This is Week 9

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Agenda

• Announcements
• JavaScript
  • Web Based Languages
  • js_intro.html
  • CS50 Dolphin Trainer
• DOM
  • dom.html
  • merica.html
• Problem Set 8
  • // TODO
Announcements

• Problem Set 8 Walkthrough (Sun, 7pm, NW B103) – [https://www.cs50.net/psets/](https://www.cs50.net/psets/)
  • Last one!
• Problem Set 7’s BIG BOARD
  • I Saw You...Amie, Jimmy + Larmon
• Final Project
  • Pre-Proposal due by noon on Mon 11/7 (expect feedback)
  • Proposal due by noon on Mon 11/14
  • Looking for a project? [https://projects.cs50.net](https://projects.cs50.net)
  • Want to learn something new? [https://manual.cs50.net/Seminars](https://manual.cs50.net/Seminars)
JavaScript
Web-Based Languages

- HTML + CSS
  - Static web pages
- PHP
  - Dynamically generated web pages
- JavaScript (today)
  - Web pages with dynamic content
- Ajax (upcoming week)
  - Dynamically load content from other web pages
“JavaScript is the best programming language currently in existence. Other people will try to tell you otherwise. They are wrong.”
- TMac
JavaScript

• Client-side scripting language
  • JavaScript code executes right in your browser
  • PHP code is executed server-side
• Has nothing to do with Java
  • Created during the Java craze
  • Greenland isn't green, and Iceland isn't icy
• Syntax is very similar to C and PHP
  • If-else conditions
  • For and while loops
Points of Note

• JavaScript code is written between tags
  `<script> </script>`
• Variables and functions do not have types
  ```javascript
  x = 5;
  function foo(y) {
    return ++y;
  }
  ```
• `var` keyword defines scope
  • Global: `x = 42;`
  • Local: `var x = 42;`
• Concatenation operator joins strings together
  ```javascript
  alert("oahi" + " " + "section!");
  ```
• Error check via the console!
CS50 Dolphin Trainer

Points of Note

• Code is broken up into separate files for readability
• An external .js file can be linked in to your code
  <script src="file.js"></script>
• Arrays vs. associative arrays
• For-in loop vs. for loop
DOM
DOM

• Document Object Model
• A way to model/think about a web page
  • Language-independent
• Manipulate HTML as a set of objects
  • Each tag is an object
  • Attributes are properties of the object
  • Contained tags are children of a parent tag
DOM

- Access individual objects with JavaScript
- DOM is loaded into the global document object

Examples
- Get the element with the given id
  
  ```javascript
  document.getElementById(<id>)
  ```
- Get an array of all elements with the given tag
  
  ```javascript
  document.getElementsByTagName(<tag>)
  ```
- Get an array containing all images on the page
  
  ```javascript
  document.images[]
  ```
Object Properties

document.getElementById(<id>)

Examples
• Sets or returns the HTML contents of the element
  .innerHTML
• Returns the name of the tag of the element
  .nodeName
• Returns the parent of the current element (a DOM object)
  .parentNode
• Sets or returns the CSS properties of the element
  .style
broadcast

when I receive
Events

- Using the DOM, we can attach events to elements
  - Event = user interaction (usually)
- Event handler = function that runs when an event occurs
- Attach event handlers to elements with attributes
  ```html
  <body onload="load();">
  ```

Examples

- Mouse is clicked – onclick
- Form is submitted – onsubmit
- User presses a key down – onkeydown
- User lets go a pressed key – onkeyup
Problem Set 8

The Last One
function pickup()
function dropoff()
Additional feature

That's it?!? Yes. That's it.
But let's still walk through service.js
That was Week 9

http://www.funnyordie.com/videos/1adaa0d06b