JavaScript Intro

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November 5, 2016

About JavaScript

JavaScript is the language of the web

JavaScript is both the most popular and least popular programming language.
– Doug Crockford

Overview of JavaScript

- Shares many features with other programming languages
- “JavaScript” is not “Java”
- Note: you should already know how to program

Syntax Crash Course

Variables & Objects

```
var foo = 3.14;
var bar = "thon"
var baz = true;
```

- Similar to Python: no explicit type declarations
- `var` keyword declares a variable

Types!

- `number`
  - one number type (not both `int` and `float`)
- `string`
  - no explicit `char` type
- `boolean`
  - `true` or `false`
- `object`
  - TL;DR: basically Python dict
- `function`
  - Functions are values!
- `undefined`, `null`
  - `undefined` is for “never assigned a value”
  - `null` is for “intentionally useless” values

Truthiness

- Every value in JavaScript can be coerced to a boolean.
  - If it goes to `true`: "truthy"
  - If it goes to `false`: "falsy"

	falsy	truthy
number	`+0`, `-0`, `NaN`	all other numbers
string	`""`	all other strings
boolean	`false`	`true`
object	`null`	all other objects
function	n/a	all functions
undefined	`undefined`	n/a

Objects

- Key-value store
- Mutable
- Basically like Python dictionaries

```
// example: creating an object, and
//          storing it in a variable
var myFirstObject = {
    foo: 3.14,
    bar: "thon"
};
```

Accessing Properties

There are two ways to access a property of an object:

- `.foo`
- `["foo"]`

The latter is useful for computed properties

```
myFirstObject.foo    === 3.14    // true
myFirstObject["foo"] === 3.14    // true
myFirstObject.foo    === 0       // false

// These have the value "thon"
myFirstObject.bar    === "thon"  // true
myFirstObject["bar"] === "thon"  // true
myFirstObject["bar"] === "hacka" // false
```

Functions

```
// First method: `function` keyword and name
function myFirstFunction() {
    ...
}

// Second method: assign "anonymous" method to a variable
var myFirstFunction = function() {
    ...
}

// Bonus method: named function in stack traces
var myFirstFunction = function myFirstFunction() {
    ...
}
```

Function Arguments

```
function mySecondFunction(arg1, arg2, anotherArg) {
    ...
    // use arg1, arg2, and arg3 variables
    ...
}
```

Learn More

JavaScript Intro writeup

Workshop

These are your primary tools as a web developer

- Your favorite text editor
- Chrome Developer Tools
  - Mac: `Cmd + Option + J`
  - Windows: `Ctrl + Shift + J`
- Previewing HTML files
  - Terminal? → `python -m SimpleHTTPServer` [1]
  - Otherwise → "Open with… > Chrome"

[1] You might have to use `python3 -m http.server`

This is how you'll complete the lab

1. Read step's **description**
2. Check the **"diff"** (i.e., what lines changed) for each step
3. Implement the **code** using the diff
    - If you copy/paste, don't include the `+` signs
4. Repeat!