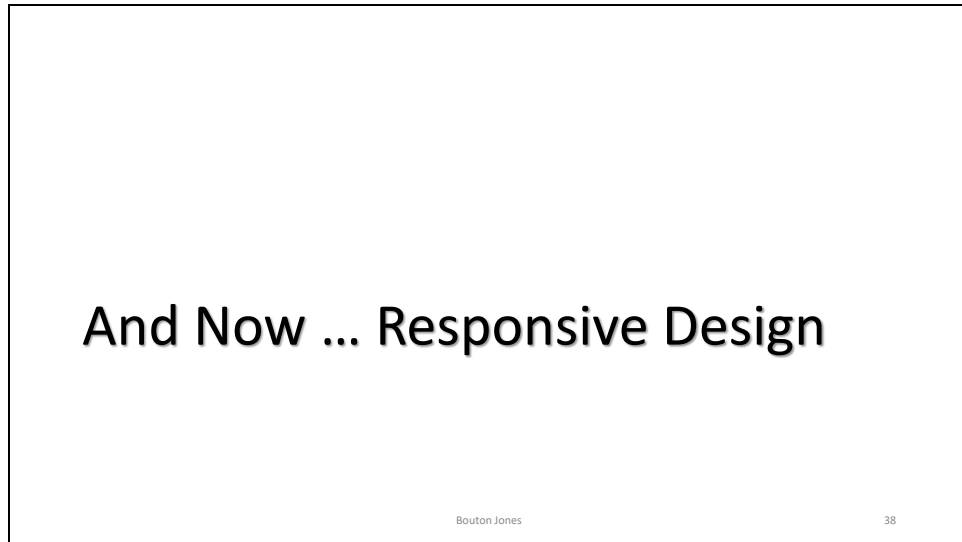
Paperback: 602 pages

ISBN-10: 1943872864

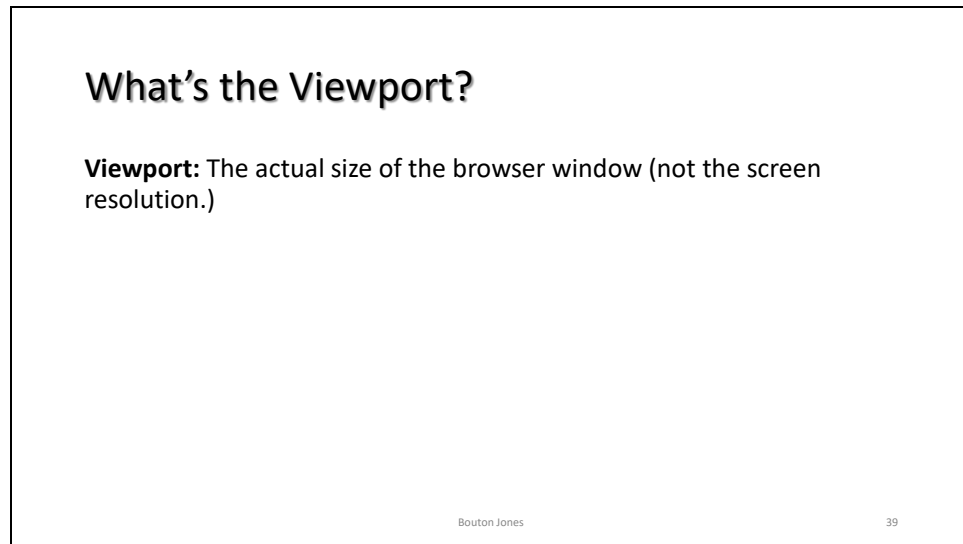
ISBN-13: 978-1943872862

I like the format of this book series. It embraces a variety of learning styles.

## And Now ... Responsive Design (Slide 38)



## What's the Viewport? (Slide 39)



Viewport: The actual size of the browser window (not the screen resolution.)

## Why Viewport? (Slide 40)

### Why Viewport?

A viewport meta tag adjusts your content to a user's screen. It makes a page more responsive and prevents users from having to scroll horizontally or zoom.

CITE: <https://www.semrush.com/blog/viewport-meta-tag/>

This tag tells the browser how to render a page on a mobile device. Presence of this tag indicates to Google that the page is mobile friendly.

CITE: <https://developers.google.com/search/docs/crawling-indexing/special-tags>

W3C Schools: [https://www.w3schools.com/css/css\\_rwd\\_viewport.asp](https://www.w3schools.com/css/css_rwd_viewport.asp)

Bouton Jones

40

A viewport meta tag adjusts your content to a user's screen. It makes a page more responsive and prevents users from having to scroll horizontally or zoom.

CITE: <https://www.semrush.com/blog/viewport-meta-tag/>

This tag tells the browser how to render a page on a mobile device. The presence of this tag indicates to Google that the page is mobile-friendly.

CITE: <https://developers.google.com/search/docs/crawling-indexing/special-tags>

W3C Schools: [https://www.w3schools.com/css/css\\_rwd\\_viewport.asp](https://www.w3schools.com/css/css_rwd_viewport.asp)

## Viewport META Tag (Slide 41)

### Viewport META Tag

```
<HTML>
<HEAD>
<meta name="viewport" content="width=device-width,
initial-scale=1" />
</HEAD>
```

SEE [https://developer.mozilla.org/en-US/docs/Web/HTML/Viewport\\_meta\\_tag](https://developer.mozilla.org/en-US/docs/Web/HTML/Viewport_meta_tag)

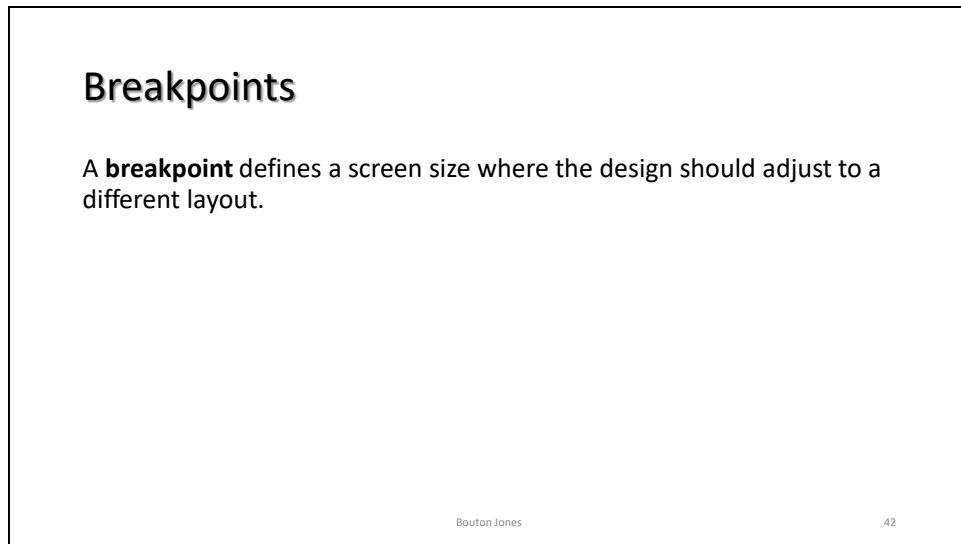
Bouton Jones

41

```
<HTML>
<HEAD>
<meta name="viewport" content="width=device-width">
</HEAD>
```

SEE [https://developer.mozilla.org/en-US/docs/Web/HTML/Viewport meta tag](https://developer.mozilla.org/en-US/docs/Web/HTML/Viewport_meta_tag) .

## Breakpoints (Slide 42)



**Breakpoints**

A **breakpoint** defines a screen size where the design should adjust to a different layout.

Bouton Jones 42

A **breakpoint** defines a screen size where the design should adjust to a different layout.

## Breakpoint Example CSS (Slide 43)

### Breakpoint Example CSS

```
@media screen and (max-width: 599px)
{
    /* Styles for smartphones */
}

@media screen and (min-width:600px)
and (max-width: 799px) {
    /* Styles for Tablets*/
}

@media screen and (min-width:800px) {
    /* Styles for PCs */
}
```

Bouton Jones

43

## Four Common Breakpoints (Slide 44)

### Four Common Breakpoints

As offered by Kelley Gordon of the Nielsen Norman Group:

1. Extra-small: up to 500px
2. Small: 500 px to 1200 px.
3. Medium: 1200 px to 1400 px
4. Large: 1400px and larger

**CITE:** <https://www.nngroup.com/articles/breakpoints-in-responsive-design/>

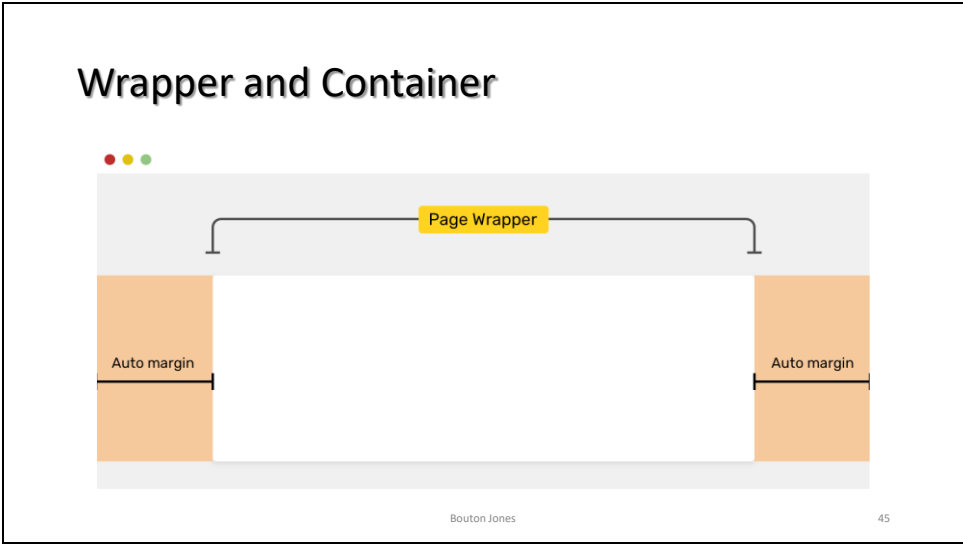
Bouton Jones 44

As offered by Kelley Gordon of the Nielsen Norman Group:

- Extra-small: up to 500px
- Small: 500 px to 1200 px.
- Medium: 1200 px to 1400 px
- Large: 1400px and larger

CITE: <https://www.nngroup.com/articles/breakpoints-in-responsive-design/>

# Wrapper and Container (Slide 45)



## Wrapper and Container HTML (Slide 46)

### Wrapper and Container HTML

```
<body>
<div id="wrapper">
  <div id="container" class="content">

    <p>Hello World!</p>

  </div>
</div>
</body>
```

Bouton Jones

46

```
<body>
<div id="wrapper">
  <div id="container" class="content">

    <p>Hello World!</p>

  </div>
</div>
</body>
```

## What's the optimal wrapper width? (Slide 47)

### What's the optimal wrapper width?

*My conclusions are subjective and not authoritative.*

- WCAG 2.0 SC 1.4.8
  - Lines should not exceed 80 characters ...
  - Body text should be at least 12 points (pt), or around 16 pixels (px).

**80 characters X 16 px = 1,280 px.**

Bouton Jones 47

*My conclusions are subjective and not authoritative.*

WCAG 2.0 SC 1.4.8

Lines should not exceed 80 characters ...

Body text should be at least 12 points (pt), or around 16 pixels (px).

**80 characters X 16 px = 1,280 px.**

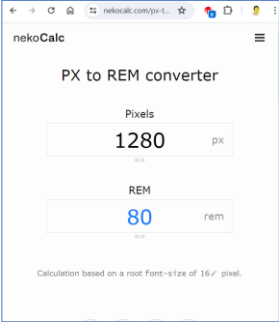
## Converting Between PX and REM (Slide 48)

### Converting Between PX and REM

This is useful for deciding the width of wrappers and containers.

There are few calculators for online.

Here's one: <https://nekocalc.com/px-to-rem-converter>



The screenshot shows a web browser window with the URL 'nekocalc.com/px-to-rem-converter'. The page title is 'nekoCalc' and the main heading is 'PX to REM converter'. There are two input fields: the top one is labeled 'Pixels' and contains the value '1280' with a 'px' unit selector; the bottom one is labeled 'REM' and contains the value '80' with a 'rem' unit selector. Below the fields, it says 'Calculation based on a root font-size of 16px pixel.'

Bouton Jones 48

This is useful for deciding the width of wrappers and containers.

There are a few calculators online from which to choose.

Here's one selected at random: <https://nekocalc.com/px-to-rem-converter> .

## CSS for Wrapper and Two Breakpoints (Slide 49)

### CSS for Wrapper and Two Breakpoints

```
@media screen and (max-width: 1288px) {
  #wrapper {
    margin-left: 4px;
    margin-right: 4px;
    width: 100%;
  }
}

@media screen and (min-width: 1289px) {
  #wrapper {
    margin-left: auto;
    margin-right: auto;
    max-width: 1280px;
  }
}
```

Bouton Jones 49

The first breakpoint is for the small-sized screens (e.g., smart phones) that are less than 600px wide. The content area takes up the entire width of the screen except for 4 px margins on either side.

```
@media screen and (max-width: 1288px) {
  #wrapper {
    margin-left: 4px;
    margin-right: 4px;
    width: 100%;
  }
}
```


The second breakpoint is for all the screens 1289 px or greater. The content area is fixed at 1280px, but the margins on either side will expand to fill the rest of the screen as the screen size increases.

```
@media screen and (min-width: 1289px) {
  #wrapper {
    margin-left: auto;
    margin-right: auto;
    max-width: 1280px;
  }
}
```

## CSS for Images (Slide 50)

### Image CSS

```
IMG {  
  height: auto;  
  max-width: 100%;  
  shape-margin: 1rem;  
}
```



Bouton Jones 50

```
IMG {  
  height: auto;  
  max-width: 100%;  
  shape-margin: 1rem;  
}
```

This allows for automated resizing like on the third web page demo.

## A Quick and Dirty Hamburger Menu (Pure HTML, No JS) (Slide 51)

### A Quick and Dirty Hamburger Menu (Pure HTML, No JS)

```

<details class="hamburger-bun">
  <summary class="hamburger-patty">Site Navigation</summary>
  <div class="outsidenav">
    <div class="insidenav">
      <ul style="font-size: 1.5rem;">
        <li><a href="https://www.evilmonk.org/a/menu.cfm">Home</a></li>
        <li><a href="https://www.evilmonk.org/a/gen00.cfm">General</a></li>
        <li><a href="https://www.evilmonk.org/a/vanity.cfm">About
Me</a></li>
      </ul>
    </div>
  </div>
</details>

```

Bouton Jones

51

```

<details class="hamburger-bun">
  <summary class="hamburger-patty">Site Navigation</summary>
  <div class="outsidenav">
    <div class="insidenav">
      <ul style="font-size: 1.5rem;">
        <li><a href="https://www.evilmonk.org/a/menu.cfm">Home</a></li>
        <li><a href="https://www.evilmonk.org/a/gen00.cfm">General</a></li>
        <li><a href="https://www.evilmonk.org/a/vanity.cfm">About Me</a></li>
      </ul>
    </div>
  </div>
</details>

```



See <https://boutonjones.com/pub/responsive/problem.html> for a demonstration of this.

## A Better Quick and Dirty Hamburger Menu (Slide 52)

### A Better Quick and Dirty Hamburger Menu

```
<dialog open>
  <p>Greetings, one and all!</p>
  <form method="dialog">
    <button>OK</button>
  </form>
</dialog>
```

**This method might require a little bit of JS.**

Bouton Jones

52

```
<dialog open>
  <p>Greetings, one and all!</p>
  <form method="dialog">
    <button>OK</button>
  </form>
</dialog>
```

This method might require a little bit of JS.

## New(ish) Breakpoint Alternatives (Slide 53)

### New(ish) Breakpoint Alternatives

- `min()`
- `max()`
- `calc()`
- `clamp()`

Bouton Jones 53

- `min()`
- `max()`
- `calc()`
- `clamp()`

## Calc() CSS Function (Slide 54)

### Calc() CSS Function

The calc() CSS function lets you perform calculations when specifying CSS property values. It can be used anywhere a <length>, <frequency>, <angle>, <time>, <percentage>, <number>, or <integer> is allowed.

```
/* property: calc(expression) */  
width: calc(100% - 80px);
```

Bouton Jones54

The calc() CSS function lets you perform calculations when specifying CSS property values. It can be used anywhere a <length>, <frequency>, <angle>, <time>, <percentage>, <number>, or <integer> is allowed.

```
/* property: calc(expression) */  
width: calc(100% - 80px);
```

## Tables (Slide 55)

### Tables

**Tables for Layout:** It can be done, but probably shouldn't.  
`<table role="presentation">...</table>`

**Tables for Data:** Problematic. Avoid or simplify.

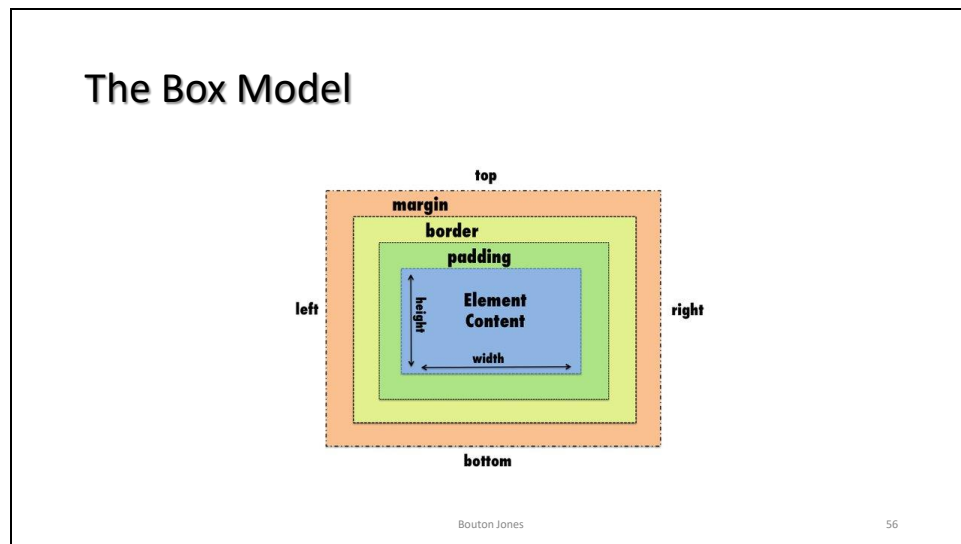
Bouton Jones 55

**Tables for Layout:** It can be done, but probably shouldn't.

- Eq. of HTML: `table role="presentation"`

**Tables for Data:** Problematic. Avoid using tables or simplify the tables as much as possible. Consider breaking down one large table into several smaller tables that contain the same information but in an easier to understand format.

## The Box Model (Slide 56)



A graphic showing how HTML elements are composed. The element is contained inside PADDING which is contained inside a BORDER which is itself contained with the MARGINS.

## box-sizing: border-box; (Slide 57)

### **box-sizing: border-box;**

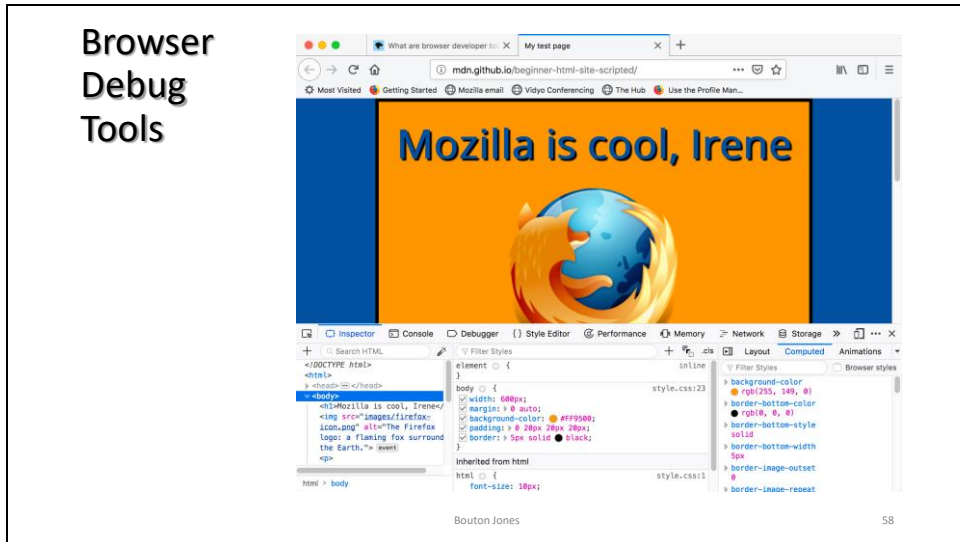
```
html {  
  -webkit-text-size-adjust: 100%;  
  -webkit-box-sizing: border-box;  
  box-sizing: border-box;  
  -ms-text-size-adjust: 100%;  
  -webkit-text-size-adjust: 100%;  
}
```

Bouton Jones

57

```
html {  
  -webkit-text-size-adjust: 100%;  
  -webkit-box-sizing: border-box;  
  box-sizing: border-box;  
  -ms-text-size-adjust: 100%;  
  -webkit-text-size-adjust: 100%;  
}
```

## Browser Debug Tools (Slide 58)



Demos of browser tools inside Chrome and Firefox.

## An Automated Test (Slide 59)

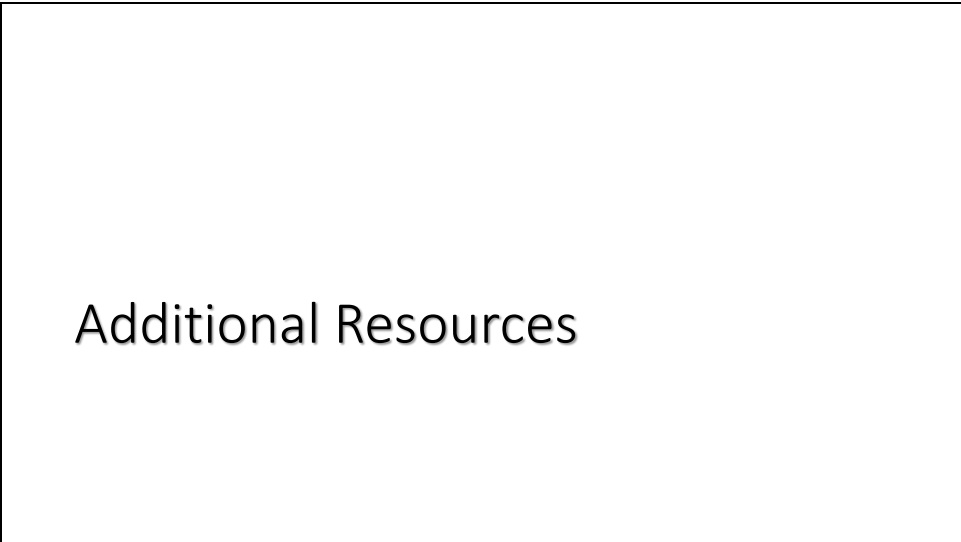
### An Automated Test

Test how mobile-friendly your site is.  
<https://testmysite.thinkwithgoogle.com/>

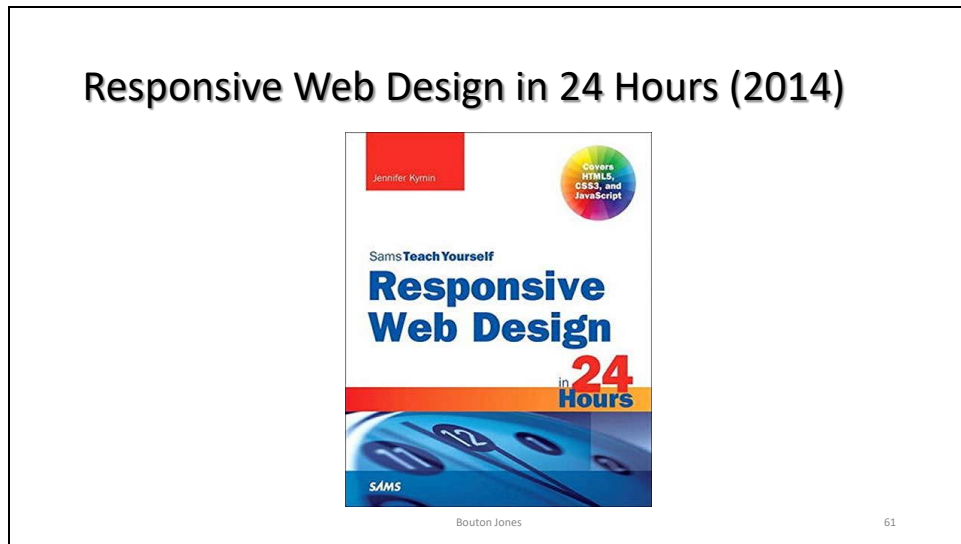
Bouton Jones 59

Test how mobile-friendly your site is.  
<https://testmysite.thinkwithgoogle.com/>

Section Header: Additional Resources (Slide 60)



## Responsive Web Design in 24 Hours (Slide 61)



Responsive Web Design in 24 Hours (Sams Teach Yourself in 24 Hours) Paperback – January 1, 2014

by Jennifer Kyrnin (Author)

## Responsive Web Design with HTML5 and CSS - Fourth Edition (Slide 62)



Responsive Web Design with HTML5 and CSS - Fourth Edition

By Ben Frain

Publisher: Packt Publishing; 4th ed. edition (September 19, 2022)

## When shopping for books on Web Design and Development (Slide 63)

### **When shopping for books on Web Design and Development**

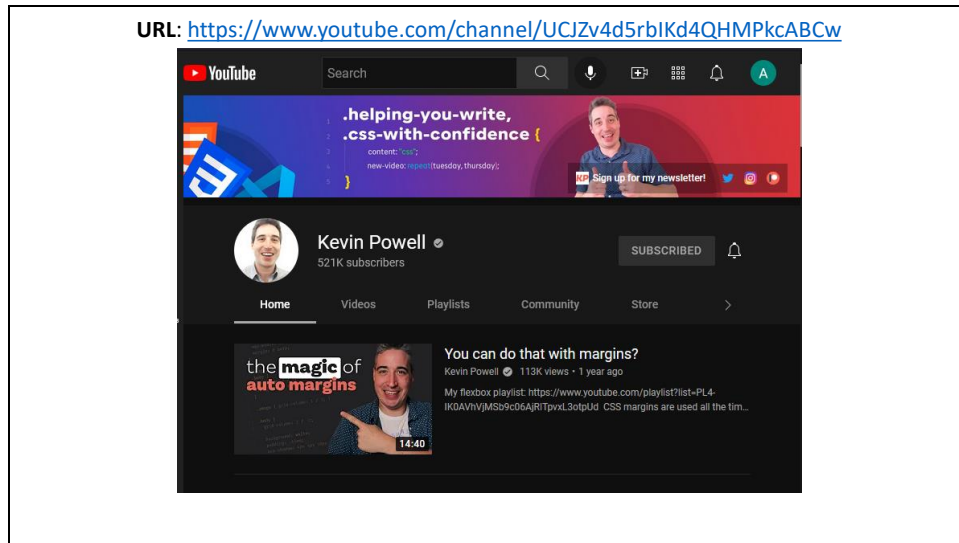
HTML, CSS, and web browsers are constantly being updated.

All other things being equal, choose the most recently published book.

HTML, CSS, and web browsers are constantly being updated.

All other things being equal, choose the most recently published book.

## Kevin Powell's CSS Videos on YouTube (Slide 64)



URL: <https://www.youtube.com/channel/UCJZv4d5rbIKd4QHMPkcABCw>

Any Questions? (Slide 65)



## Thank You. (Slide 66)



This concludes this session.