Review: Viewing a Web Page

**SERVER**
web page
repository

**WEB PAGE**
instructions stores
information and
instructions

**BROWSER**
retrieves web page
and follows
instructions
Dynamic Web Pages

- Two places you can change
  - Browser: JavaScript
  - Server: php

- General rule:
  - do it in the browser if you can

- Why?
  - Distribute the work
  - Consider the difference in the time function...
Three Legged Stool

HTML
Content

CSS
Presentation

JavaScript
Behavior
What is JavaScript?

- Simple programming tool
- Functions
  - react to events
  - read and write HTML elements
  - dynamic text
  - compute functions
  - change pictures
- w3schools, codecademy
Set of ORDERED instructions

Recipe

Difference between
1. Melt butter
2. Add flour

And
1. Add flour
2. Melt butter
JavaScript Statements

- JavaScript: series of statements
- Each statement = instruction step
- Always ends with a ;
- Consists of:
  - actions
  - information to act on
(Excel Statements)

- All begin with =
- Actions
  - Operators
  - Functions
- Information
  - cells
  - literals (numbers, strings)
alert

- Our first JavaScript statement
- Puts up a box that user MUST clear
- Can experiment on jsfiddle
- Format
  ```javascript
  alert (string);
  ```
- String
  - Literal: simply put it in quotation marks
    - Can use ‘ or “ but must match
  - Can build up (concatenate) with +
Demo on jsfiddle
Data types

- Different actions on different types of data
- Can’t do math on strings
- CAN print numbers
- Don’t be fooled by that +: does NOT mean add
- Strings
  - Note that “a b “ and ”a b” are DIFFERENT
  - Inside literals, blanks are significant
Demo on jsfiddle

1. String
2. Number
3. String and number
4. Added numbers
5. String and added numbers
Invoking JavaScript: Events

- Invoke JavaScript and something changes
- Invocation occurs when an EVENT happens
- Events occur when
  - User input from mouse or keyboard
    - Mouse movement
    - Mouse click
    - Key presses
  - HTML elements change (e.g., page loaded)
- Simplest event: mouse click ONCLICK
onclick

- Attribute that can be added to most any HTML element
- Takes a single JavaScript statement.
Demo

- Jsfiddle
- Web page
User Input: Forms

- `<form>`
- Just another way to collect pieces together (like div, section)
- Anything can be in there
- Formatting just like all other elements
Button

- HTML tag
  - Defines what its intent is
- Default formatting creates a button
- Attribute `type`
  - `button`: general purpose
  - `reset`: clear all fields in the form
- and can use `onclick`
  - Note the benefit of `'` here!
Formatting Buttons

- Very similar to how you format navigation links
- Can use hover pseudo-element
- Can use img for background
Demo

- Jsfiddle
- Web page
User input

- But we’d also like to let users give us information
- Request input
  
  ```html
  <input type="text" name="name">
  ```
- Lots of types
- Use name to identify the element
Datalist (snippet)

- Nice new option
- Drop-down list
- Supports autocomplete
- Supported on most browsers
  - NOT Safari
Structuring Forms

Use tags that define the meaning

<form>
  <div>
    <label for="fieldname"></label>
    <input name="fieldname"/>
  </div>
</form>
Retrieving the value

- In JavaScript
  
  `form-name.field-name.value`

- Note that the first 2 parts of this are just normal selector notation (like you use in css)

- The `.value` is to be used exactly and says to use that tag’s value

- (Note this is only the first and simplest way to access information)

- Can set initial value (default, hint)
Demo

- Text input
  - JsFiddle
  - Web page
- Numeric input
  - JsFiddle
  - Web page