LAST WEEK ON IO LAB

If you haven’t done these things already, please do them before we begin today’s lecture

Install Chrome or Firebug.

Complete the online skills assessment and lab Doodle.

Join the iolab@ischool mailing list.
INFORMATION ORGANIZATION LAB

IO LAB

INFORMATION ORGANIZATION LAB
DELICIOUS TRAILMAKER

Take Two
Thursday at 4:00pm.
There are a small number of people who this time doesn’t work for. Please talk to us in person to see what we can work out.
HTML

This is a paragraph.

![Image](http://site.com/a.png)

- Item One
- Item Two

HTML is the most successful and most popular markup format in the world. The basics of HTML are simple enough that you can pick it up pretty quickly by example:
- Look at something, make it yourself
- Also explains the popularity of the format
HTML

- `<p>`This is a paragraph.</p>`

- `<img src="http://site.com/a.png">`

- `<ol>
  - `<li>`Item One</li>`
  - `<li>`Item Two</li>`
</ol>`

Element

Nested elements
This is a paragraph.

<img src="http://site.com/a.png">

<ol>
  <li>Item One</li>
  <li>Item Two</li>
</ol>
This is a paragraph.

![Attribute: src="http://site.com/a.png"]

- Item One
- Item Two
# COMMON ELEMENTS

<table>
<thead>
<tr>
<th>head</th>
<th>body</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>p</code></td>
<td><code>a</code></td>
</tr>
<tr>
<td><code>ul</code></td>
<td><code>ol</code></td>
</tr>
<tr>
<td><code>img</code></td>
<td><code>li</code></td>
</tr>
<tr>
<td><code>form</code></td>
<td><code>input</code></td>
</tr>
<tr>
<td><code>script</code></td>
<td><code>link</code></td>
</tr>
<tr>
<td><code>div</code></td>
<td><code>span</code></td>
</tr>
</tbody>
</table>

HTML has changed a fair amount in its short lifetime, but even moreso, people’s attitude towards what should be in HTML has changed. HTML is the structure and content of your document. It is not the way that content is styled or the behavior associated with that content.
<body>
  <p>This is <font face="Papyrus" size="+3">hideous!</font></p>
  <form onsubmit="validateForm();">
    <input type="submit">
  </form>
</body>
HTML5

- HTML has gone through some changes. We’ll talk more about those changes more in depth.
- All of our samples in this course will be done using HTML5. You may notice some changes from what you may have written in the past.
HTML5

<img src="http://berkeley.edu/logo.png">

<img src="http://berkeley.edu/logo.png"/>

<img src="http://berkeley.edu/logo.png">

HTML to XHTML to HTML5
Here on the right side is a short HTML document. When your web browser loads this document, it generates a representation called the Document Object Model. If your code is properly indented, your can see that the hierarchy of the DOM corresponds to the indentation level.

The big idea here is that the left is just a bunch of text. On the right there is a collection of objects that you can manipulate and change.

Relationships between objects in the tree. Family tree => parents, children, siblings.

See http://en.wikipedia.org/wiki/Document_Object_Model for more information. The DOM should frame the way you think about CSS.
Separate presentation from structure and content. Need a way to specify the appearance or presentation of elements in the DOM.
A stylesheet consists of a series of rules. Here you see the structure of a style rule. Starts with a selector. The selector specifies what elements in the DOM we want this rule to apply to.

**SELECTORS**

<table>
<thead>
<tr>
<th></th>
<th>CSS</th>
<th>HTML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag</td>
<td>p</td>
<td>&lt;p&gt;</td>
</tr>
<tr>
<td>Id</td>
<td>#header</td>
<td>id=&quot;header&quot;</td>
</tr>
<tr>
<td>Class</td>
<td>.author</td>
<td>class=&quot;author&quot;</td>
</tr>
<tr>
<td>Descendant</td>
<td>div p</td>
<td>&lt;div&gt; &lt;p&gt;</td>
</tr>
</tbody>
</table>

Ids and classes are attributes given to elements for the purpose of selecting them.

IDs are unique, only occur once on the page. Classes are for multiple items. Example: #navigation, .author

These are the basic building blocks of CSS. You can--and often will--combine these selectors.

Note: there are tons of other selectors

For a complete list of selectors in CSS2, see [http://www.w3.org/TR/CSS2/selector.html](http://www.w3.org/TR/CSS2/selector.html). For a list of all the selectors that jQuery can use, see [http://docs.jquery.com/Selectors](http://docs.jquery.com/Selectors).
## COMMON PROPERTIES

<table>
<thead>
<tr>
<th>font-family</th>
<th>color</th>
<th>border</th>
<th>display</th>
</tr>
</thead>
<tbody>
<tr>
<td>margin</td>
<td>font-size</td>
<td>width</td>
<td>padding</td>
</tr>
<tr>
<td>background</td>
<td>position</td>
<td>text-align</td>
<td>float</td>
</tr>
</tbody>
</table>

CSS RESOURCES


CSS definitive guide: http://proquest.safaribooksonline.com/0596527330

Questions
JAVASCRIPT CRASH COURSE
FIRST THINGS FIRST

JavaScript is a high-level, object-oriented language used most often in web browsers.

A semi-colon goes at the end of every statement.

You can write comments in your code with // or /* */
Variables can be of different types. We’re going to cover these basic data types.
You use the word `var` to declare a variable. You don’t have to say what type of variable it is. Convention is to use camelCase.
STRINGS

A sequence of characters.
Use single- or double-quotes to indicate a string.

Examples

```javascript
var myName = "Larry";
myName → "Larry"
myName.length → 5
myName.toUpperCase() → "LARRY"
myName.indexOf('a') → 1
```
ARRAYS

An ordered collection of elements. Use square brackets to indicate an array.

Examples

```javascript
var myArray = ['dog', 'fish', 'cat'];
myArray.length → 3
myArray[0] → ['dog']
myArray.push('horse') → myArray == ['dog', 'fish', 'cat', 'horse']
myArray.indexOf('fish') → 1
myArray.sort() → ['cat', 'dog', 'fish'];
```
OBJECTS

A collection of key-value pairs or named properties. Use braces to indicate an object.

Examples

```javascript
var person = {
  'name': 'Arnold',
  'weight': 240,
  'height': 6.2
};

person.name → "Arnold"

person.height → 6.2

person.wife = 'Maria';

person.wife → 'Maria'

person['wife'] → 'Maria'
```

The most confusing thing about objects in JavaScript is that they're used for so many different things. First, they fill the role of the data structure: hashes/dictionaries (in Python)/associative arrays. Second, objects are naturally used for JavaScript's object-oriented programming. Third, JavaScript objects are also the basis for JSON.

You can access the properties of an object using the dot notation or bracket notation.
FUNCTIONS

function add(x, y) {
    return x + y;
}
add(2, 4) \rightarrow 6

var add = function(x, y) {
    return x + y;
}
BROWSER FUNCTIONS

alert('....')
confirm('....')
prompt('....')
console.log('....')
CONTROL STRUCTURES

```javascript
if (3 > 2) {
    alert('3 is greater than 2');
}

for (var i=0; i < myArray.length; i++) {
    myArray[i];
};
```
The problem with JavaScript in browsers:
http://www.quirksmode.org/dom/events/index.html

jQuery is a JavaScript library (intro. 2006) written by John Resig. When learning: great when you can apply something you know to something else. A lot of JS in browser has to do with selecting objects from the DOM. And we already have something to do that...CSS!
Using jQuery involves two steps:

- Selects objects from the DOM using CSS selectors.
- Do something with the selected elements.
MAIN JQUERY OPERATIONS

- **Events**: Attaching functions to events in the browser.
- **Attributes**: Changing existing elements: CSS styles, HTML attributes.
- **Manipulating**: Inserting or removing elements.
- **Traversing**: Moving from selected elements in the DOM to others.
jQuery interactive “Hello World” when clicking on a button.
Download skeleton HTML file => text editor, browser

h1, form to enter name, submit button.
WEB BROWSER EXTENSIONS
Greasemonkey and Chrome and bears, oh my!

A general overview: we’ll be looking at a class of tools that extend the functionality of a web browser, either to change the browser chrome (like the status bar or the menu options) or modify an existing webpage.
EXTEND WHAT?

- Browser chrome
- Page content
- Page style
- Page behavior

Chrome: an image in the status bar that lets you know when you have new email
Content: removing an advertisement or adding a map
Style: giving Craigslist any kind of style at all
Behavior: make a button
Relative advantages and disadvantages of the several options we have, that have appeared over time.

A trade-off between power and ease.

Chrome Extensions is the first on our graph not developed for Firefox, but its ease of use and power advantage over Greasemonkey give it the edge for our purposes this year.

Anyone know of others? (Safari Saft, IE Activities....)
GOOD FOR THE BROWSERS

GOOD FOR US
LET’S TRY IT

To the browser / text editor!
Questions so far?

We’ll be walking through these examples more slowly in Lab Lab, so that you can build this yourself.
PROJECT 1
Due September 21
PROJECT I
PROJECT I
PROJECT 1
PROJECT I
PROJECT 1
Due September 21
FOR NEXT WEEK

Write your first Chrome Extension that does *anything*. Come with questions next class.

Decide on an idea for Project 1.

You can find links to help with all of these on the course website at http://courses.ischool.berkeley.edu/i290-iol/f10/