

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/>
 - 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>
 - Want to learn something new? <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

js_intro.html

Points of Note

- JavaScript code is written between tags

```
<script> </script>
```

- Variables and functions do not have types

```
x = 5;
```

```
function foo(y) { return ++y; }
```

- var keyword defines scope

- Global: x = 42;

- Local: var x = 42;

- Concatenation operator joins strings together

```
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
`document.getElementById(<id>)`
- Get an array of all elements with the given tag
`document.getElementsByTagName(<tag>)`
- Get an array containing all images on the page
`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
`<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





// TODO

- `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>