# The Structure of the Web

Jim and Matthew

# Workshop Structure

- 1. What is a browser?
- 2. HTML
- 3. CSS
- 4. Javascript
- 5. LUNCH
- 6. Clients and Servers (creating a live website)
- 7. Build your Own Website

# Workshop Goals

- Understand the difference between HTML, CSS, and Javascript and how these technologies are used to build a website.
- Edit HTML and CSS in the browser (Chrome) using the developer console
- Create a basic personal website from a provided template
- Describe the structure of the internet -- e.g. the difference between a client and a server

### What do you use your computers for?

### What is a web browser?

### What is a web browser?



### How does a web browser work?

# How does a web browser work?

- A web browser is just another a program on your computer
- Converts code to text and images

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# **Exercise 1: View Source**

- Navigate to <u>http://jmaddock.net/computing\_ever</u> <u>ywhere</u>
- Right click (PC) or click with 2 fingers (Mac) anywhere on the web page
- select "view page source"



While HTML is used to structure a web site, CSS is used to style it. At the top of a web page, look for a tag that looks something like: link rel="stylesheet" href="...">. This is the link to the "stylesheet" nor the file that contains CSS code. You can use the right side of the developer console in chrome to experiment with changing the CSS of a web site. Try these examples:

Javascript is code used to make a website interact won't talk much about Javascript in this workshop, speaking when you see an element of a website ch down menu, a Facebook notification, or a pop up a Javascript. Javascript is important because it allow without re-loading the entire web page.

by Jim Maddock | maddock@u.northwestern.edu | Google App Engine + Bootstrap 3

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you have any questions, feel free to use the "contact" links in the header and footer of the page!	
<pre>cp&gt;Matthew Heston is a doctoral student in the Technology and Social Behavior PhD program. He researches how people communicate in online settings.</pre>	
<pre><h></h></pre>	
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CPDHTML, or hyper text markup language, is the foundation of websites. HTML is code that is read by your browser, used to both structure and add content to a website. You can identify HTML by the angle brackets that surround is 460btHtLseC or 6460btHtLseC. Some common of his web bage are:	code, for instance
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contains CSS code. You can use the right side of the developer console in chrome to experiment with changing the CSS of a web site. Try these examples:	
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# HTML

- Hypertext markup language
- Basic code that your browser knows how to interpret
- describes the structure of the webpage

# **Exercise 1: View Source**

#### Basic Tags:

Challenge Tags

- •
- <h1>
- <h2>
- <hr>
- <nav>
- <br>
- <img>
- <a href>
- e <body>
- <button>

- <head>
- <title>
- e <meta>
- <|i>
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- <div>
- <!-->
- <script>
- <span>

### What is a <div>?

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### What is a <div>?

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- You can't see a <div>, so why do we use them?
- Adds structure to a page. Think of making containers or groups for different content
- We can link to different sections using <a href> and <div>
- Remember <div> when we talk about javascript!

### What is a <div>?

<a href="#e1">Exercise 1</a> <a href="#e2">Exercise 2</a> <a href="#e3">Exercise 3</a> <a href="#e4">Exercise 4</a>

<!-- Exercise 2 --> <div id="e2"> <h1>Exercise 2</h1> Let's add some of , all <code>&lt;h1&gt;</col
</pre> .click(function() { de(); Now modify the above <br> </div>

### CSS

- Cascading Style Sheets
- Defines the way a web page looks
  - color, font, text size
- Makes elements of a webpage uniform
  - All <h1> tags will be the same color
  - All text will be the same size and font

# The Developer Console

- Navigate to <u>http://jmaddock.net/computing\_every</u> <u>where</u> (again)
- Right click (PC) or click with 2 fingers (Mac) anywhere on the web page
- select "inspect"



Javascript is code used to make a website interact won't talk much about Javascript in this workshop, speaking when you see an element of a website ch down menu, a Facebook notification, or a pop up *e* Javascript. Javascript is important because it allow without re-loading the entire web page.

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# Exercise 2: The Developer Console

- Example: Change the font size of one header element
- Change the font color of one paragraph element
- Center the text in a paragraph element
- Change the font size for all header elements
- Change the banner image
- Add Italics or bold a sentence
- Make a change not listed here and be ready to share it with the class!

# Exercise 3: Complex Websites

- Find an element you recognize on one of these websites and be ready to share it with the class.
- Example websites: Twitter, Wikipedia, Tumblr
- Challenging Websites: Google, Facebook...

- Programming (scripting) language
- Instructs your browser to make
   local changes to a webpage
   We call this "dynamic" or "event driven"
- What are examples of dynamic elements?

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  - Dropdown menus
  - Change CSS
  - Make browser plugins



# Javascript + JQuery

- 1. \$("p").mouseover(function() {
- 2. \$(this).css("color", "red");
- 3. });

1. Select all elements

# Javascript + JQuery

- 1. \$("p").mouseover(function() {
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- 2. When you hover over the element

# Javascript + JQuery

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3. });

- 1. Select all elements
- 2. When you hover over the element
- 3. Change the color to red



#### **About This Workshop**

Welcome to the website for Computing Everywhere Workshop #3: The Structure of the Web, taught by Ji don't have a powerpoint. If you have any questions, feel free to use the "contact" links in the header and

#### About the Instructors

Matthew Heston is a doctoral student in the Technology and Social Behavior PhD program. He researche

Jim Maddock is a PhD Student in the Technology and Social Behavior program. He studies collaboration



# Exercise 4: Add your own Javascript

- Navigate to <a href="http://jmaddock.net/computing\_everywhere/js">http://jmaddock.net/computing\_everywhere/js</a>
- In small groups, read and complete all 4 exercises

# Javascript (Summary)

- Programming (scripting) language
- Instructs your browser to make local changes to a webpage
- We can add, remove, or modify any HTML element or CSS property!



# Lunch

# Editing Files Locally (on your own computer)



# Exercise 5: Editing Code on Your Computer

- Download the zip file from canvas to the desktop of your computer
- Unzip the file
  - For macs: double click on the file you just saved. It should turn into a folder
  - For windows: right click on the folder and select "extract all"
- Double click on the new folder you just created (probably named "computing\_everywhere"

# Exercise 5 (cont): Editing Code on Your Computer

- Open computing\_everywhere.html in Sublime Text
  - Right click on computing\_everywhere.html > open with > sublime text
- and Chrome
  - Right click on computing everywhere.html > open with > chrome

# Exercise 5 (cont): Editing Code on Your Computer

- 1. Edit code in Sublime Text
- 2. Save the file
- 3. Refresh the webpage in Chrome
- 4. Repeat

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# But what if we want to see Matt's website?

# Viewing Files Remotely (on someone else's computer)

- Matt can "host" a file for us to access remotely
- He provides us the network address for his own computer
- What if Matt disconnects from the wifi or turns his computer off?

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# AWS (Amazon Web Services)

# Hosting

- In order to "host" a website, we need a computer that is always on and always connected to the internet
- We call this a "server"
- Companies (like Amazon) sell this service
- How do we get files to Amazon?



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# Exercise 6: Editing Code and uploading to AWS

- 1. Edit code in Sublime Text
- 2. Save the file
- 3. Upload file to AWS with Cyberduck
- 4. Refresh webpage in Chrome
- 5. Repeat



# Hosting CSS and JS remotely

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.2/css/bootstrap.min.css"> <link rel="stylesheet" href="http://jmaddock.net/static/css/local\_styles.css"> <script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script> <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.2/js/bootstrap.min.js"></script>

# Hosting CSS and JS remotely

- Many developers don't write their own CSS and Javascript
- CSS and Javascript can be hosted remotely
- Jmaddock.net uses CSS and Javascript from: https://getbootstrap.com/docs/4.0/g etting-started/introduction/

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# Hosting CSS and JS remotely



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<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.2/js/bootstrap.min.js"></script>



# Demo: Matt's aesthetic.css

http://commst159.s3-website-us-west-1.amazonaws. com/matthew/aesthetic.css

# **Clients and Servers**

# The Client Server Architecture

• Client: YOU! A computer on the internet requesting to view a webpage



# The Client Server Architecture

- **Client:** YOU! A computer on the internet (network) requesting an HTML file.
- Server: A computer on the internet that "serves" (sends) the requested HTML file



# Workshop Goals

- Understand the difference between HTML, CSS, and Javascript and how these technologies are used to build a website.
- Edit HTML and CSS in the browser (Chrome) using the developer console
- Create a basic personal website from a provided template
- Describe the structure of the internet -- e.g. the difference between a client and a server

# Build Your Own Webpage

# Exercise 7: Build your own webpage

- Choose a topic you're interested in and add headers and some body text
  - Ideas: your personal website (portfolio), an instructional website (like this one),
- Change the banner image
- Change the top and bottom nav-bar text
  - Bonus: update the div id's and the navigation links
- Change some CSS
  - Make the headers bigger or smaller
  - Change the text/background color
- Upload your website to AWS. Make sure your neighbor can access it!
- Choose your own Bootstrap element to add
  - More Buttons, Images, dropdowns, an image carousel, something with Javascript

http://bit.ly/UnderstandTheWeb