WEEK 4 - LAYOUT REVIEW AND INTRO TO JS

GENERAL ASSEMBLY

FEWD

Joe Bliss
Runs on Java

AGENDA

Review Busy Hands

Review Float and Clear

Inline-Block and Other Layouts

Intro to Grids

Intro to JS

Thinking Programmatically

Pseudo Code

JS Basics - Objects, Data Types, Variables, Functions

BUSY HANDS

And how did we do??

OUR MANTRA

WHAT WE FLOAT WE MUST CLEAR
WHAT WE FLOAT WE MUST CLEAR
WHAT WE FLOAT WE MUST CLEAR

DISPLAY: INLINE-BLOCK;

Best (and worst) of both worlds!

Great for certain things in place of floating, but also has its quirks.

Displays the object inline, but allows it to retain its box model properties, e.g. height, width, padding, margin.

DISPLAY: INLINE-BLOCK;

Objects appear on the same text baseline, regardless of height.

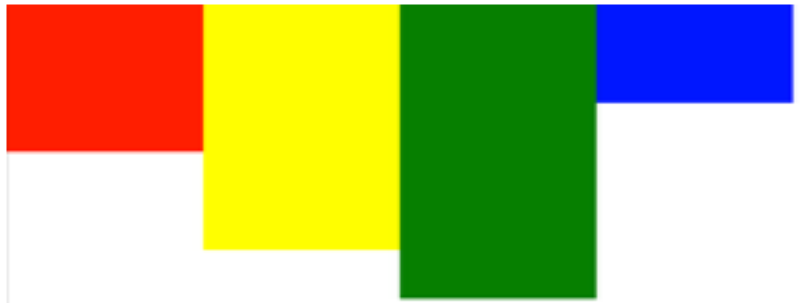
Objects retain whitespace (like inline objects).

IE 6 and 7 don’t support display: inline-block;

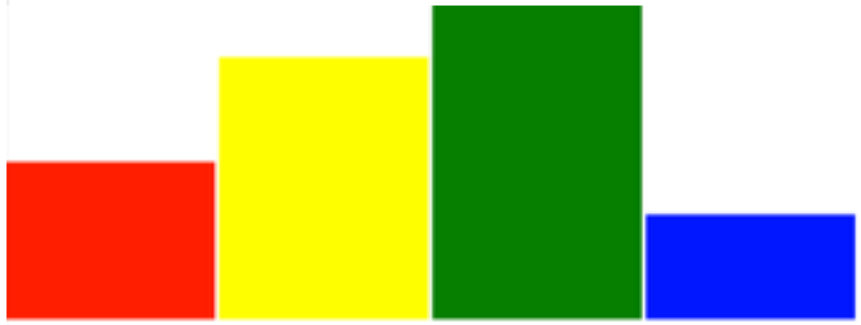
Some additional resources:
http://learnlayout.com/inline-block.html
http://www.ternstyle.us/blog/float-vs-inline-block

DISPLAY: INLINE-BLOCK;

Four divs set to float: left;



Four divs set to display: inline-block;



CSS GRID SYSTEMS

Sometimes referred-to simply as a “Grid”.

“[…] a structure that allows for content to be stacked both vertically and horizontally in a consistent and easily manageable fashion. Additionally, grid system code is project-agnostic giving it a high degree of portability so that it may be adopted on new projects.”

https://www.sitepoint.com/understanding-css-grid-systems/

GRIDS

Grids are designed to make column layout easier and are meant to be used on multiple projects.

They make complex floated layouts easier, speeding up your front-end work.

They allow you to write less code.

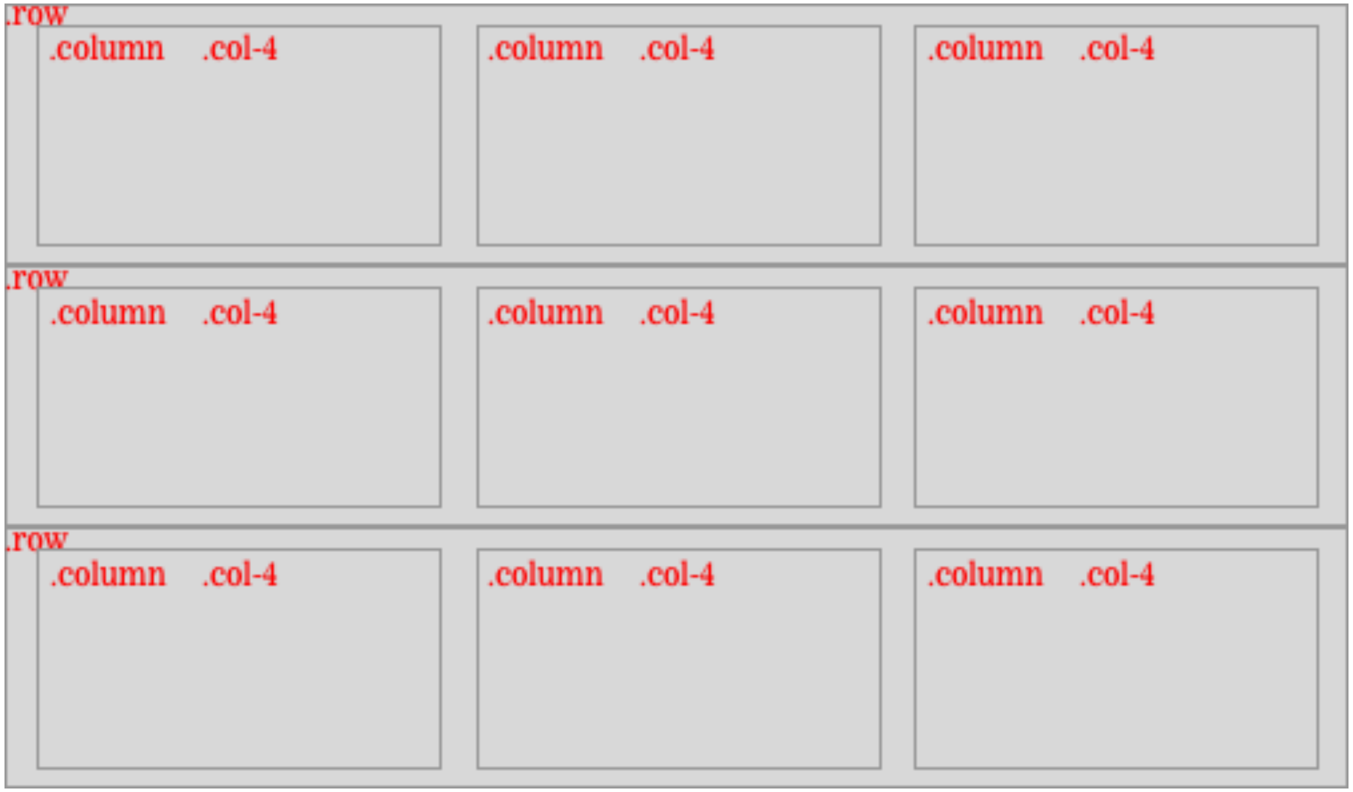
GRIDS

The basic way a Grid works is that it predefines a ton of CSS classes that you add to your markup.

There is a row class that clears itself and inside of it there are multiple column classes of pre-defined widths.

So rather than have to assign your own widths, take care of floating, remember to clear, you just assign classes appropriately, and the grid takes care of it for you.

GRIDS


.row
.column .col-4
.column .col-4
.column .col-4
.row
.column .col-4
.column .col-4
.column .col-4
.row
.column .col-4
.column .col-4
.column .col-4

CODEALONG - GRID EXERCISE

REAL-WORLD GRIDS

Bootstrap: http://getbootstrap.com/css/#grid

Foundation: http://foundation.zurb.com/sites/docs/v/5.5.3/components/grid.html

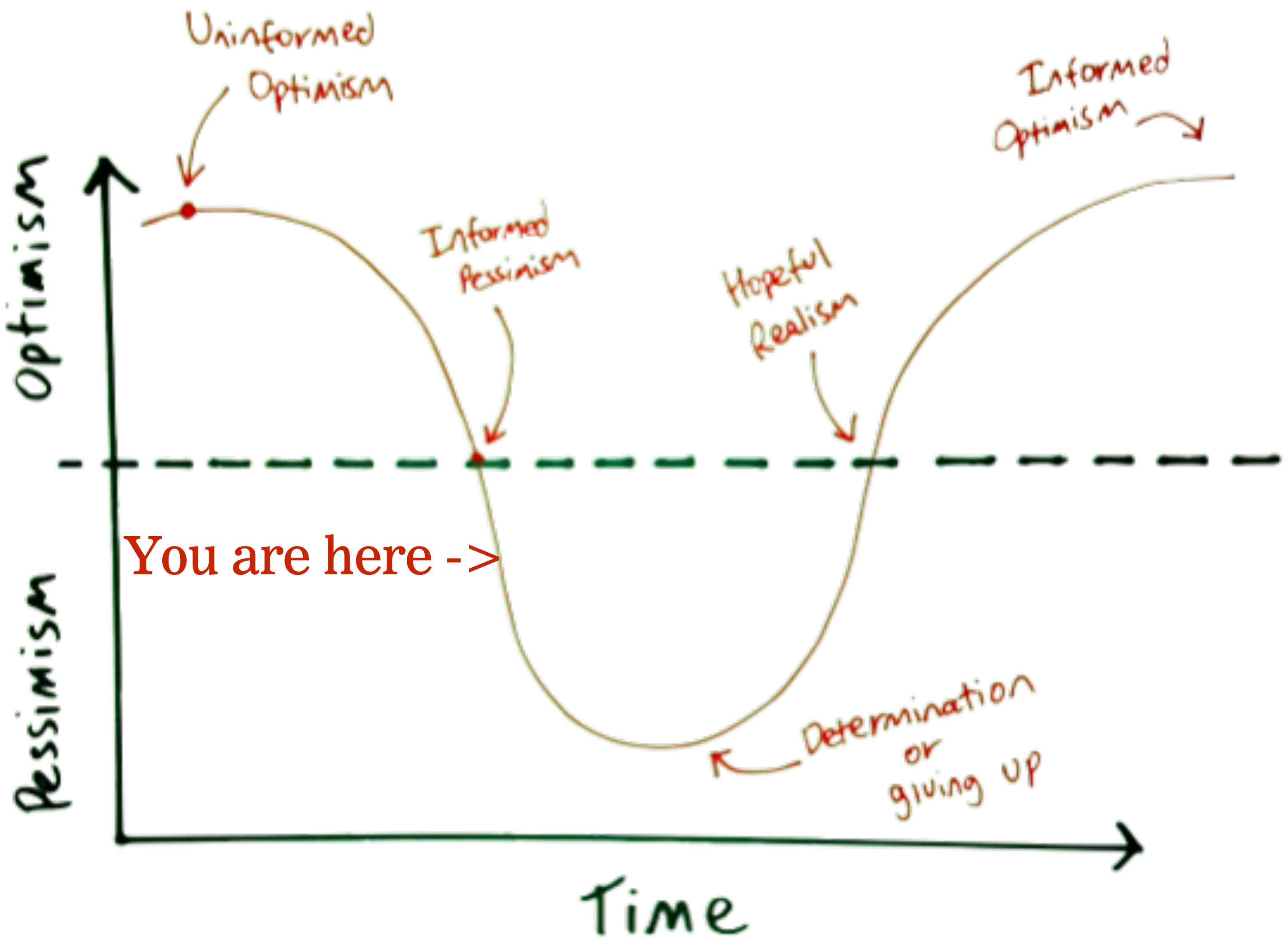
Pure CSS: http://purecss.io/grids/

Skeleton: http://getskeleton.com/#grid

EXERCISE – LAYOUT BRAIN TEASER

http://codepen.io/ga-joe/pen/rLYprp

INTRO TO JAVASCRIPT

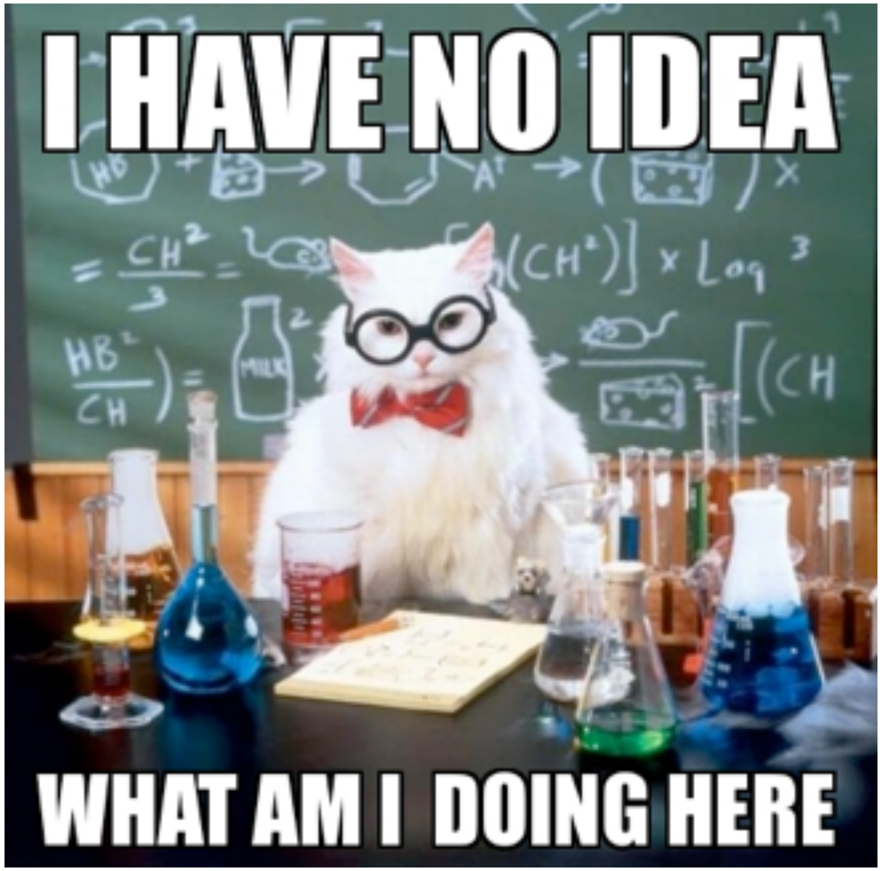

Uninformed Optimism
Informed Optimism
Informed Pessimism
Hopeful Realism
You are here ->
Determination or giving up
Optimism
Pessimism
Time

JAVA ≠ JAVASCRIPT

…also, it’s technically JavaScript, not Javascript

WHAT CAN WE DO WITH JS?

Why are we learning JavaScript?



EXERCISE – WHAT CAN JS DO?

Go out on the internet and find some cool effects on your favorite sites. We want to try to explore the different things we can add to our sites by utilizing JavaScript.

WHAT DID WE DISCOVER?

Adding / Removing Elements
Changing CSS “on-the-fly”
Animating content
Detecting user interactions
Form validation
Loading dynamic content
Etc.

USES OF JAVASCRIPT

Most uses of JS fall into one of four categories:

Changing HTML Content
Changing HTML Attributes
Changing CSS Styles
Validating Form Fields

JS IS DIFFERENT FROM HTML AND CSS

HTML and CSS are used to define the initial state of our website.

JS is used to define how this state changes.

HTML and CSS are static.

JS is dynamic.

HOLY SCRIPT!

Check out how the page changes when we add some JavaScript.

EVEN IF YOU KNOW HTML AND CSS, YOU HAVEN'T LEARNED TO PROGRAM YET.

SURPRISE!

WHAT IS A PROGRAM?

A program is a set of instructions that a person writes to tell a computer how to carry-out a task.

Programming is the task of writing those instructions in a language that the computer can understand.

BECOMING A PROGRAMMER

… is about learning how to “think” like a computer. It is not about learning a particular language.

So, we have to know how the computer “thinks” to change how we think.

THINK LIKE A COMPUTER

EXERCISE - THINK LIKE A COMPUTER

Close your Laptops.

Seriously.

WHAT DID WE LEARN?

You have to be speaking the same language.

You have to know what's pre-defined in the language.

Steps execute sequentially.

Steps must be small, granular.

The computer will do ONLY and EXACTLY what you tell it to do.

PSEUDOCODE

Pseudocode is the process of thinking through a program without actually writing the syntax of a programming language.

PSEUDOCODE-ALONG - THERMOSTAT

Write pseudo code for how a home thermostat works.

SYNTAX

Syntax: Spelling and grammar rules of a programming language.

Like with any language, there are formal rules around how to write it. This is the syntax.

(SOME) JAVASCRIPT SYNTAX

JavaScript statements end in semicolons: “;”

JavaScript is case-sensitive. Variables, function names, etc. must be consistent. joeBliss(); is not the same as joebliss();

Javascript uses various keywords (i.e. function, if, else, for, while) or symbols (i.e. ( ), { }, [ ]) to demarcate control flow.

WORKING LOCALLY WITH JAVASCRIPT

A text file with the “.js” extension. Like CSS, we include it one of two ways:

External (most common)

```
<script type=”text/javascript” src=”js/project.js”></script>
```

Internal

```
<script type=”text/javascript”>
    //Do stuff here
</script>
```

Group multiple scripts into a folder, such as “js” or “scripts”.

CODEALONG - OUR FIRST JAVASCRIPT

We will write our first Javascript together.

alert(“Message”);
- Creates a pop-up in the browser that will display: Message

document.write(“Message”)
- Writes Message out to the page

TYPES OF DATA – NUMBERS

Integers

1, 2, 3, 4, 5

Floats (numbers with decimal points)

3.14159, 2.718281828459045

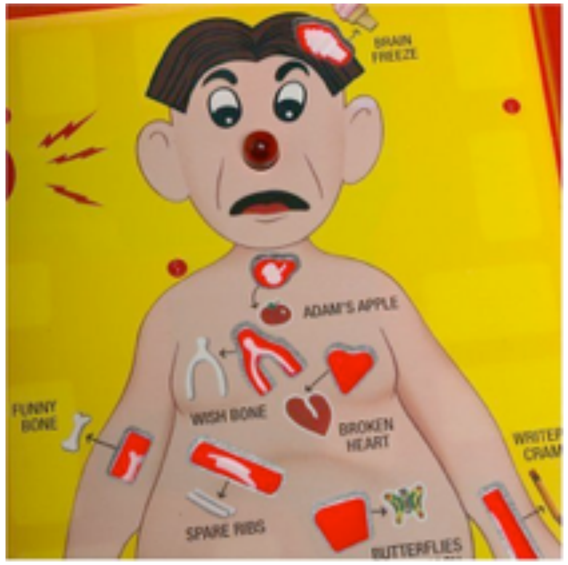
Can be Signed or Unsigned (- or +)

6, -8.2

We can perform arithmetic on number data types

NUMERICAL OPERATIONS

Operator	Description	Example
+	Addition	1+1
-	Subtraction	3-2
*	Multiplication	5 * 3
/	Division	10 /2



TYPES OF DATA - STRINGS

Strings

- A sequence of characters enclosed in quotes, i.e. “I am a String”, “Hello!”, “Joe Bliss”
- Stores textual information
- Can be “double” or ‘single’ quoted

MORE ON STRINGS

Double vs single quoted strings:

- 'They "purchased" it'
- "It's a beautiful day"

Escaping

- "They \"purchased\" it"
- 'It\'s a beautiful day'

EXERCISE - OUR FIRST JAVASCRIPT

Add to our script the following alerts / Document Write messages:

- The product of 5 and 23 (using *)
- The difference of 4 and 2 (using -)
- The quotient of 42 and 6 (using /)
- The sum of 7 and 8 (using +)
- Your first and last name (“Zaphod Beeblebrox”)
- A warning message of your choosing (“These are not the droids you are looking for!”)

RETAINING INFORMATION

What does the following do?

```
alert(2+3);
```

What about this?

```
2+3;
```

VARIABLES

We can tell our program to remember values for us to use later on. The entity we use to store the value is called a variable.

We use the keyword “var” to reserve a variable in JS.

VAR OUT, MAN

Declaration - Creating a variable, reserves a space in memory and gives it a name.

- var age;

Assignment - gives that variable a value.

- age = 2;

Intialization (Declaration and Assignment):

- var age = 2;

WHAT'S IN A NAME?

Variable Naming Conventions:

- Start with a lowercase letter. If they contain multiple words, subsequent words will start with an uppercase letter.
- var number = 5;
- var numberOfClasses = 10;

RESERVED WORDS - I.E. DON'T USE!

abstract
boolean
break
byte
case
catch
char
class
const
continue
debugger
default
delete
do
double
else
enum
export
extends
false
final
finally
float
for
function
goto
if
implements
import
in
instanceof
int
interface
long
native
new
null
package
private
protected
public
return
short
static
super
switch
synchronized
this
throw
throws
transient
true
try
typeof
var
void
volatile
while
with

IN A GALAXY VAR, VAR AWAY …

Re-assignment:

- var name = “Joe”;
- name = “Chandler”;

alert(name);

- Will display “Chandler”

OBJECTS

Where the “Object” in Document Object Model comes from. Objects, like Arrays, can contain many values.

```
 var car = {make:"Honda", model:"FIT", color:"green"};
```

```
alert(car.make); will alert: Honda
alert(car.color); will alert: green
```

Great for storing complex data and modeling real-life objects.

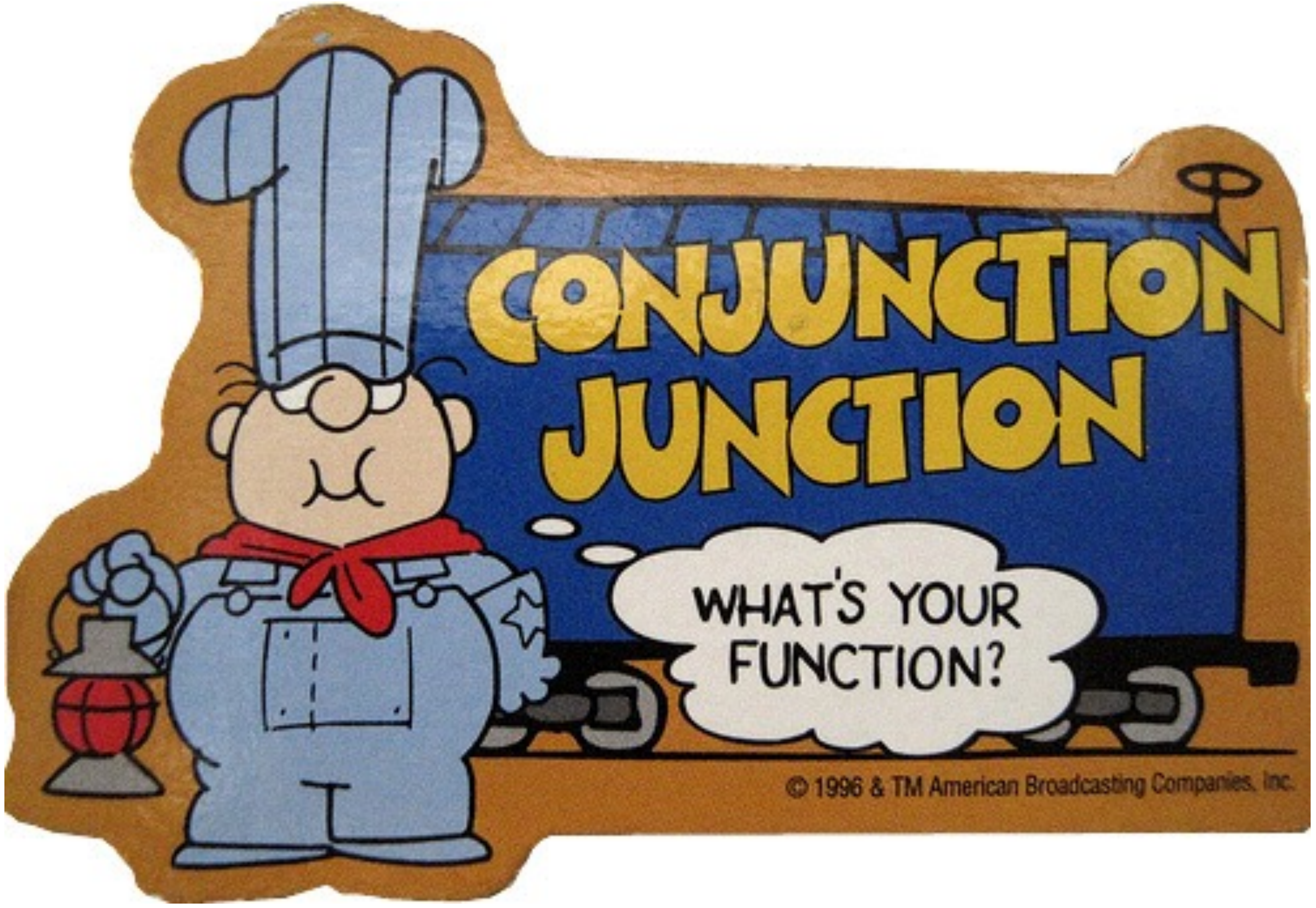
GETELEMENTBYID - YOUR BEST FRIEND

document.getElementById("someID");

- queries the HTML document and returns a reference to the object in the HTML with id="someID".

This object has several properties associated with it that we will explore - innerHTML, value, style, onclick.

FUNCTIONS


CONJUNCTION JUNCTION
WHAT'S YOUR FUNCTION?
© 1996 & TM American Broadcasting Companies, Inc.

FUNCTIONS

Functions are simply a collection of lines of code that you group together so that you can:

- Execute them at a given time
- Reuse them
- Respond to user input

We will spend much more time on functions next week.

EXERCISE – TRAFFIC LIGHT

Take the following Codepen and see if you can understand what it is doing to manipulate it to match the example I will show you.

http://codepen.io/ga-joe/pen/LkOZzo

CODEALONG - RGB COLOR CHOICE

EXERCISE - LIFETIME SUPPLY

Store your current age into a variable.

Store a maximum age into a variable.

Store a favorite drink (from a drop-down) into a variable.

Store an amount per day into a variable.

Calculate how many you would eat total for the rest of your life.

Output the result to the screen.

HOMEWORK – TEMPERATURE CONVERTER

This assignment is open-ended. The HTML/CSS is up to you. The starter code is intentionally super minimal.

Build an application using HTML/CSS and JS that converts a temperature from Fahrenheit to Celsius AND from Celsius to Fahrenheit, based on user input.

HOMEWORK

Finish the Temperature Converter
Final Project Proposal

FINAL PROJECT PROPOSAL

Make sure Hart or I have chatted with you about your project before you go today. An "executive summary" and initial sketch is due by next week:

Can be a sketch by hand that you scan, photograph, or screenshot.

Can be done using a wireframing tool:

- https://gomockingbird.com/mockingbird/
- http://balsamiq.com/
- More: http://mashable.com/2010/07/15/wireframing-tools/