Taming JavaScript with Cloud9 IDE:
a Tale of Tree Hugging

Zef Hemel (@zef)

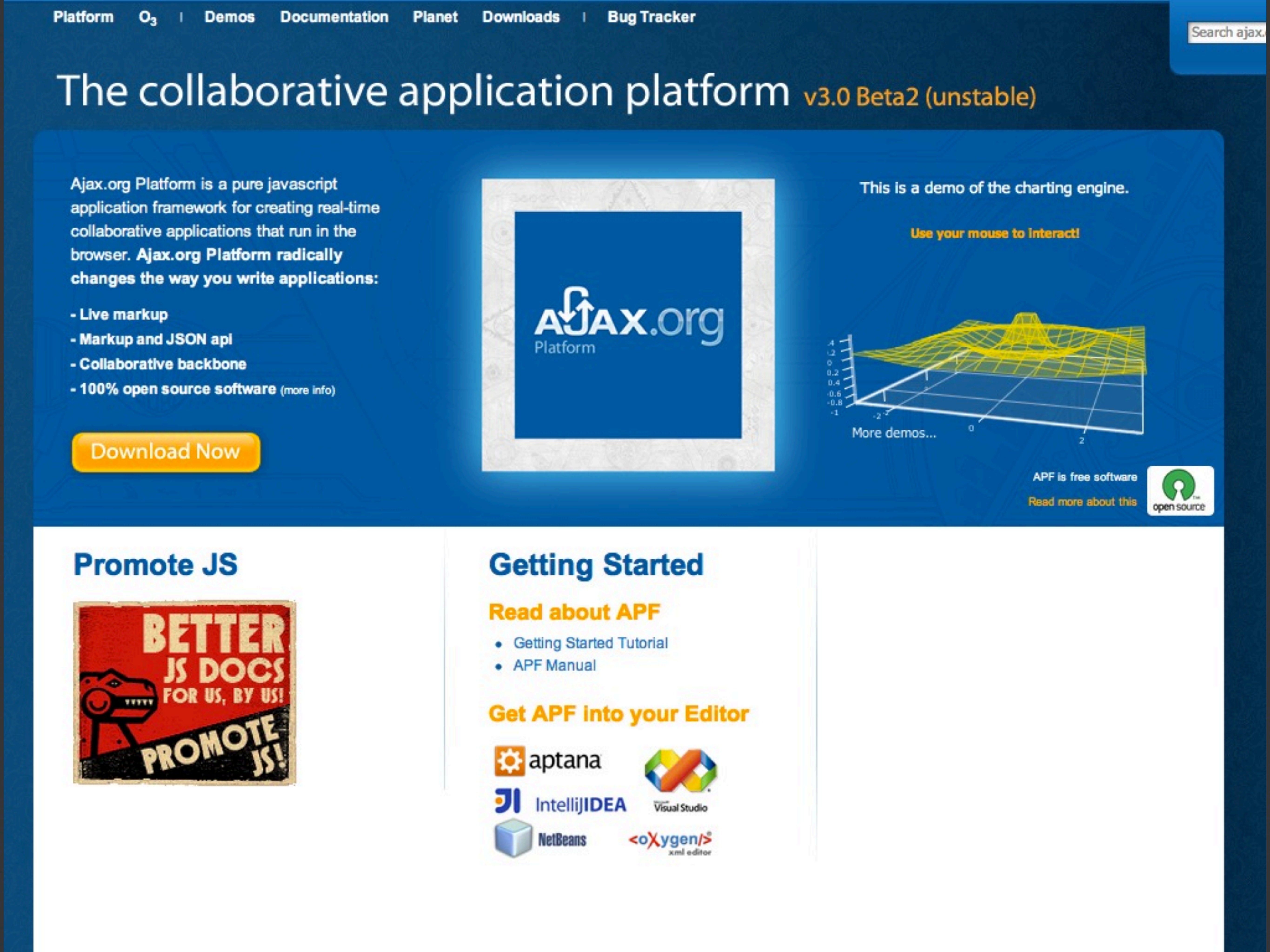
.js

browser.js

db.js

server.js

*.js



The collaborative application platform v3.0 Beta2 (unstable)

Ajax.org Platform is a pure javascript application framework for creating real-time collaborative applications that run in the browser. **Ajax.org Platform radically changes the way you write applications:**

- **Live markup**
- **Markup and JSON api**
- **Collaborative backbone**
- **100% open source software** (more info)

This is a demo of the charting engine.

Use your mouse to interact!

APF is free software

Read more about this

Promote JS

Getting Started

Read about APF

- Getting Started Tutorial
- APF Manual

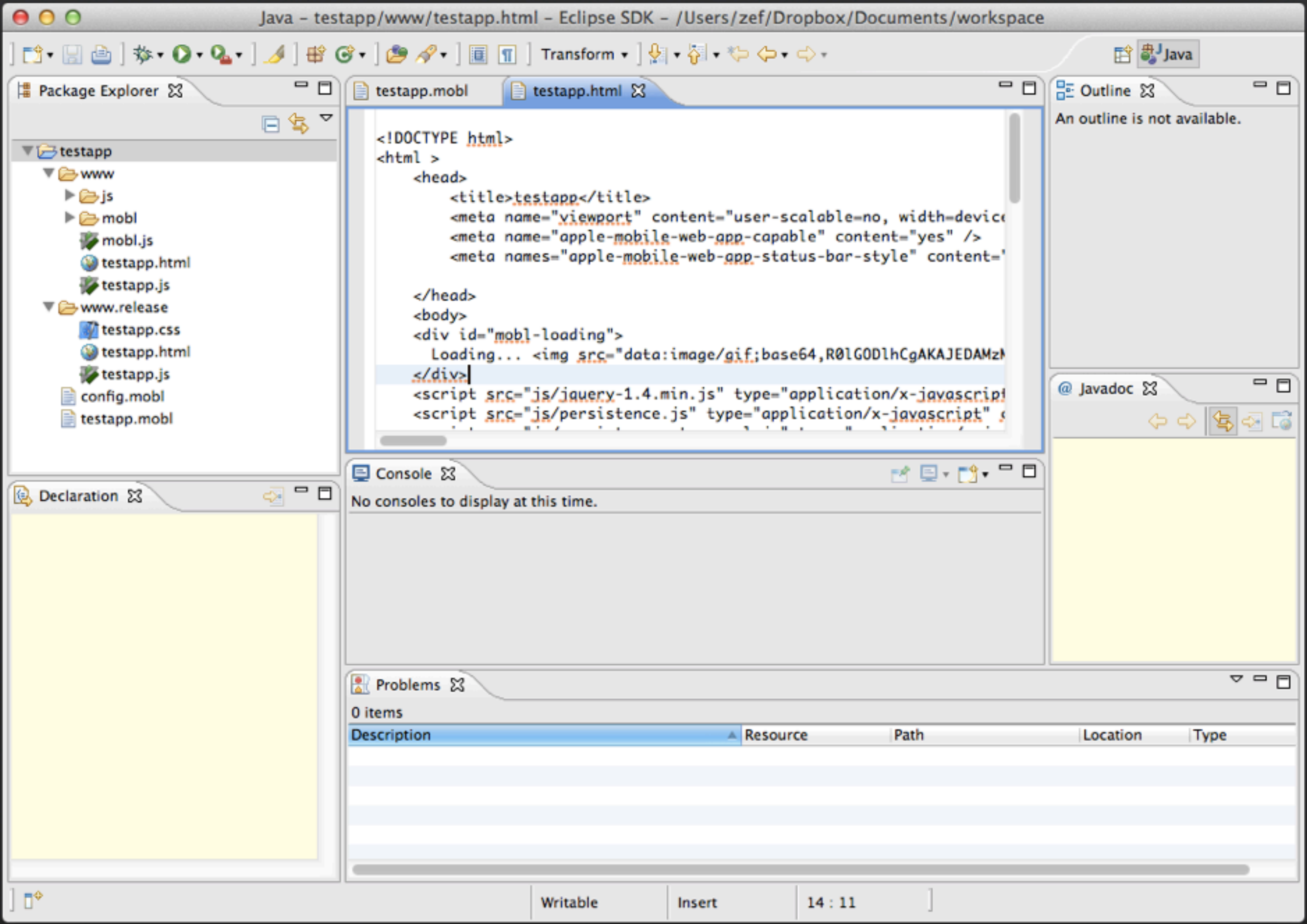
Get APF into your Editor

~140,000

Tooling matters

090
200

JavaScript Developer



```
<!DOCTYPE html>
<html >
    <head>
        <title>testapp</title>
        <meta name="viewport" content="user-scalable=no, width=devic
        <meta name="apple-mobile-web-app-capable" content="yes" />
        <meta names="apple-mobile-web-app-status-bar-style" content="

    </head>
    <body>
    <div id="mobl-loading">
      Loading... <img src="data:image/gif;base64,R0lGODlhCgAKAJEDAMzN
    </div>
    <script src="js/jquery-1.4.min.js" type="application/x-javascrip
    <script src="js/persistence.js" type="application/x-javascript" 
```

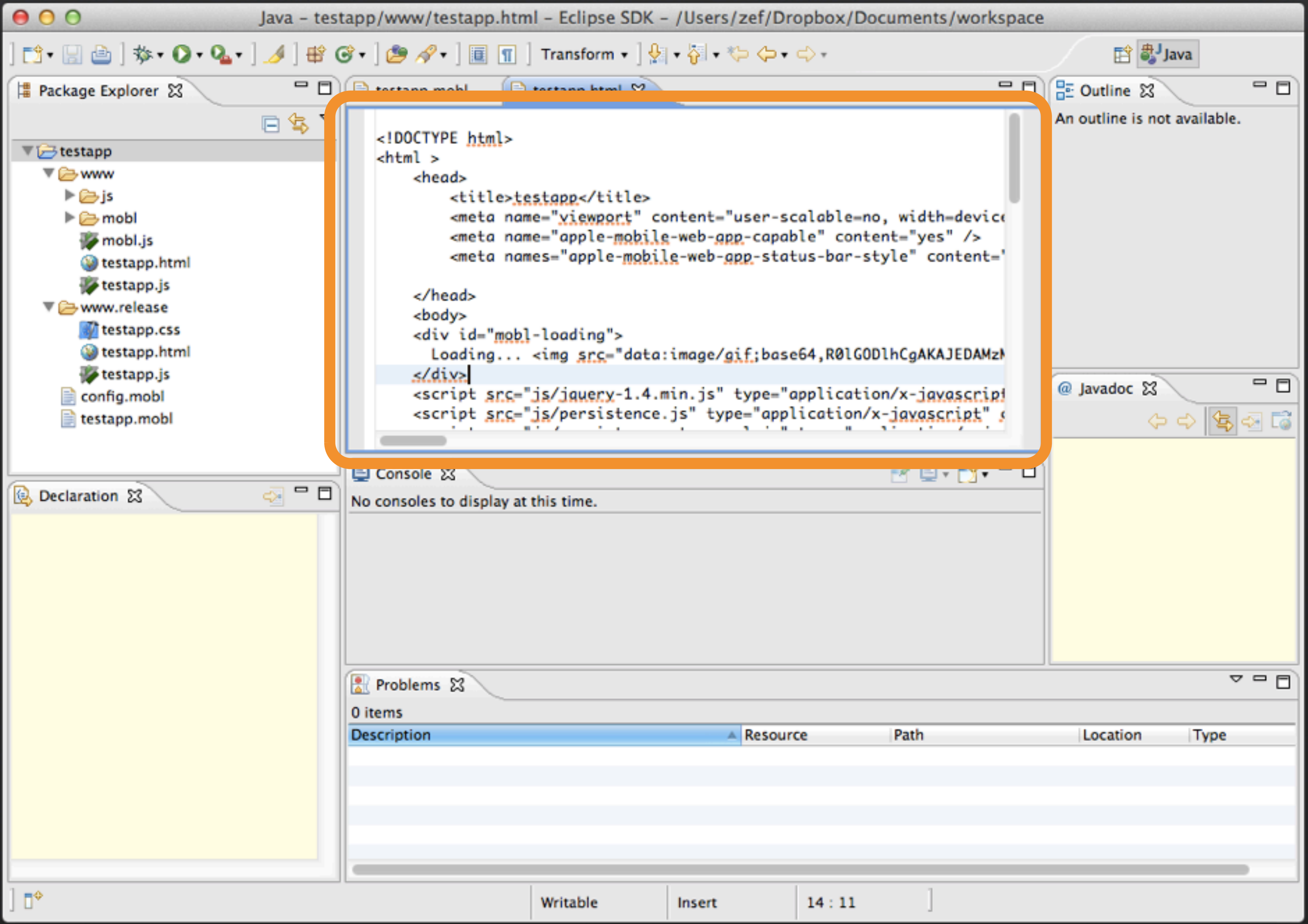
An outline is not available.

No consoles to display at this time.

0 items

Description	Resource	Path	Location	Type

Writable   Insert   14 : 11



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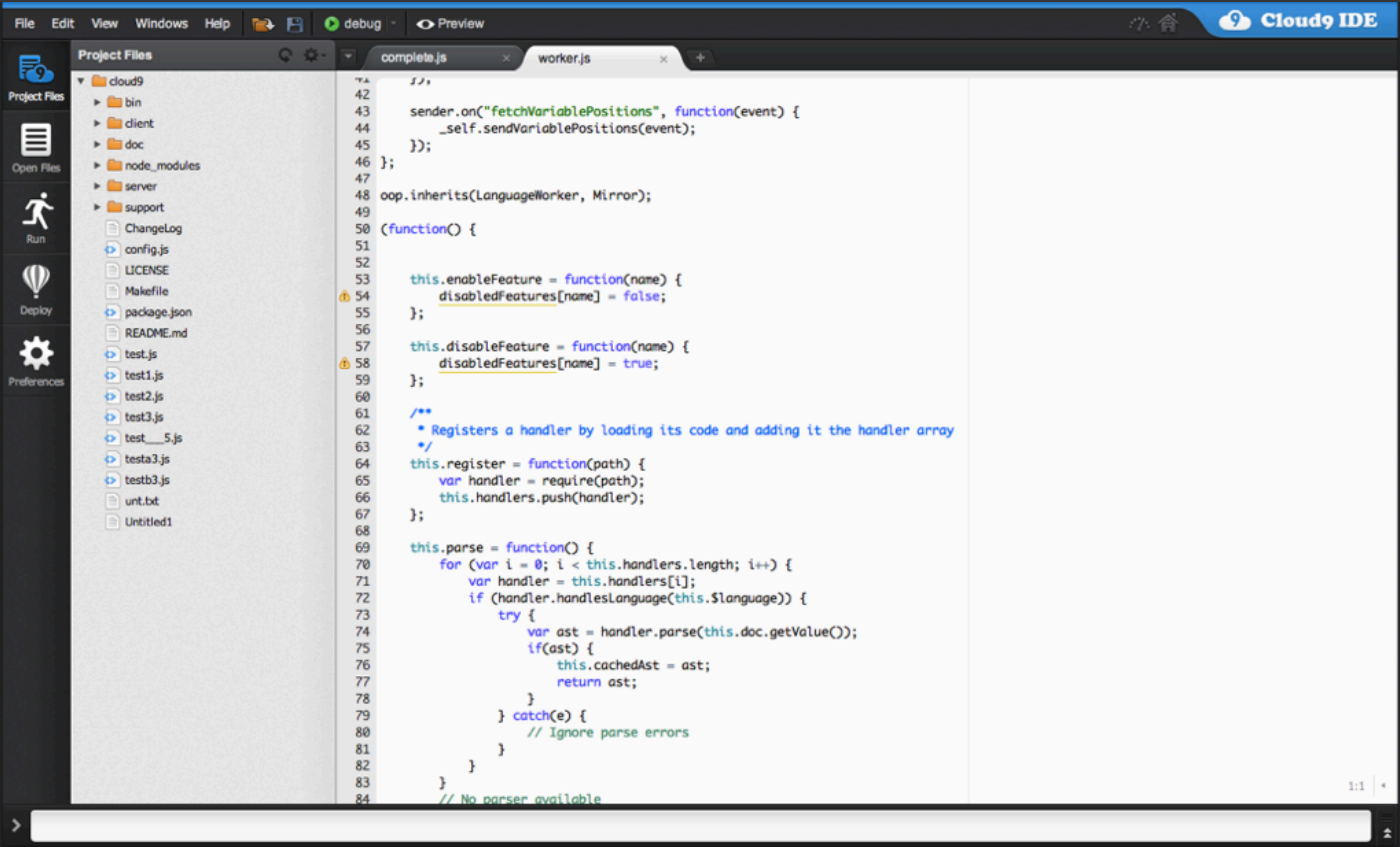
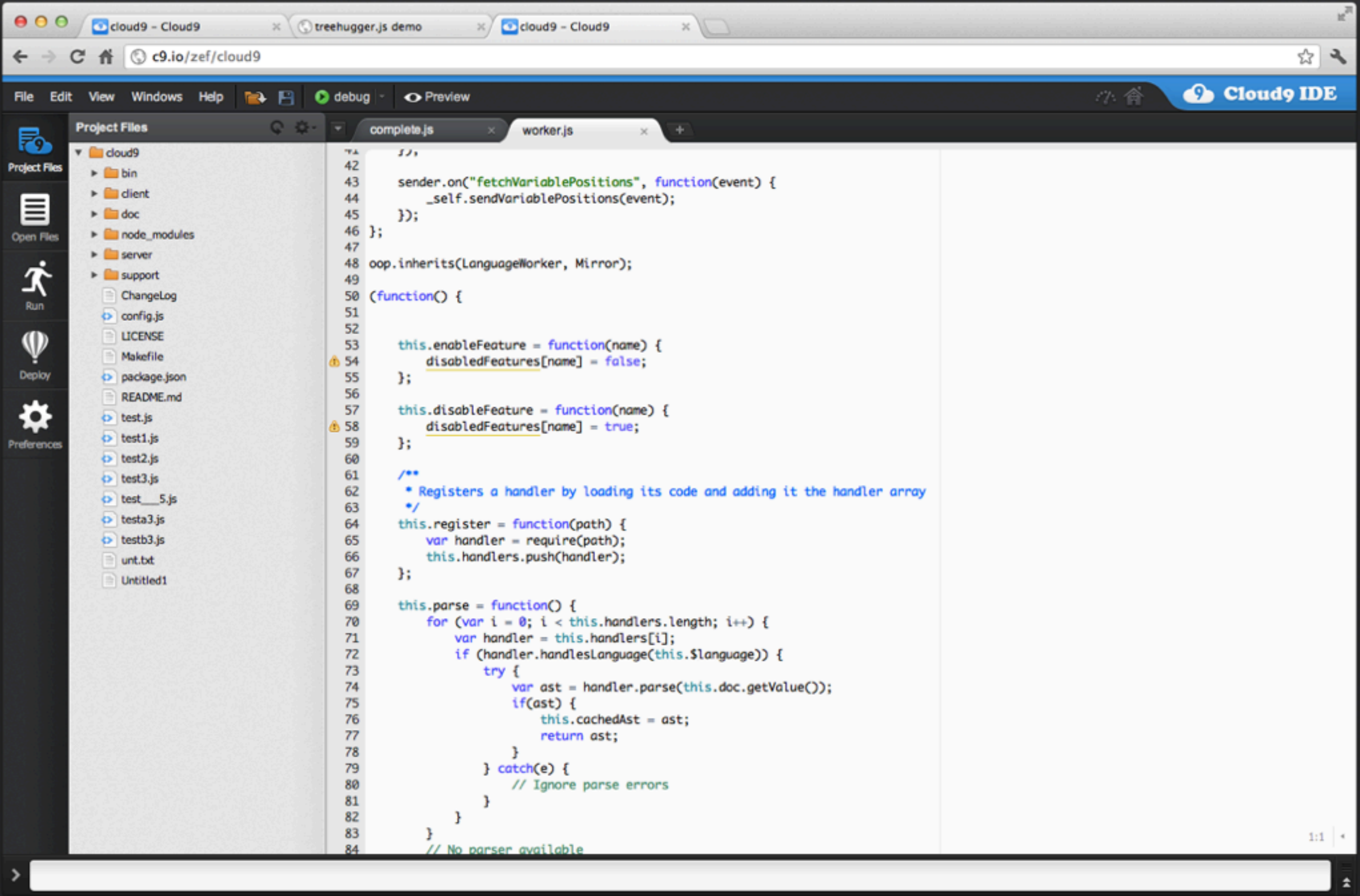
0 items

Cloud9 IDE

Your code anywhere, anytime



```
    });

    sender.on("fetchVariablePositions", function(event) {
        _self.sendVariablePositions(event);
    });
};

oop.inherits(LanguageWorker, Mirror);

(function() {


    this.enableFeature = function(name) {
        disabledFeatures[name] = false;
    };

    this.disableFeature = function(name) {
        disabledFeatures[name] = true;
    };

    /**
     * Registers a handler by loading its code and adding it the handler array
     */
    this.register = function(path) {
        var handler = require(path);
        this.handlers.push(handler);
    };

    this.parse = function() {
        for (var i = 0; i < this.handlers.length; i++) {
            var handler = this.handlers[i];
            if (handler.handlesLanguage(this.$language)) {
                try {
                    var ast = handler.parse(this.doc.getValue());
                    if(ast) {
                        this.cachedAst = ast;
                        return ast;
                    }
                } catch(e) {
                    // Ignore parse errors
                }
            }
        }
        // No parser available
```



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HTML

CSS

JavaScript

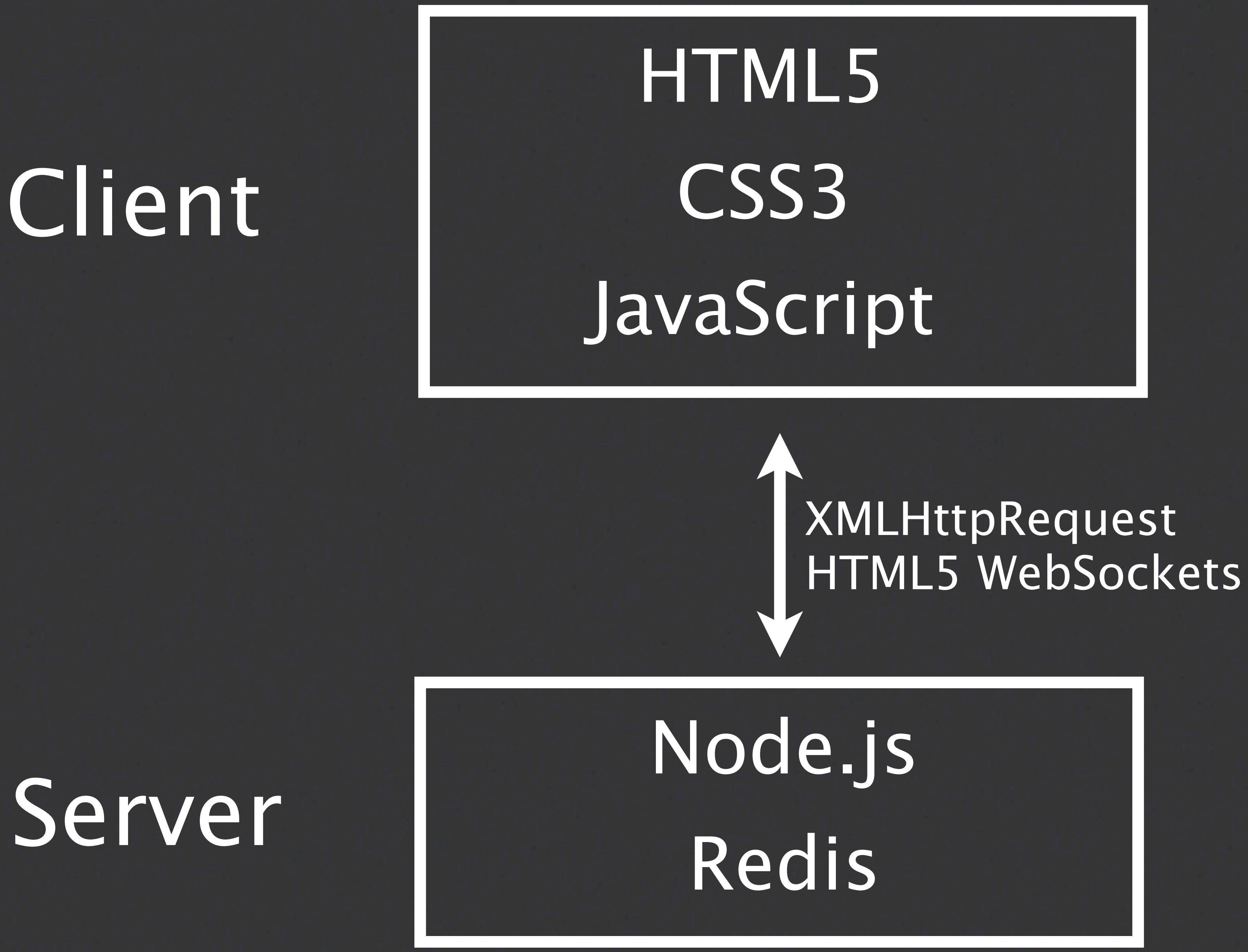
Client

HTML5

CSS3

JavaScript

Client	HTML5 CSS3 JavaScript
Server	Node.js Redis



Client

HTML5

CSS3

JavaScript

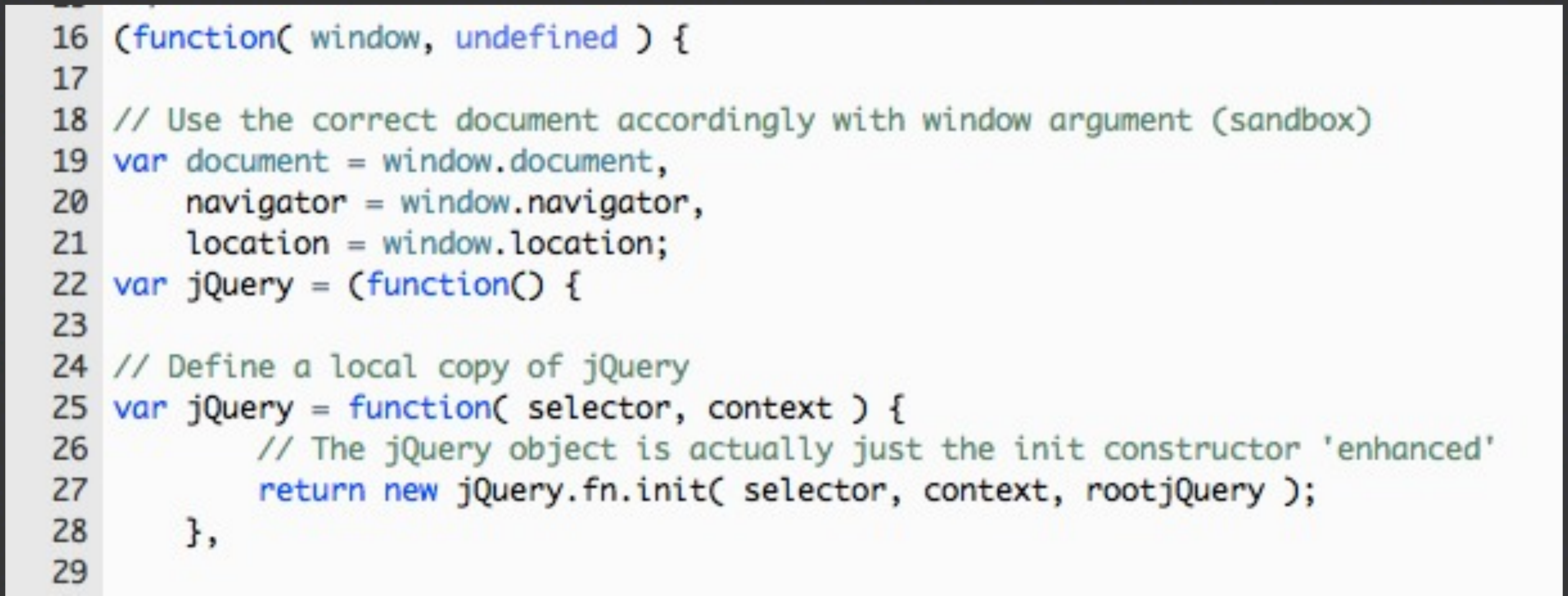
XMLHttpRequest
HTML5 WebSockets

Server

Node.js

Redis

Sidebar



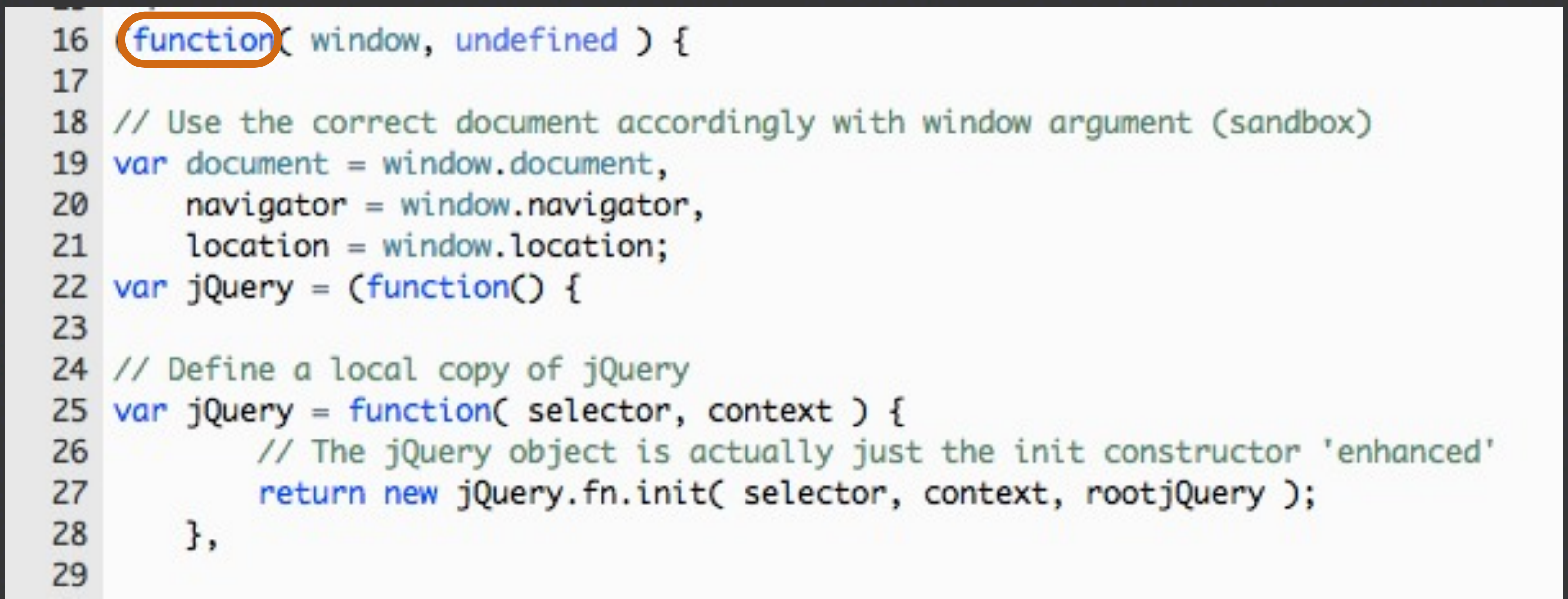
```
(function( window, undefined ) {

// Use the correct document accordingly with window argument (sandbox)
var document = window.document,
    navigator = window.navigator,
    location = window.location;
var jQuery = (function() {

// Define a local copy of jQuery
var jQuery = function( selector, context ) {
        // The jQuery object is actually just the init constructor 'enhanced'
        return new jQuery.fn.init( selector, context, rootjQuery );
    },

```

Sidebar



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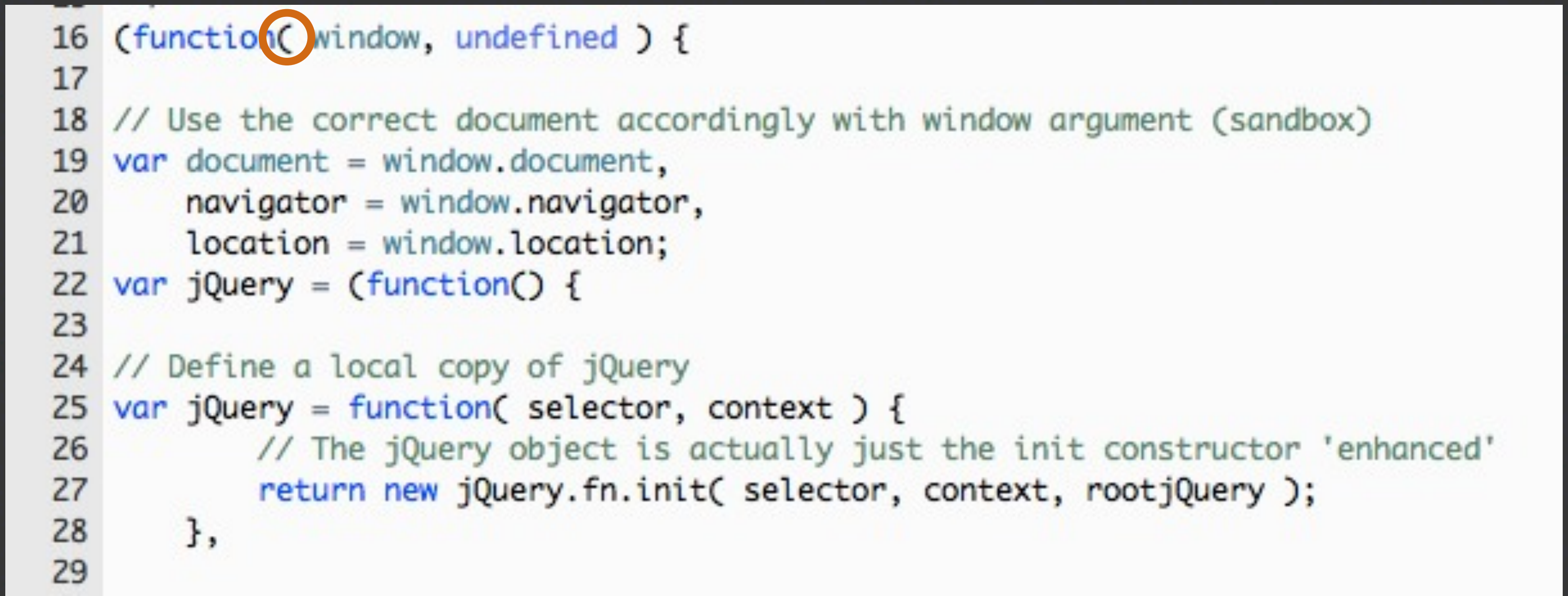

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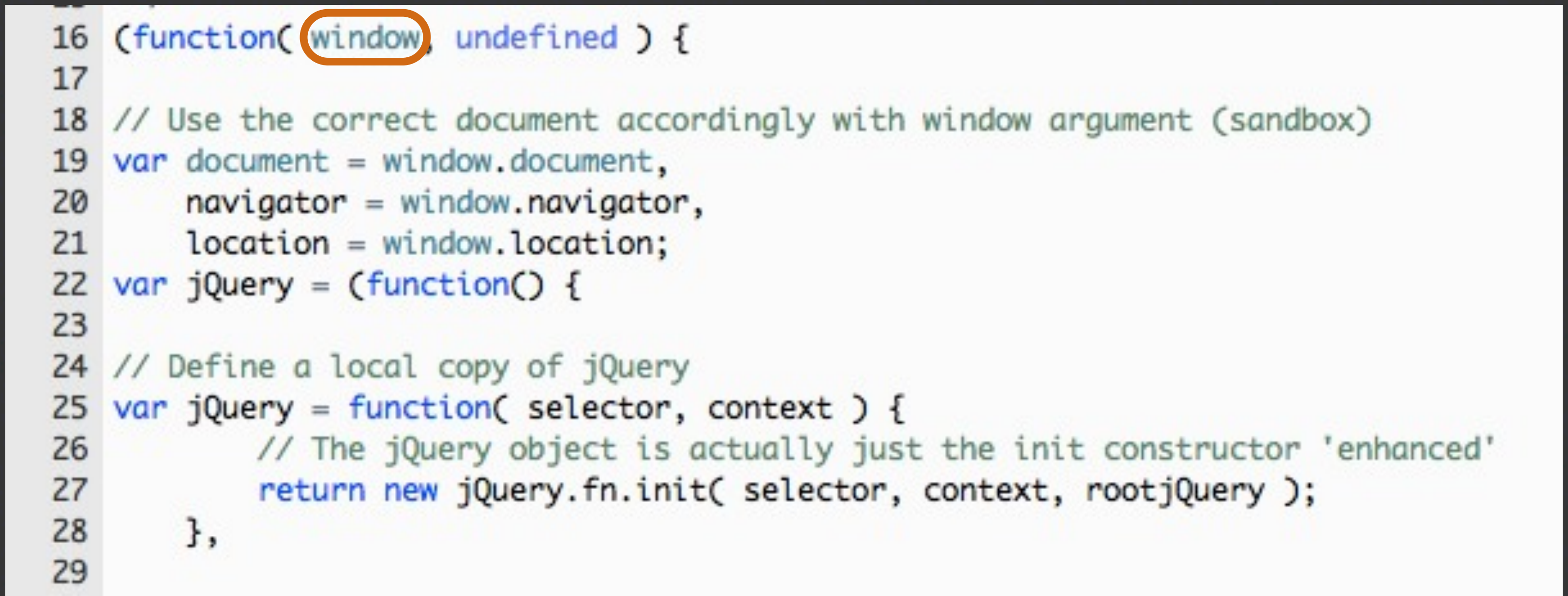

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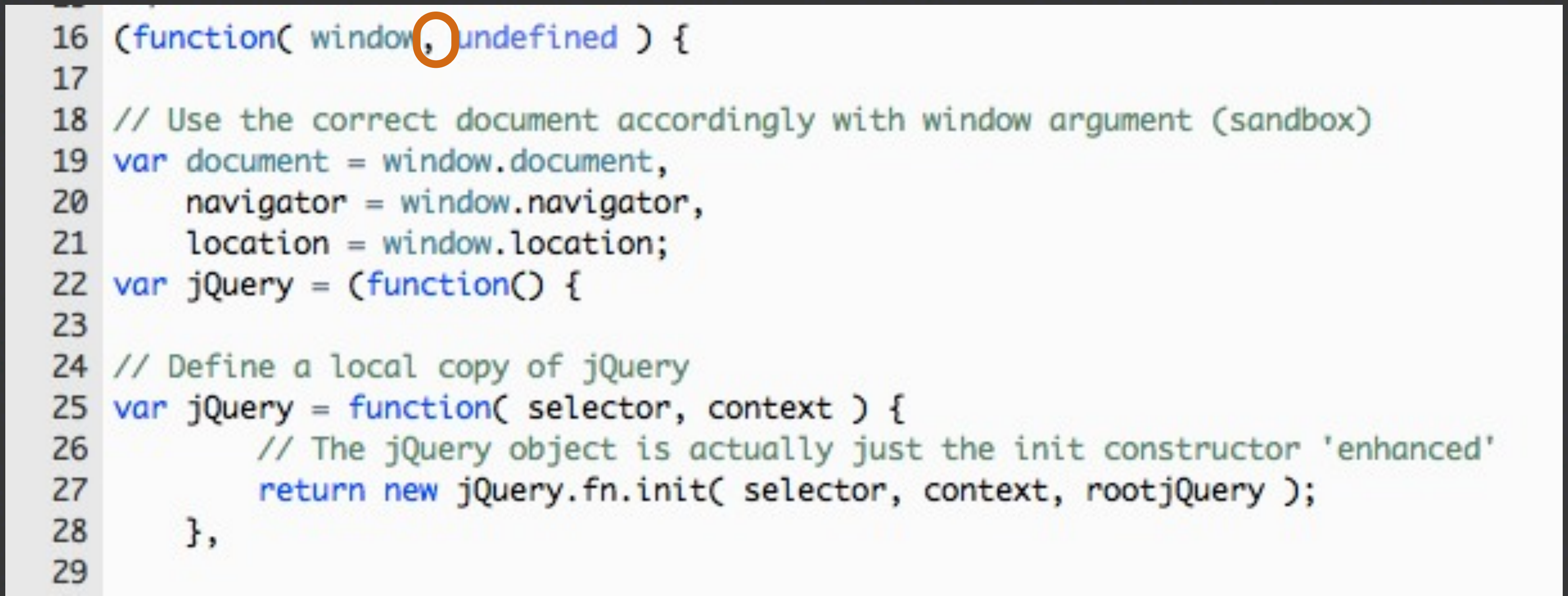

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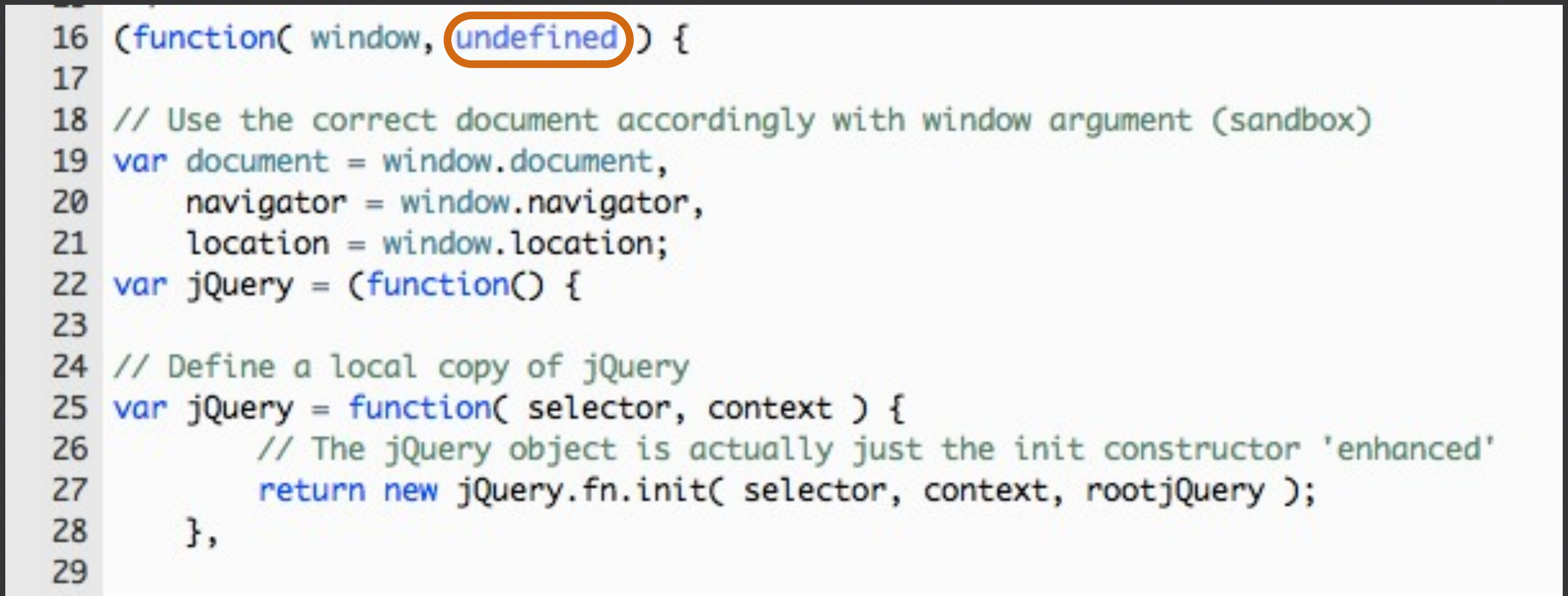

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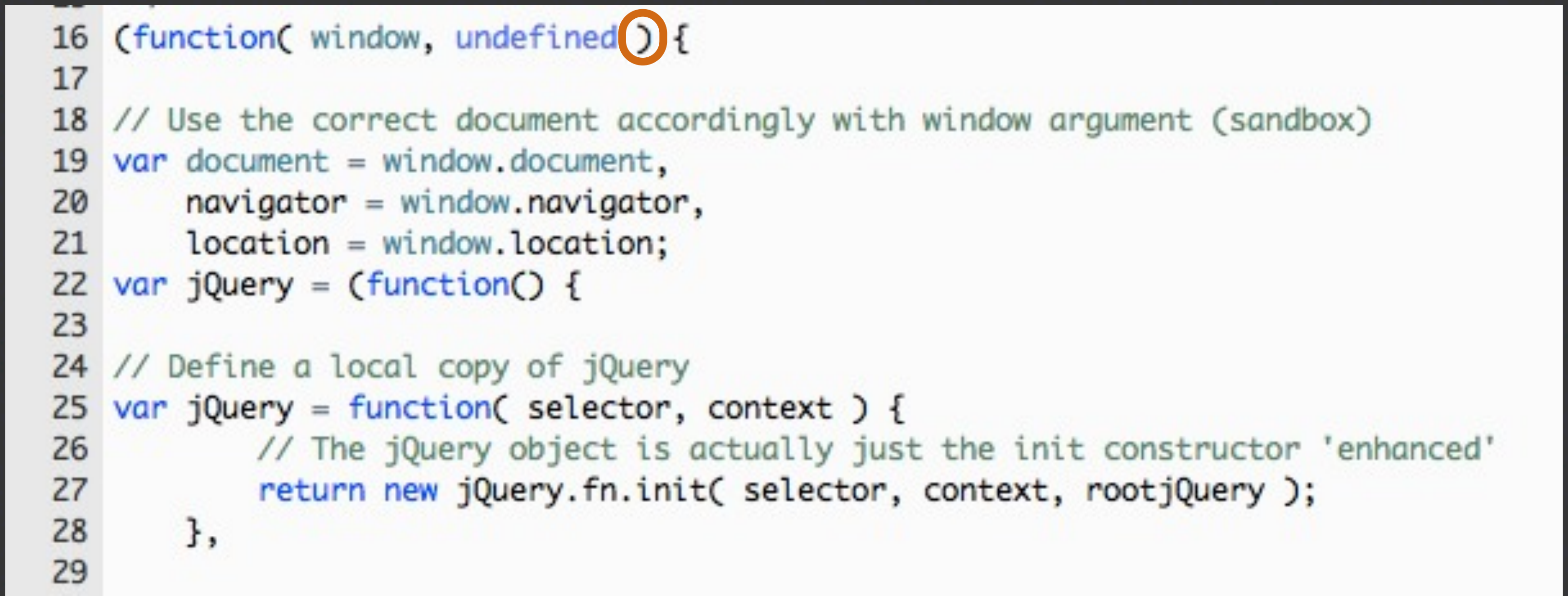

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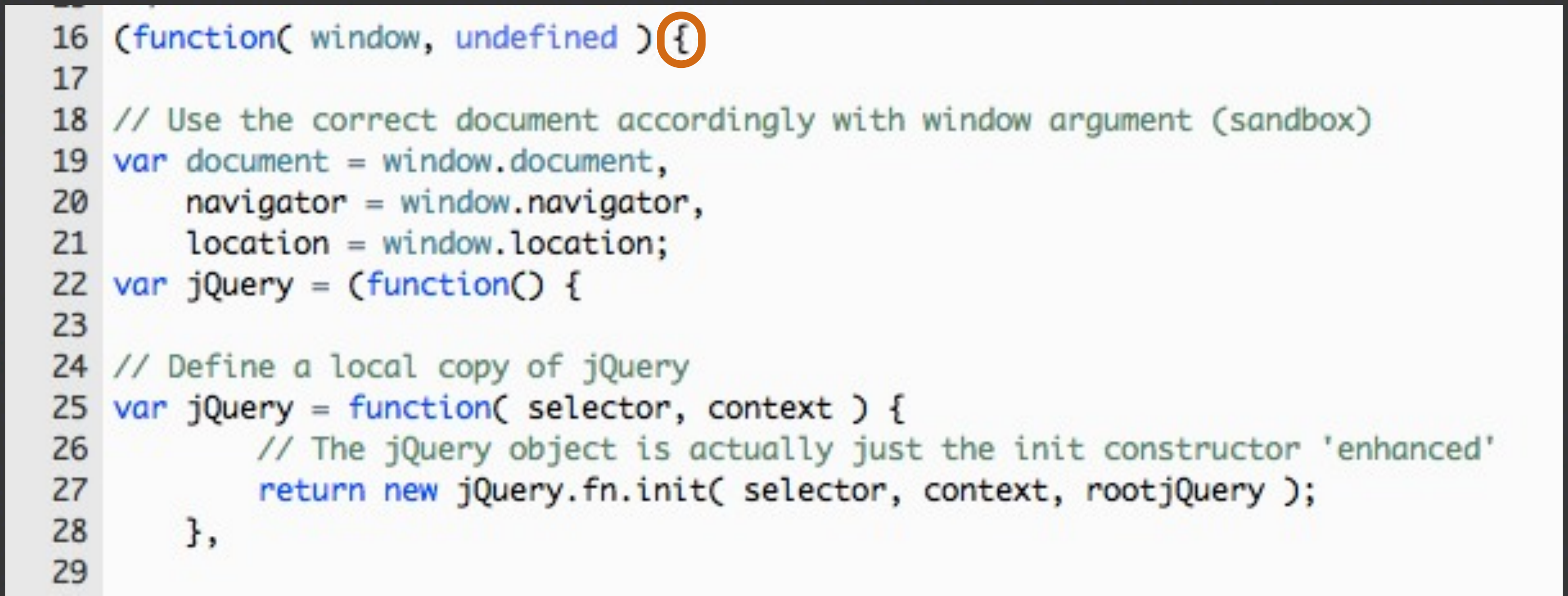

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```

~240,000

Component Systems

Decoupling

Message Queues

EE
EE

Unearthing the excellence in JavaScript

JavaScript: The Good Parts

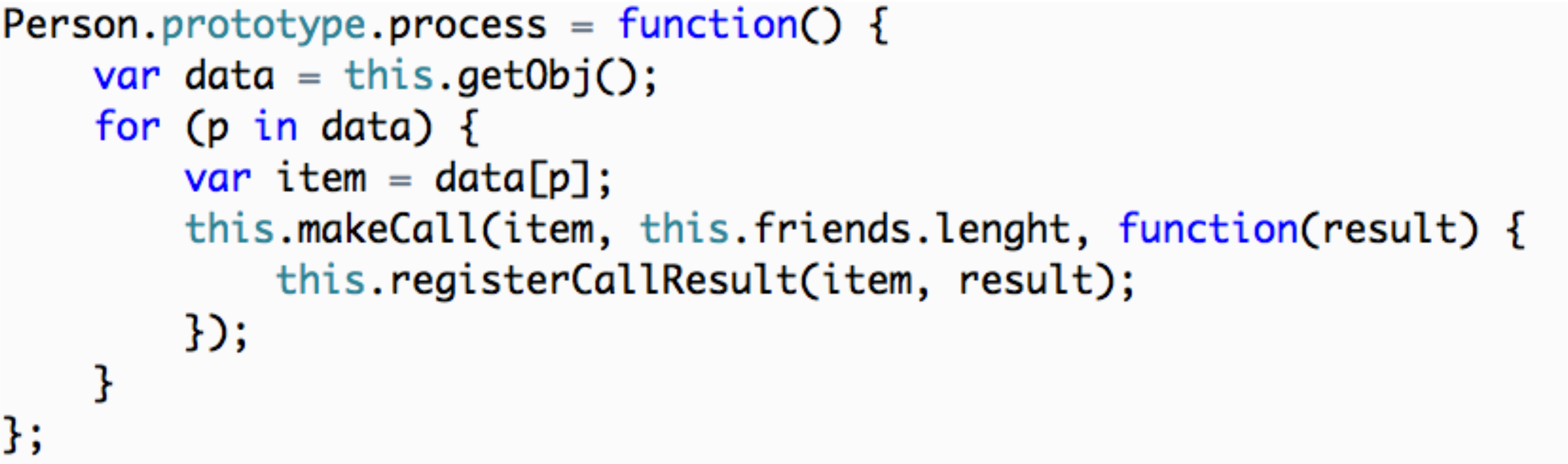
O'REILLY® | YAHOO! PRESS

Douglas Crockford

INQ in Action
ET MVC Framework
DELL
JavaScript: The Good Parts
JavaScript: The Good Parts
Crockford
O'REILLY
JavaScript
The Definitive Guide
JavaScript

Tooling matters

especially for JavaScript

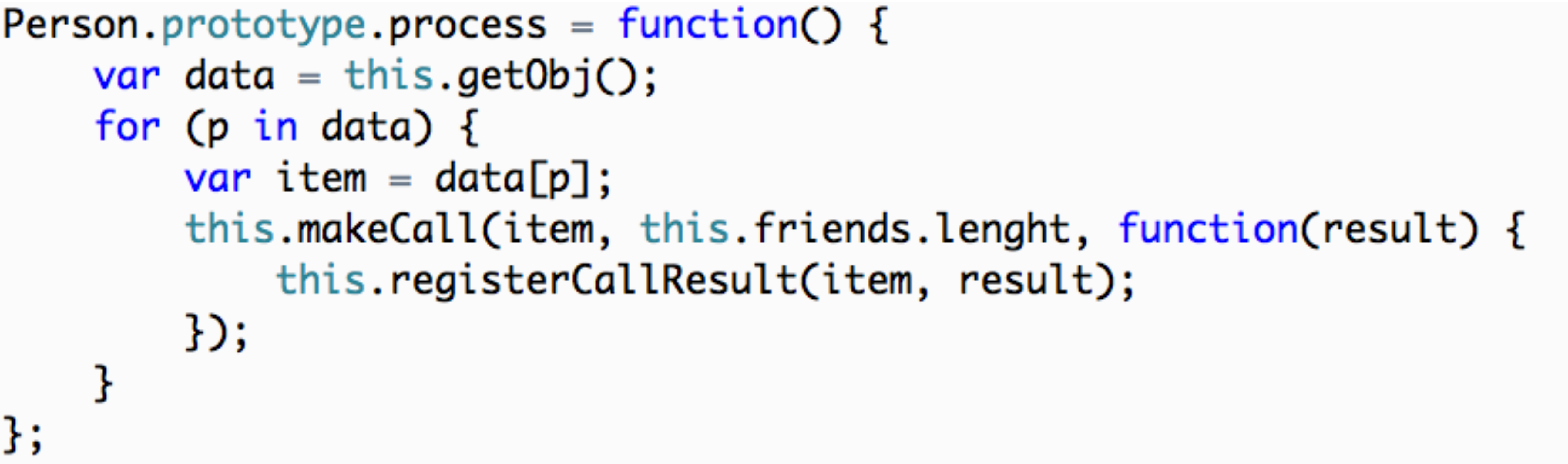


```
Person.prototype.process = function() {
    var data = this.getObj();
    for (p in data) {
        var item = data[p];
        this.makeCall(item, this.friends.lenght, function(result) {
            this.registerCallResult(item, result);
        });
    }
};
```

Unleash the awesome power of...

tatic

program analysis



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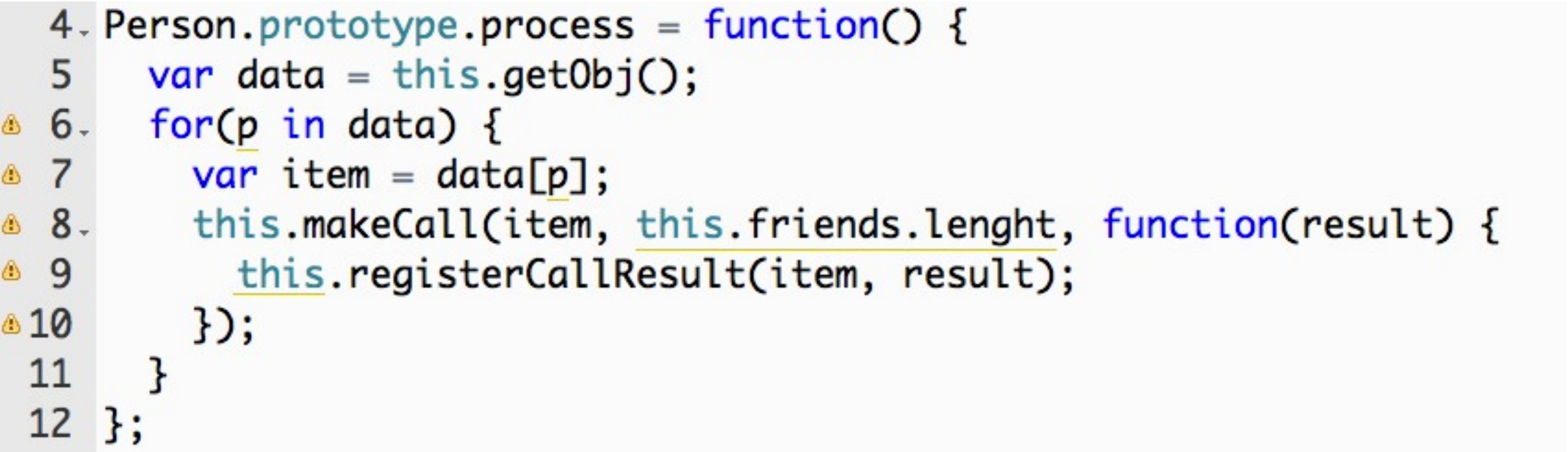

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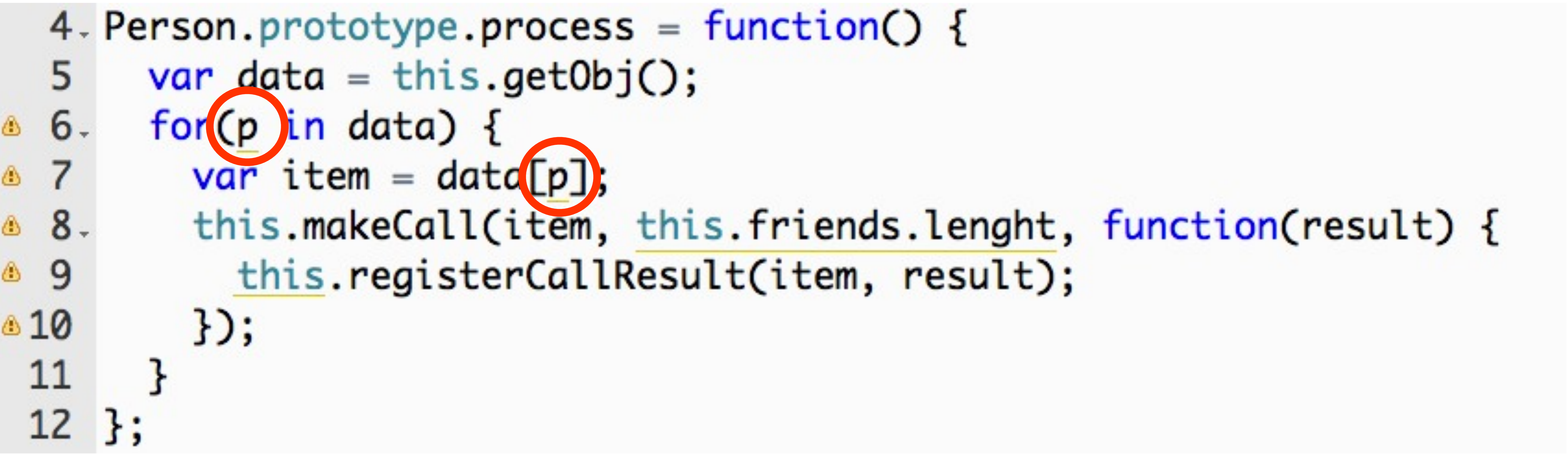

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```
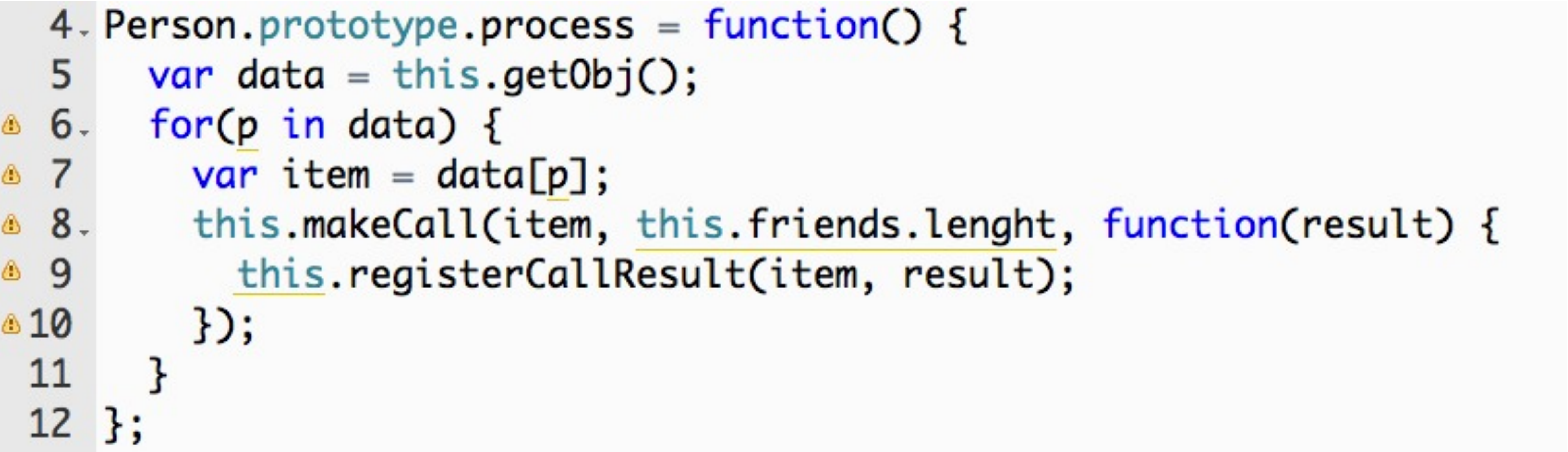

Iterating using undeclared variable



```javascript
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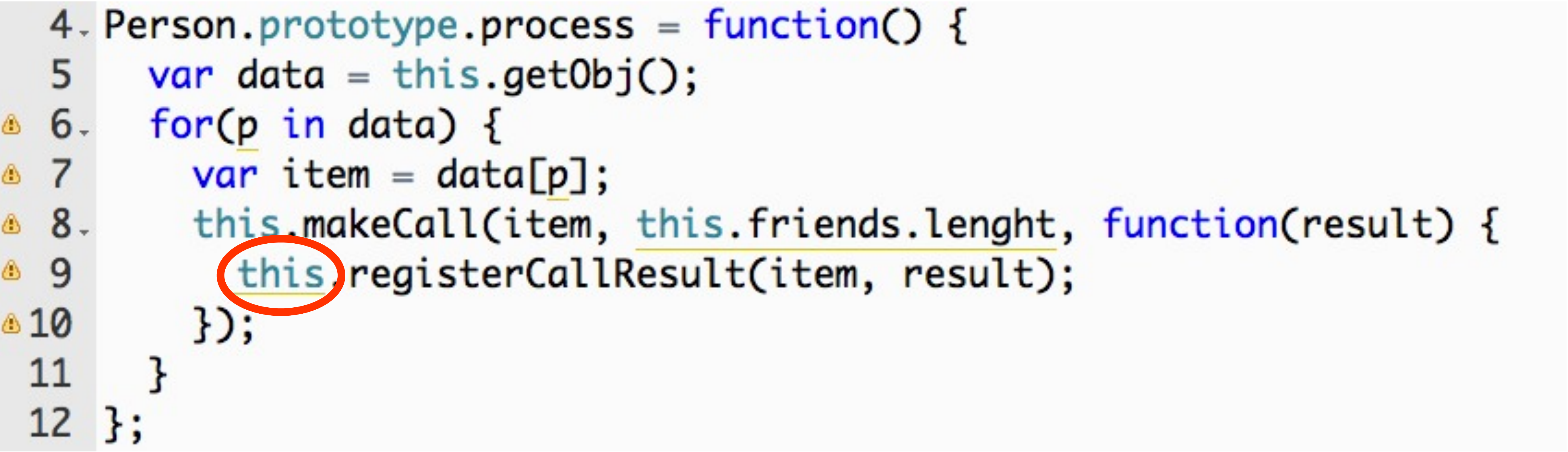

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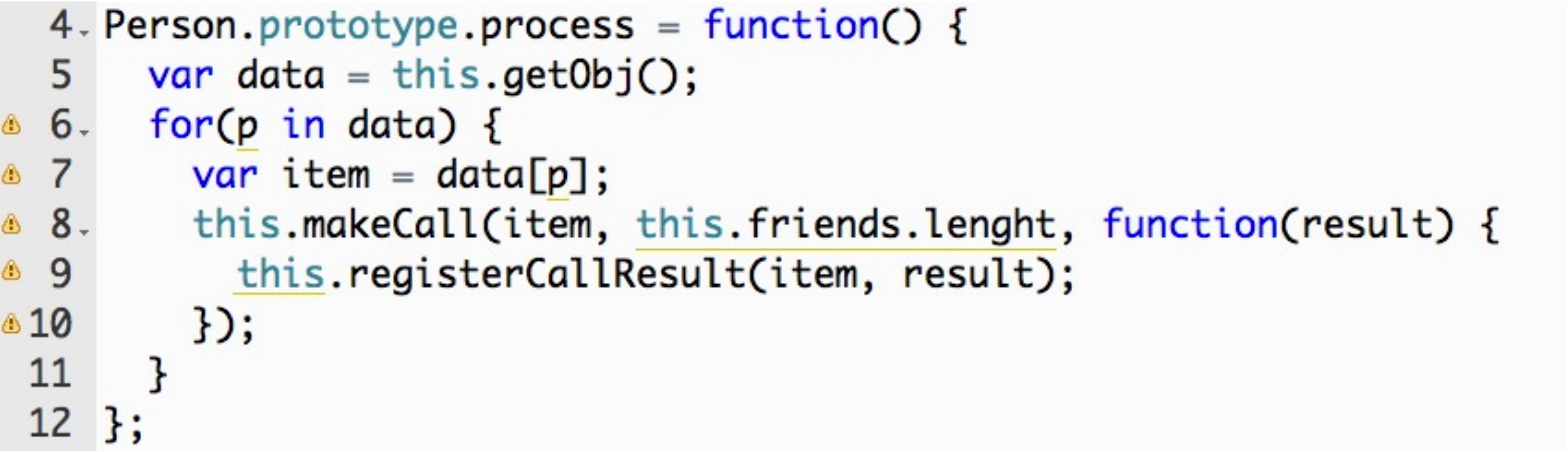
};
```

Warning: you are in an anonymous inner function with its own “this” pointer



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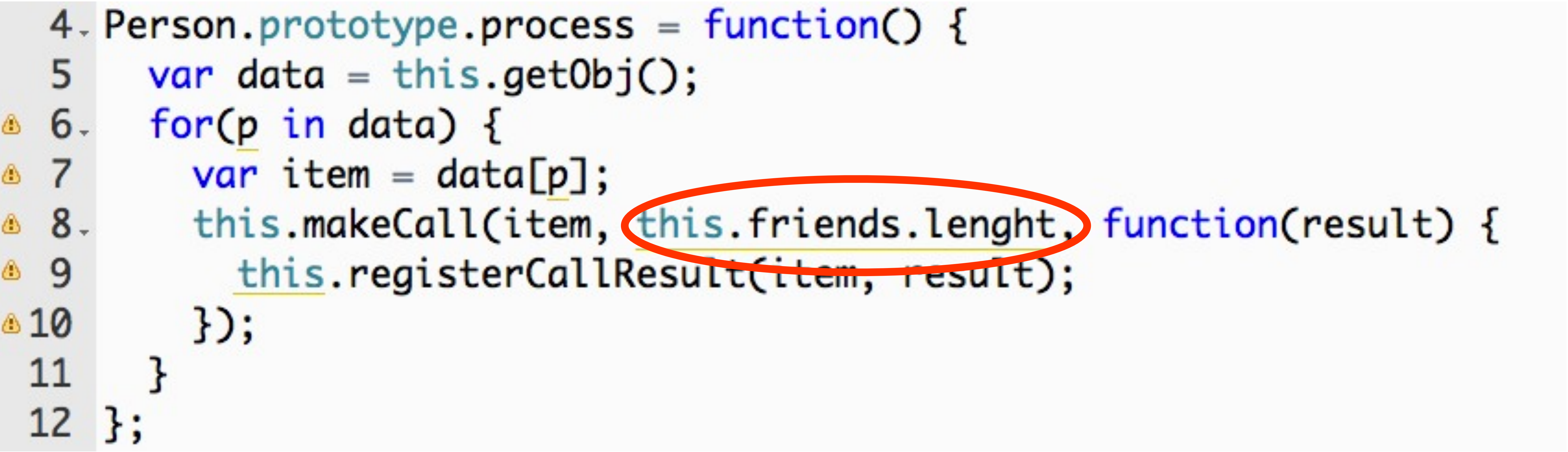

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};
```

Did you mean “length”?

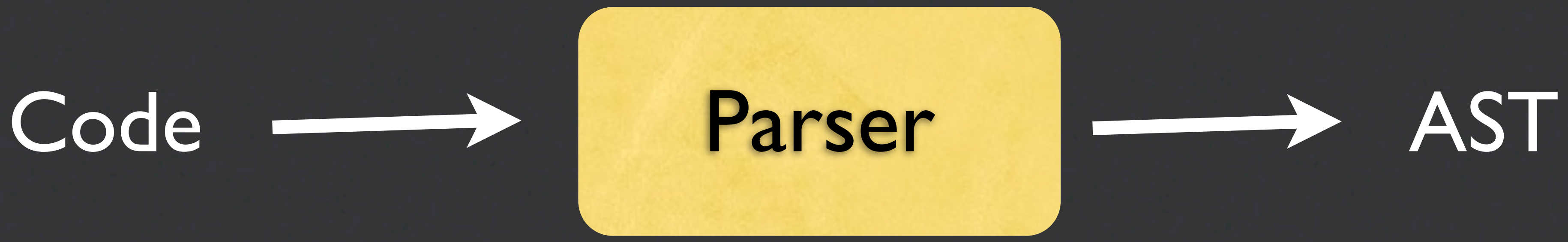
“The most important thing I have done as a programmer in recent years is to aggressively pursue static code analysis.”

John Carmack

How?

Parse

Analyze

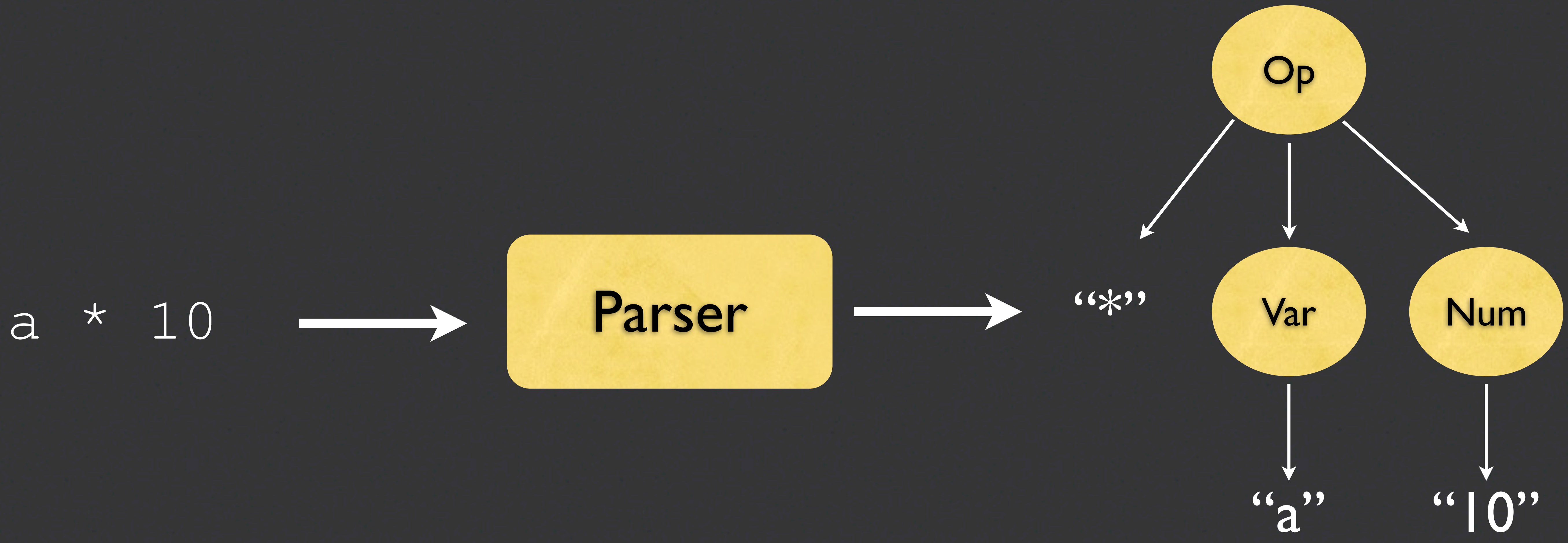


Code

Parser

AST

Abstract Syntax Tree



Zeon

Narcissus

UglifyJS

language.js

Esprima

performance (speed/memory)

AST datastructure

traversal tools

performance (speed/memory)

AST datastructure

traversal tools

JavaScript specific

treehugger.js

“The JQuery of AST analysis.”

treehugger.js

Generic AST
Data structure

treehugger.js

Generic AST
Data structure

treehugger.js

Generic
Traversals

Generic AST
Data structure

DSL with
Pattern
Matching

treehugger.js

Generic
Traversals

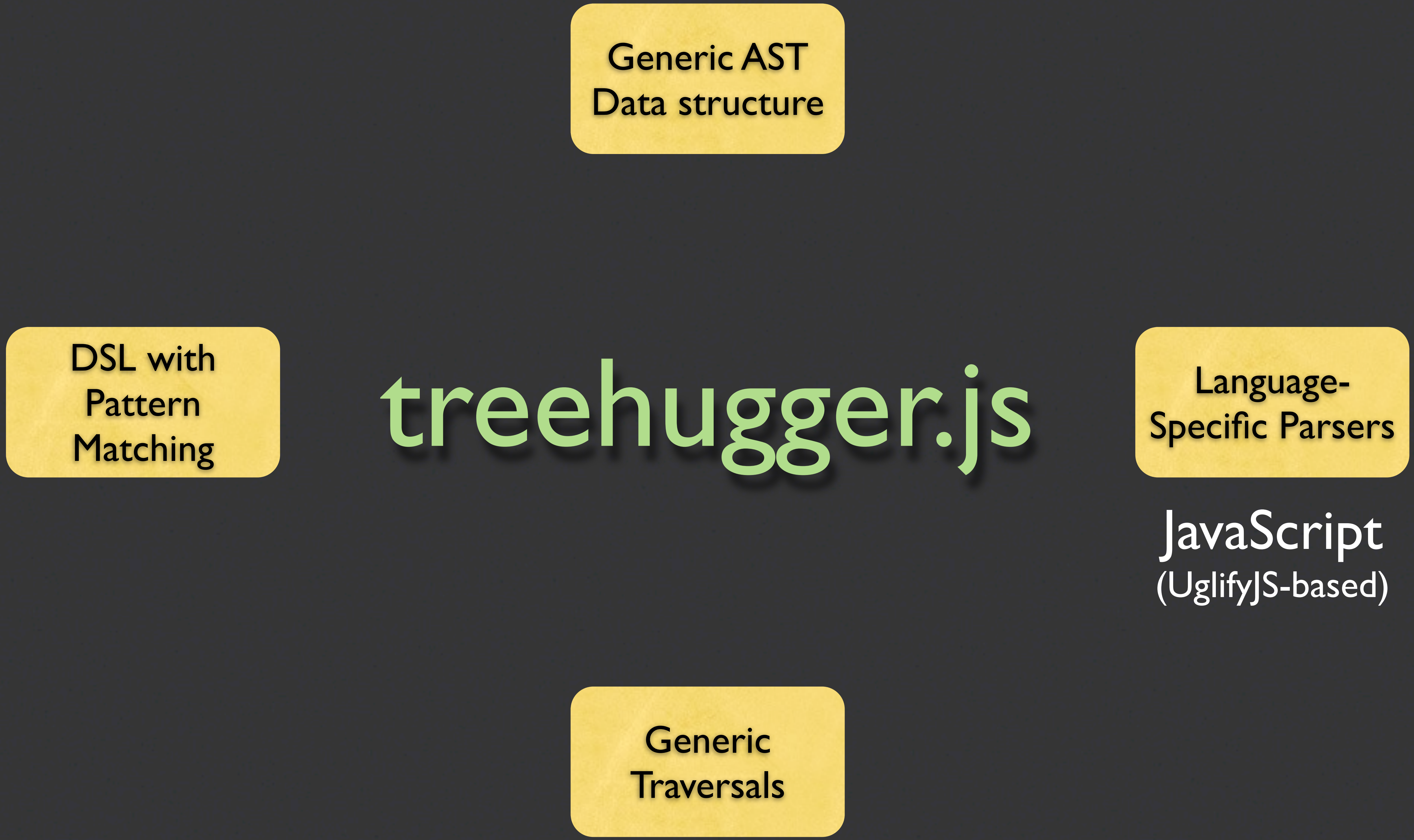
treehugger.js

Generic AST
Data structure

DSL with
Pattern
Matching

Language-
Specific Parsers

Generic
Traversals



treehugger.js

Generic AST Data structure

DSL with Pattern Matching

Language-Specific Parsers

JavaScript
(UglifyJS-based)

Generic Traversals

treehugger.js

Generic AST
Data structure

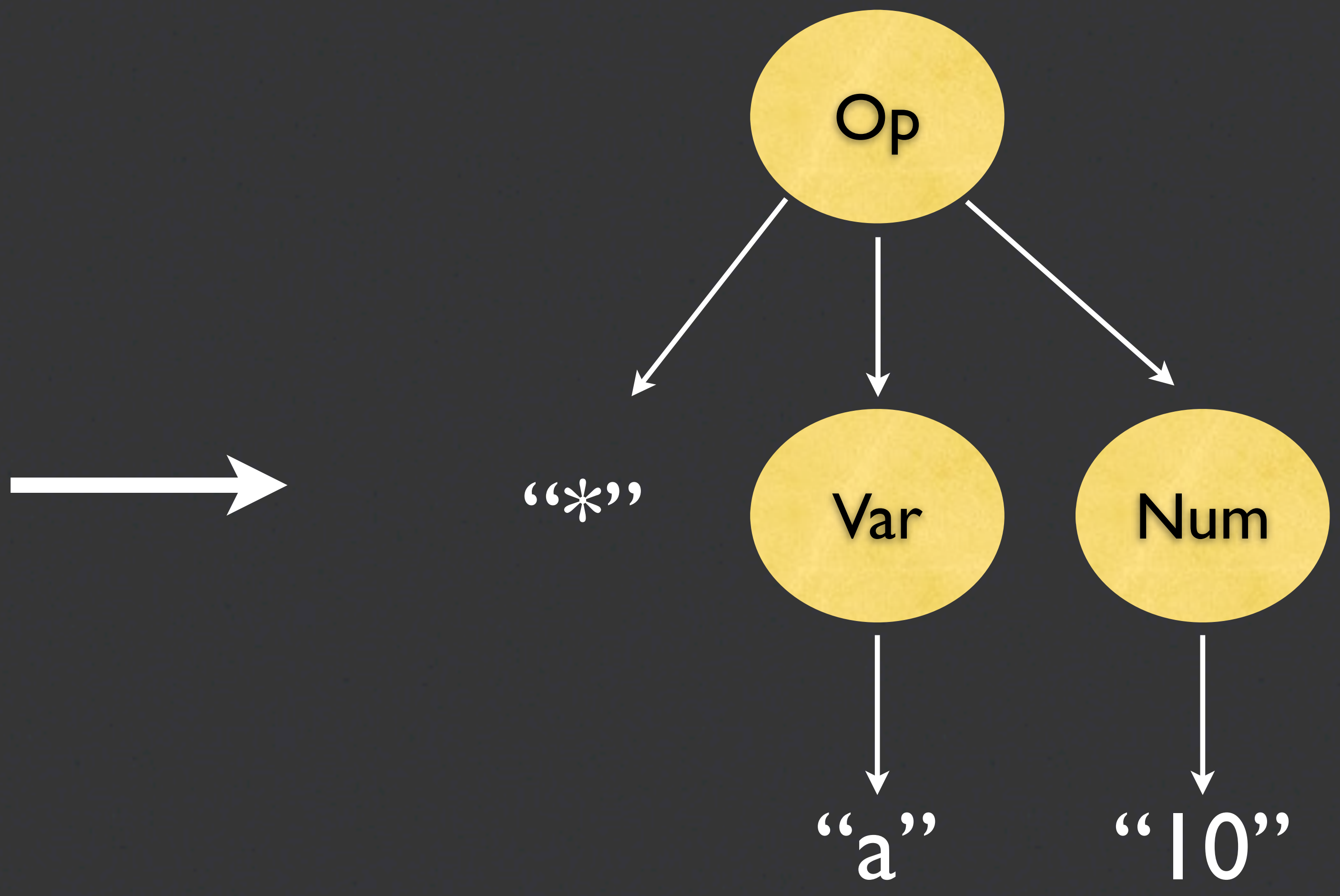
DSL with
Pattern
Matching

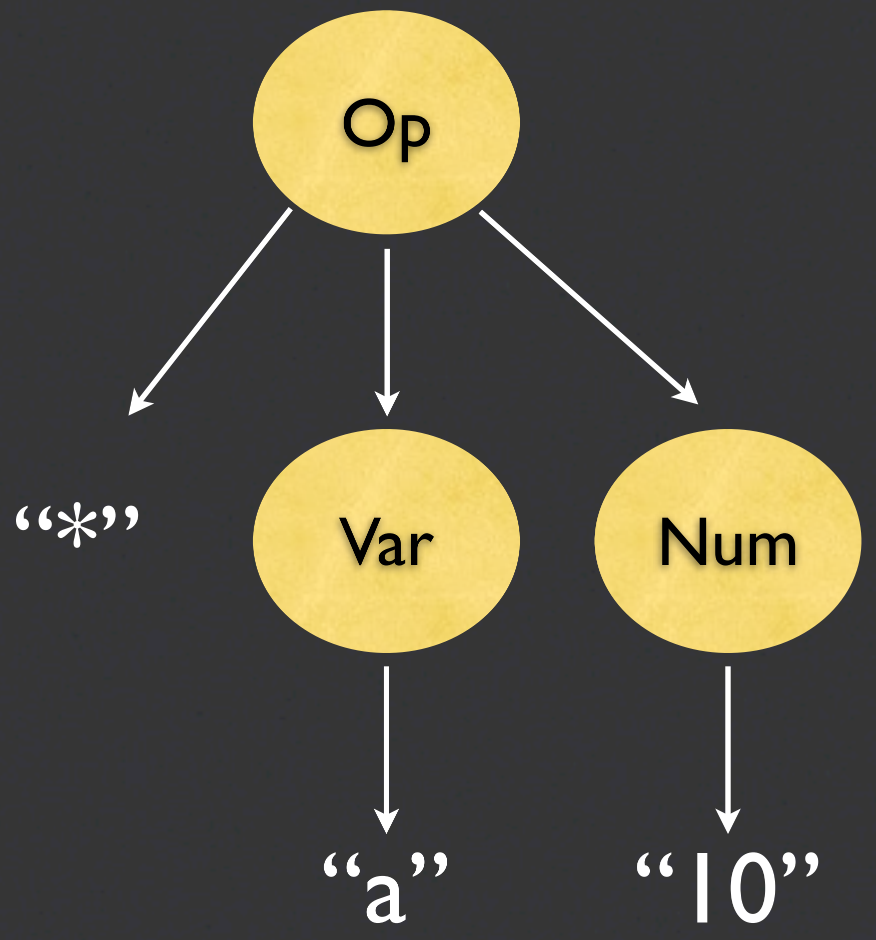
Language-
Specific Parsers

JavaScript
(UglifyJS-based)

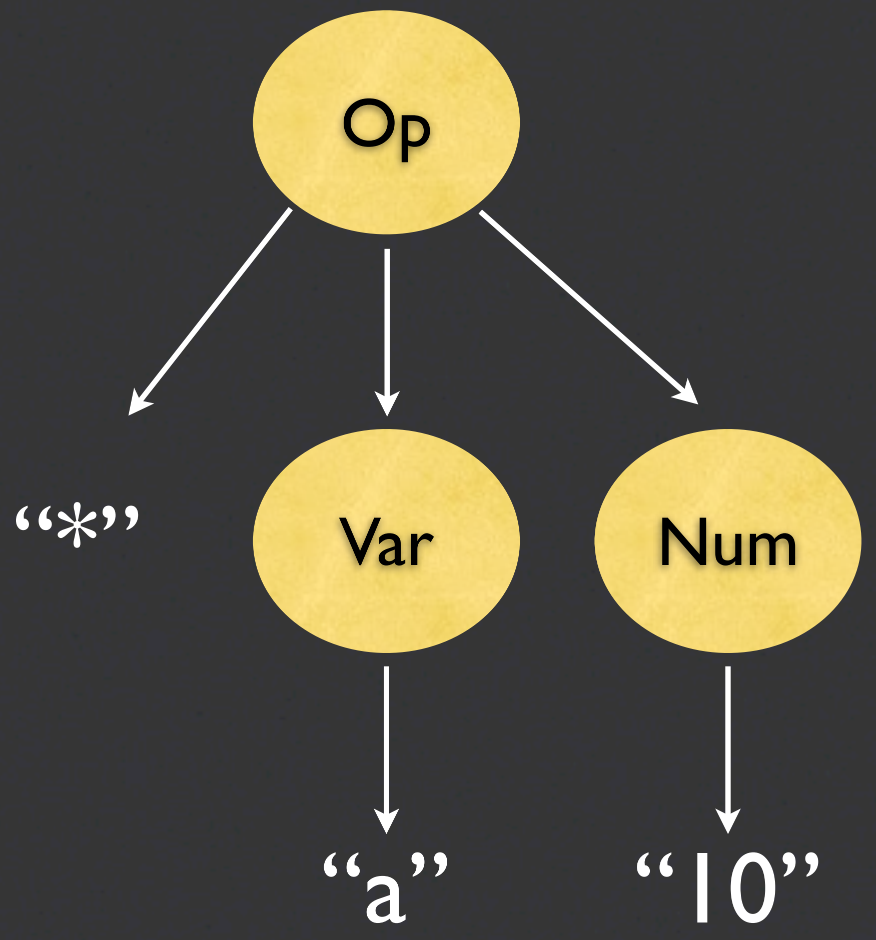
Generic
Traversals

```
a * 10
```





```
Op("*", Var("a"),
        Num("10"))
```



ATerm

```
Op("*", Var("a"),
        Num("10"))
```

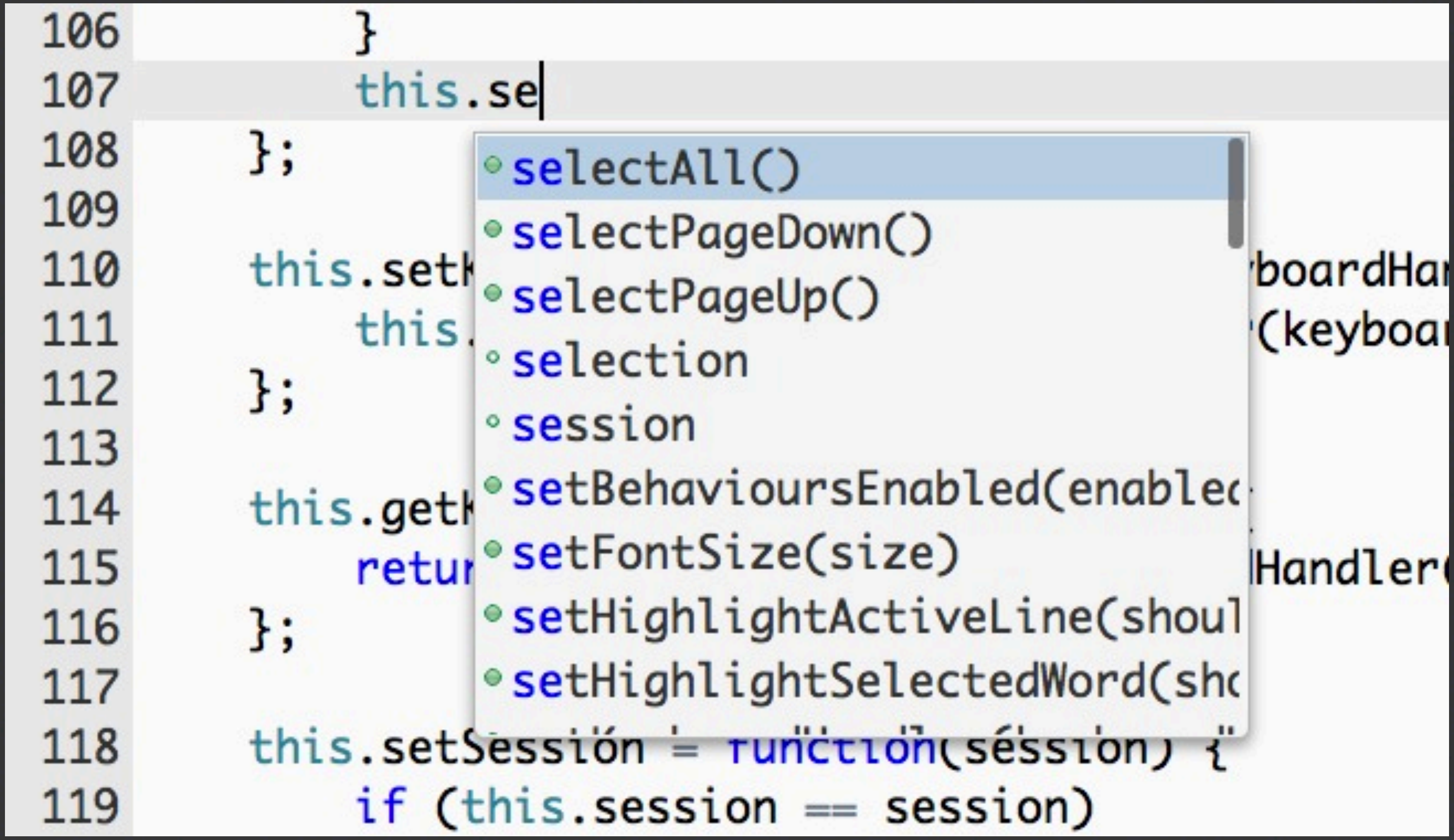
Constructors	`Var(_)`
Lists	`[_, _]`
Strings	`"hello"`
Placeholders	`x`

let’s play

What

can you do with it?

Low-level tooling



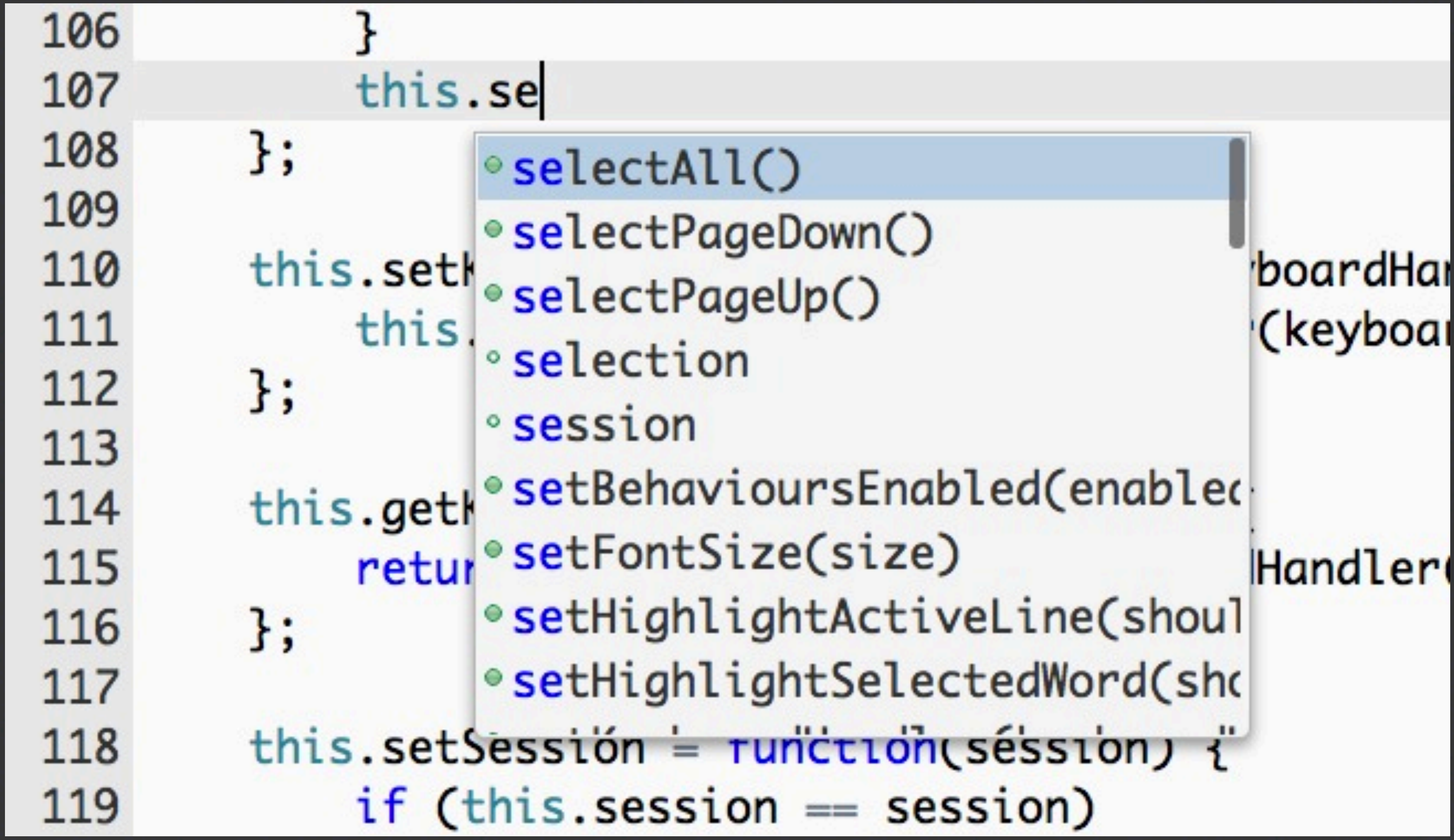
```
        }
        this.se
    };

    this.setK                              boardHa
        this.                              (keyboa
    };

    this.getK
        retur                              Handler(
    };

    this.setSession = function(session) {
        if (this.session == session)
```

selectAll()
selectPageDown()
selectPageUp()
selection
session
setBehavioursEnabled(enablec
setFontSize(size)
setHighlightActiveLine(shoul
setHighlightSelectedWord(shc



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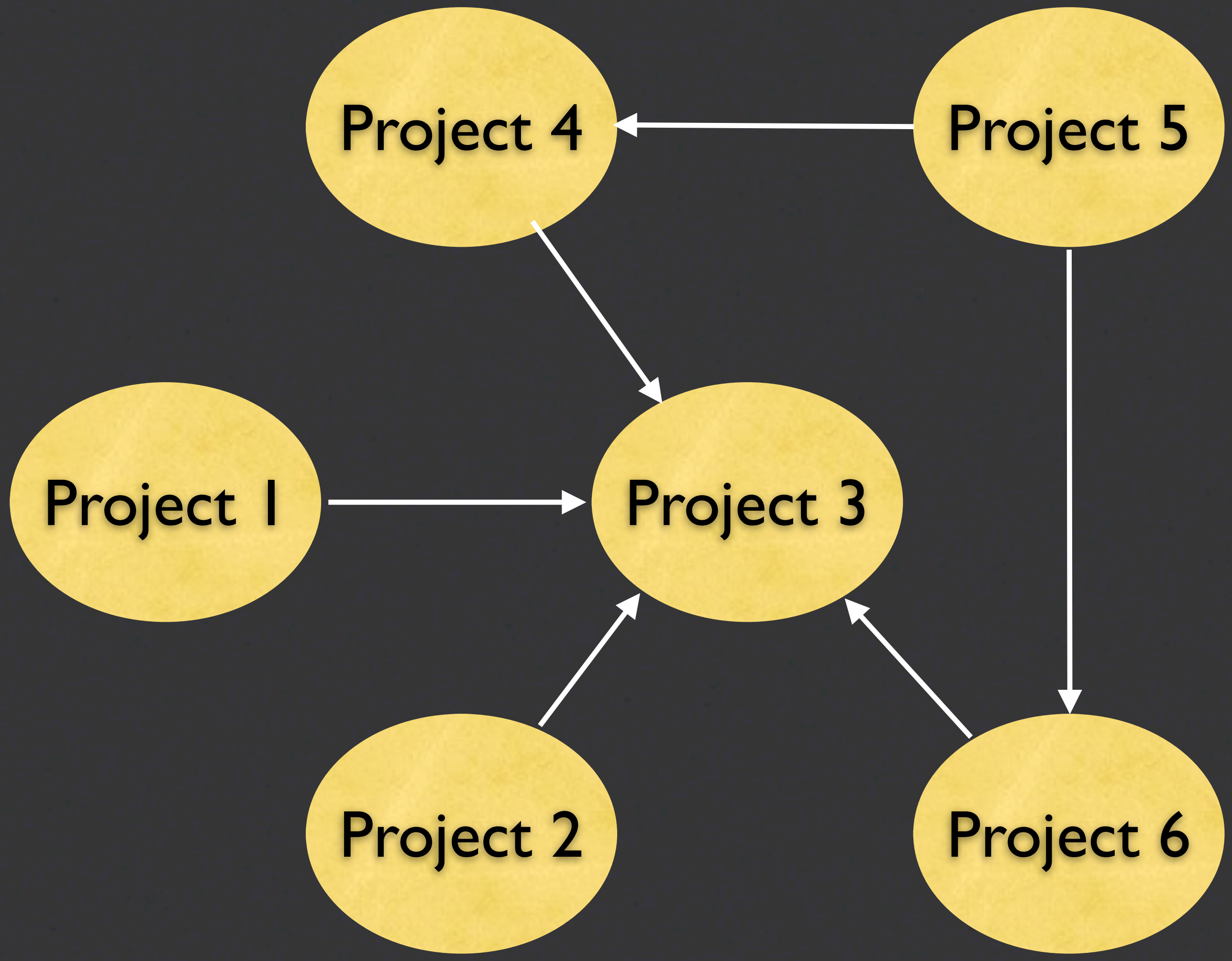
Intelligent code completion

Complex refactoring

Cloud

Big data

What if...



Project 4

Project 5

Project 1

Project 3

Project 2

Project 6

Your (dev) environment matters

use static analysis tools

@zef

http://github.com/ajaxorg/treehugger

Cloud9 IDE

Your code anywhere, anytime

http://c9.io