Introduction to Javascript

A brief history

Some of the Features of JS

- Variables
- Conditionals
- Functions
- Arrays
- Objects

Variables

The containers for data. Think of them as symbolic names for values. They are also the foundation for all other data structures in Javascript.

```
var number = 7;
```

Hey, Python programmers: Remember to declare those variables. You'll want to use the var keyword. (What happens if you don't?)

Oh, and don't forget the semicolon!

```
var number = 7;
```

Let's talk variable scope:

- Global
- Local
- (Primarily functional scope)

(This is different from Python.)

Functions

A procedure: a set of statements that performs a task or calculates a value. In short, a chunk of code that does things.

```
var calculateGratuity = function(bill){
    var that = this;
    return bill * 0.2;
};
```

In the previous: We stored a function in a variable. It didn't have a name, so it is anonymous.

This is acceptable because functions in Javascript are first-class objects (and we can manipulate them (cascades, currying, memoization)).

Arrays

A sequence of values in a single variable.

(Think list in Python.)

```
var scores = [0.68,0.77,.0.90];

var fruit =[“apple”, “orange”, “kiwi”];
```

Objects

A more complex type of variable. It contains properties and values, much like objects in the real world.

```
var fruit = {
    kind: “apple”,
    color: “red”,
    quantity: 12,
    tasty: true,
};
```

Remember to Keep Code Readable

Inlining and comments do matter!

JSON

A way to organize data as objects that is easy for you to read and for machines to parse and generate.

You will encounter this at some point using D3…and it will be useful.

Node.js: Run JS on the Server

Scalable network applications, yep.
Concurrency, yep.
Speed, yep.
Efficiency, yep. (Thanks Google! #V8)

	Fortran gcc 5.1.1	Julia 0.4.0	Python 3.4.3	R 3.2.2	Matlab R2015b	Octave 4.0.0	Mathematica 10.2.0	JavaScript V8 3.28.71.19
fib	0.70	2.11	77.76	533.52	26.89	9324.35	118.53	3.36
parse_int	5.05	1.45	17.02	45.73	802.52	9581.44	15.02	6.06
quicksort	1.31	1.15	32.89	264.54	4.92	1866.01	43.23	2.70
mandel	0.81	0.79	15.32	53.16	7.58	451.81	5.13	0.66
pi_sum	1.00	1.00	21.99	9.56	1.00	299.31	1.69	1.01
rand_mat_stat	1.45	1.66	17.93	14.56	14.52	30.93	5.95	2.30
rand_mat_mul	3.48	1.02	1.14	1.57	1.12	1.12	1.30	15.07

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