

JavaScript: The Good Parts vs. JavaScript: The Definitive Guide



CS 252:

Advanced Programming Language Principles



Introduction to JavaScript

Prof. Tom Austin

San José State University

History of JavaScript

In 1995, Netscape hired
Brendan Eich to implement
Scheme within the web browser.



Brendan Eich

After a few meetings,
Scheme was deemed too weird...

In 10 days, he wrote the initial version of JavaScript
(then called Mocha) for Netscape 2.0 Beta.

JavaScript

- *Superficially* similar to Java
- Primarily client-side programming
- Server-side variants:
 - JVM: Rhino & Nashorn
 - Node.js
- <http://w3schools.com/js/default.asp>

JavaScript is *multi-paradigm*:

- *Imperative*
- *Functional* – "Scheme in C's clothing"
- *Object-oriented* – Prototype-based

Imperative JavaScript

```
function addList(list) {  
    var i, sum=0;  
    for (i=0; i<list.length; i++) {  
        sum += list[i];  
    }  
    return sum;  
}
```

Functional JavaScript

```
var addList = function(list) {  
    if (list.length === 0) {  
        return 0;  
    }  
    return list[0]  
        + addList(list.slice(1));  
}
```

Object-Oriented JavaScript

```
function Adder (amount) {  
    this.amount = amount;  
}  
  
Adder.prototype.add = function(x) {  
    return this.amount + x;  
}  
  
var myAdder = new Adder(1);  
var y = myAdder.add(7);
```


Extended JavaScript Examples

(in-class)

Introduction to Node.js



Node.js

- A JavaScript runtime and library designed for use outside the browser
- Based off of Google's V8 engine
- npm: package manager for Node.js
- <http://nodejs.org/>



myFile.txt

This is my file.

There are many like it,
but this one is mine.

File I/O in Node.js

```
var fs = require('fs');  
fs.readFile('myFile.txt',  
  function(err, data) {  
    if (err) throw err;  
    console.log(""+data);  
  });  
console.log('all done');
```

Callback
function

Resulting Output

all done

This is my file.

There are many like it,
but this one is mine.

Synchronous File IO in Node

```
var data = fs.readFileSync(  
    './myFile.txt');  
console.log(data.toString());  
console.log('all done');
```

Lab: Intro to JavaScript

Today's lab explores both the functional and object-oriented aspects of JavaScript.

See Canvas for details.