Intro to JavaScript

September 29th, 2015
DeskHub

Overview

- What is JavaScript?
- Why use JavaScript?
- Where did JavaScript come from?
- HTML basics
- How are websites built?
- DOM basics
- Javascript basics
- JavaScript libraries
- JavaScript frameworks
- Snake demo

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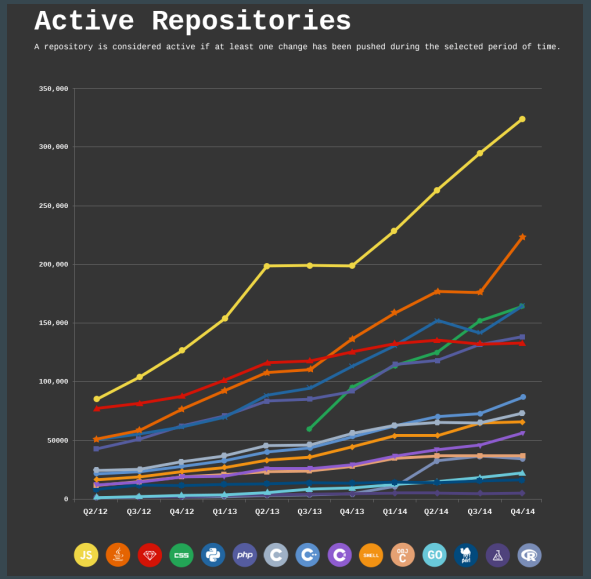
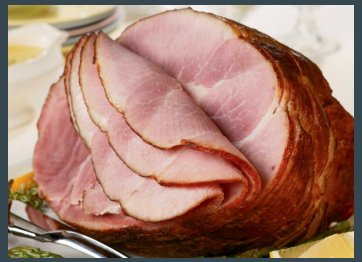
What is JavaScript?

- Most popular programming language in the world
- Runs most commonly in a web browser
- Adds interactivity to web sites
- Can also be used on the server (Node.js)
- Robots! Refrigerators! Toasters!



Warning!

JavaScript and Java are very different things!



Why use JavaScript?

- You have to!
- Interactivity
- In-browser games
- Faster than going back to the server
- Build entire applications in the browser

Where did JavaScript come from?

- Netscape wanted a “lightweight” language to compete with Java
- Developed in TEN DAYS by Brendan Eich in 1995
- Developed as Mocha, shipped as LiveScript, changed to JavaScript
- Microsoft followed with JScript
- FRAGMENTATION (“best viewed” in Netscape/Internet Explorer)
- In 1996, standardization through Ecma International
- ECMAScript standard produced by the TC39 committee in June 1997
- Editions 2, 3, 5, 5.1 from 1998 - 2011 (4 was abandoned)
- 6th edition published in June 2015 (ES6 or ES2015)
- Yearly releases from now on (ES2016, etc.)

.

The Web Triumvirate

Markup language

Content

General-purpose programming language

Behavior

Stylesheet language

Styling and layout

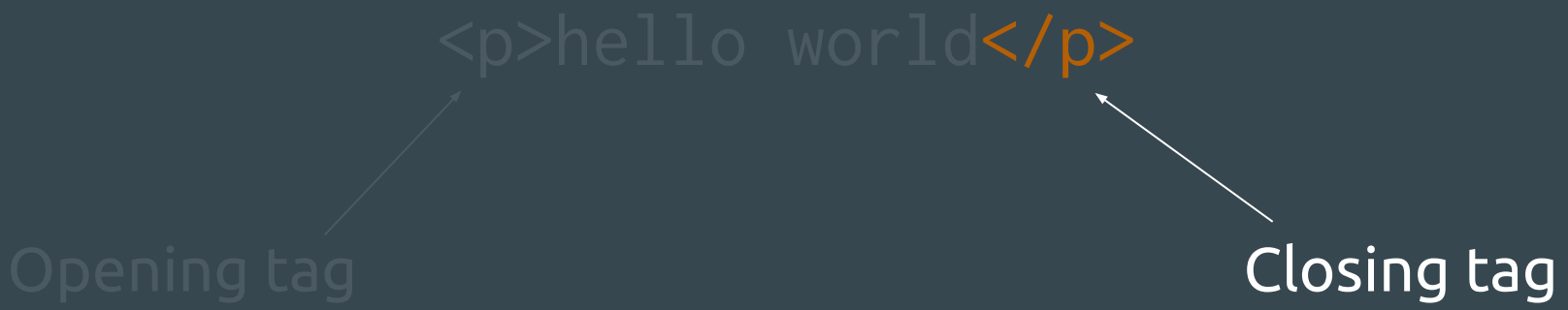
HTML Basics

```
<p>hello world</p>
```

HTML Basics

```
<p>hello world</p>
```

HTML Basics



HTML Basics

HTML Basics

HTML Basics

```
<div>
  <p>hello world</p>
</div>
```

HTML Basics

```
<div align="center">
  <p>hello world</p>
</div>
```

HTML Basics

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Page</title>
  </head>
  <body>
    <div align="center">
      <p>hello world</p>
    </div>
  </body>
</html>
```

HTML Basics

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Page</title>
  </head>
  <body>
    <p id="one">first</p>
    <p id="two" class="fave">second</p>
    <p class="fave">third</p>
  </body>
</html>
```

HTML Basics

```
<!DOCTYPE html>
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  <head>
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  </body>
</html>
```

IDs should be unique to a page!

HTML Basics

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Page</title>
  </head>
  <body>
    <p id="one">first</p>
    <p id="two" class="fave">second</p>
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  </body>
</html>
```

Classes don't have to be unique.

Every Website Ever (pretty much)

Server
(backend)

Network

Client
(frontend)

SQL

Database

Ruby
Go
Haskell
Java
Python
Erlang
JavaScript
PHP
C#
Clojure
C++
Scala

HTML
CSS
JavaScript

How a Website Gets Loaded

1. User instructs the browser to load a URL
2. The browser requests the page from the server
3. The server returns some HTML to the browser
4. The browser parses the HTML
5. The browser constructs its own representation of the document (DOM)
6. If the HTML contains references to CSS or JavaScript, the browser fetches them

DOM Basics

- DOM = Document Object Model
- The browser's representation of the HTML it was given

Time for some JavaScript!

DOM Manipulation with JavaScript

```
document.getElementById('one');
```

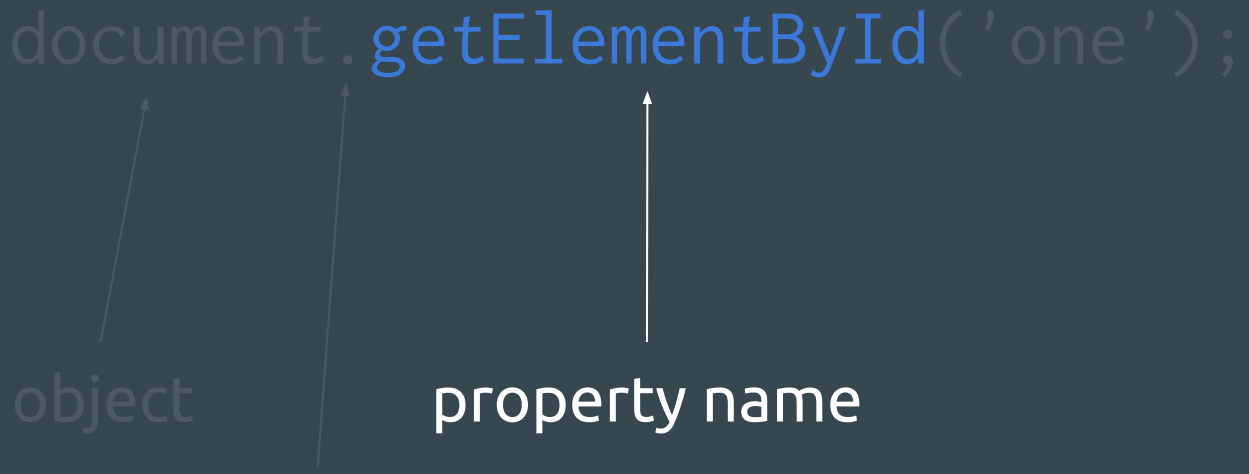
DOM Manipulation with JavaScript

```
document.getElementById('one');
```

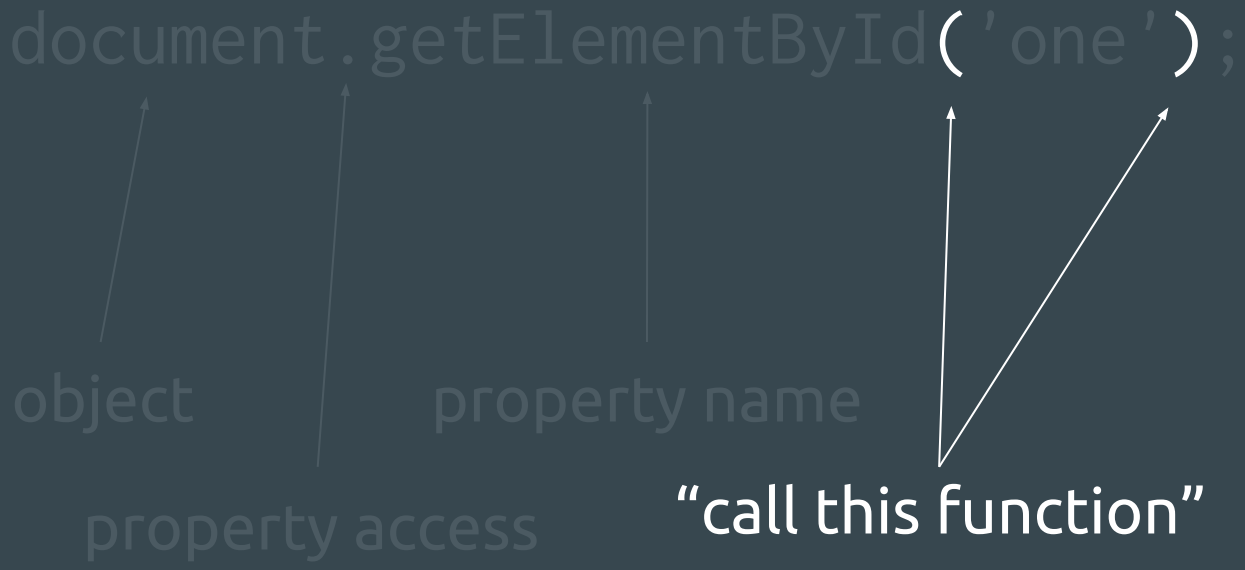
object

DOM Manipulation with JavaScript

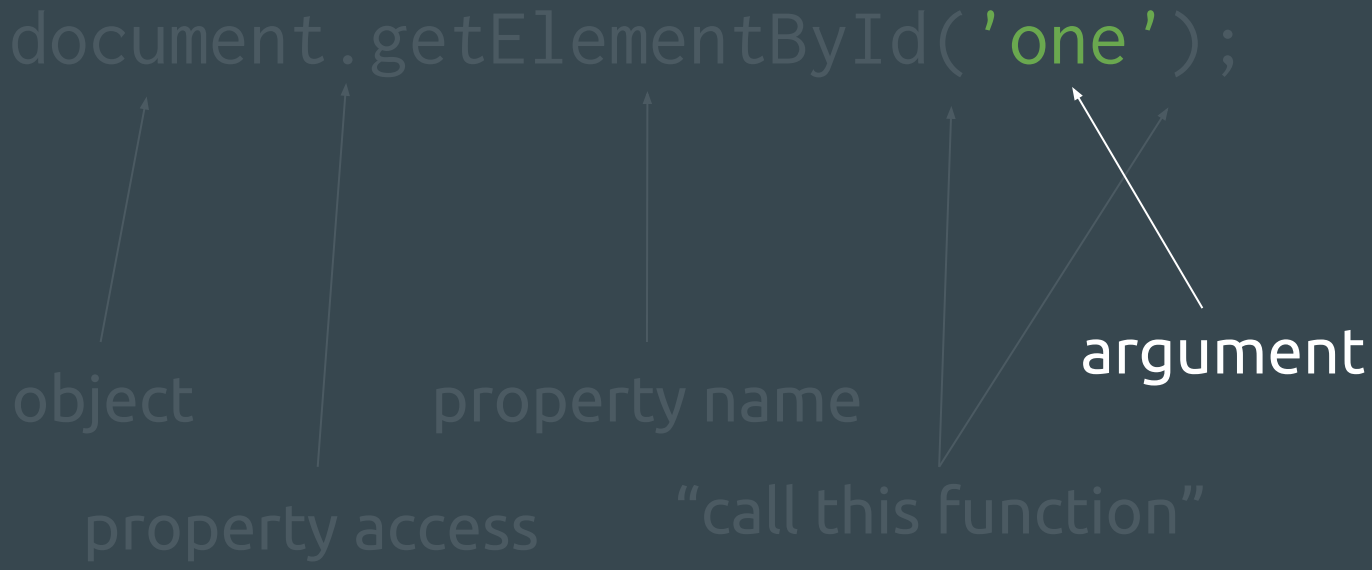
DOM Manipulation with JavaScript



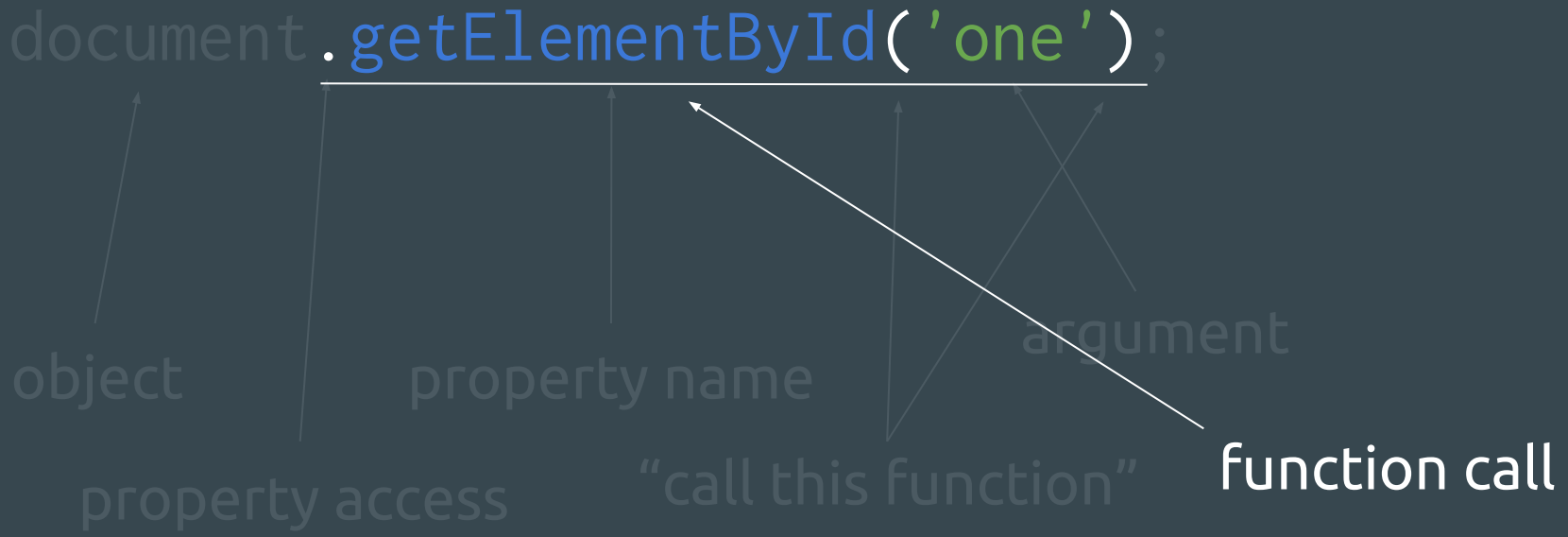
DOM Manipulation with JavaScript



DOM Manipulation with JavaScript

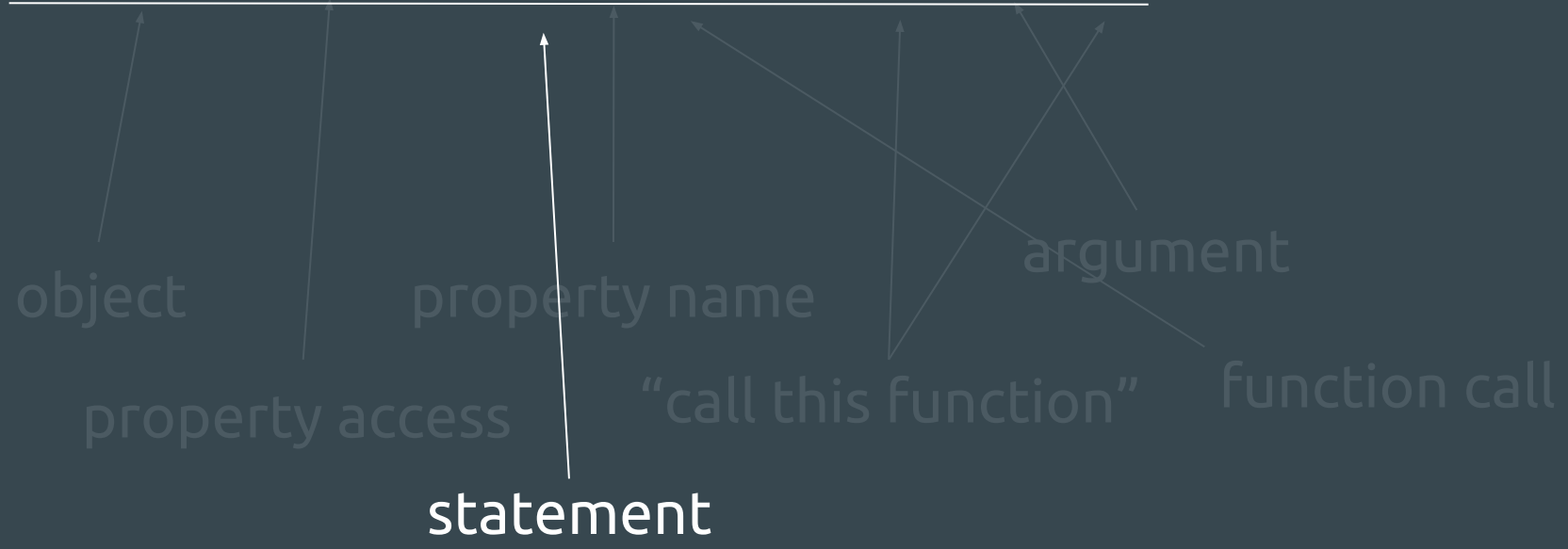


DOM Manipulation with JavaScript

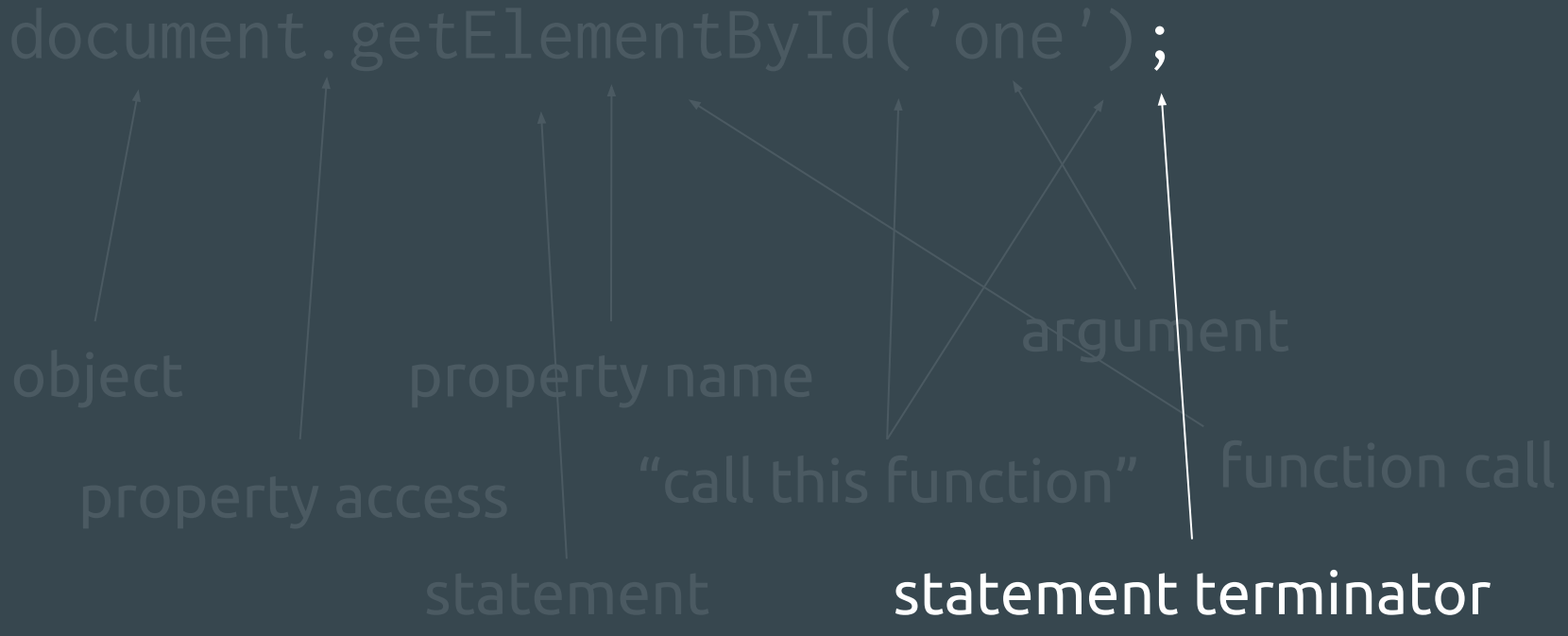


DOM Manipulation with JavaScript

```
document.getElementById('one');
```

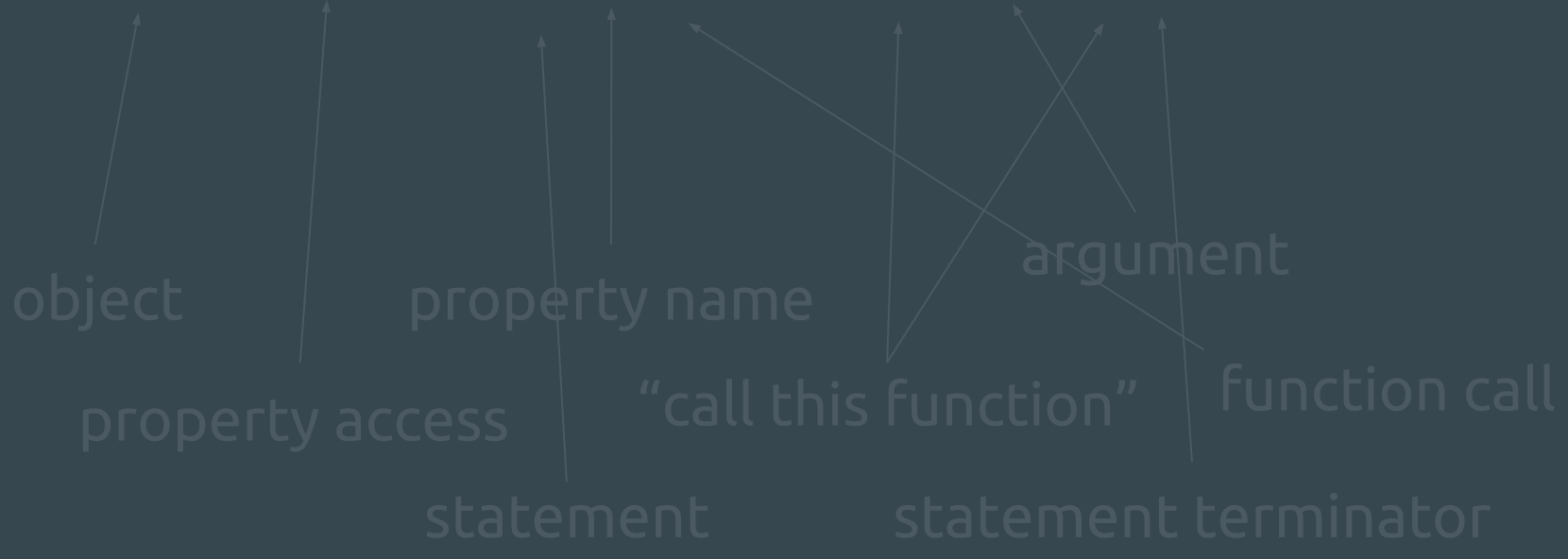


DOM Manipulation with JavaScript



DOM Manipulation with JavaScript

```
document.getElementById('one');
```



DOM Manipulation with JavaScript

```
document.getElementById('one');
document.getElementsByClassName('fave');
document.getElementsByTagName('p');

document.querySelectorAll('#one');
document.querySelectorAll('.fave');
document.querySelectorAll('p');
```

Basic JavaScript - Variables and Data Types

```
var greeting = 'hello world';          // string

var big = 99999;                       // number
var small = 0.0001;                    // number

var yes = true;                        // boolean
var no = false;                        // boolean

var numbers = [1, 2, 3, 4, 5];         // array
var things = [big, small, yes, no]; // array
```

Basic JavaScript - Control Flow

```
if (10 > 5) {
  console.log('ten is greater than five!');
} else {
  console.log('uh...what?');
}
```

.

Basic JavaScript - Control Flow

```
var i = 10;

while (i > 0) {
  console.log(i);
  i = i - 1;
}

console.log('BLAST OFF!');
```

Basic JavaScript - Control Flow

```
function blastOff() {
  var i = 10;

  while (i > 0) {
    console.log(i);
    i = i - 1;
  }

  console.log('BLAST OFF!');
}
```

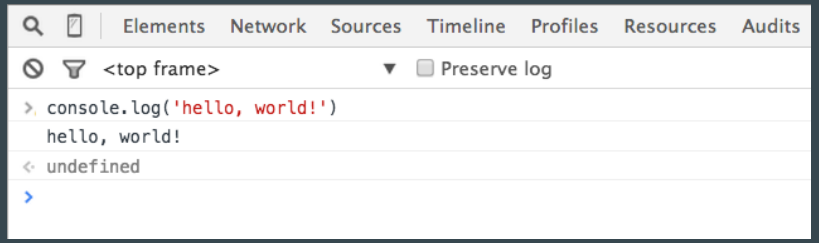
```
blastOff();
```

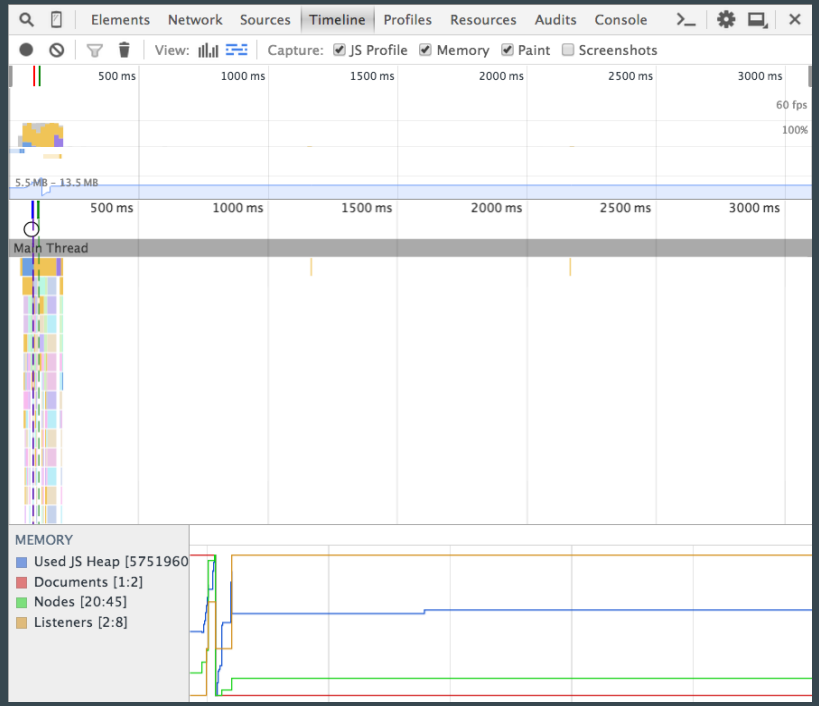
Basic JavaScript - Control Flow

```
function blastOff(start) {
  var i = start;

  while (i > 0) {
    console.log(i);
    i = i - 1;
  }

  console.log('BLAST OFF!');
}
```

```
blastOff(10);
```

Chrome DevTools





DEMO

Basic JavaScript

http://js-intro.kevinjs.com

JavaScript Libraries

Library (noun)

1. a bunch of code someone else has written that others can use so that we aren't solving the same problems over and over again

jQuery

- Popular JavaScript library
- Used on 71.6% of the top million websites (according to builtwith.com)
- Makes common DOM tasks easier
- Smooths over browser quirks
- A ton of other things

jQuery DOM Manipulation

```
document.getElementById('one');
document.getElementsByClassName('fave');
document.getElementsByTagName('p');
```

jQuery DOM Manipulation

```
document.querySelectorAll('#one');
document.querySelectorAll('.fave');
document.querySelectorAll('p');
```

jQuery DOM Manipulation

```
$('#one');
$('.fave');
$('p');
```

jQuery DOM Manipulation

```
$('#one').on('click', function () {
  console.log('one was clicked!');
  $(this).css('color', 'blue');
});
```

Direct DOM Manipulation

```
document.getElementById('one').addEventListener('click', function () {
  console.log('one was clicked!');
  this.style.color = 'blue';
});
```

JavaScript Frameworks

- Bigger than a library
- A library gives you some tools to use in your code
- A framework imposes **structure** on your code

AngularJS


ANGULARJS
Home
Learn
Develop
Discuss
Search
ANGULARJS
by Google
HTML enhanced for web apps!
View on GitHub
Download (1.4.6 / 1.2.28)
Design Docs & Notes
Follow +AngularJS on
Follow @angularjs
82.4K followers
Tweet
4,942
Learn Angular in your browser for free!
Why AngularJS?
HTML is great for declaring static documents, but it falters when we try to use it for declaring dynamic views in web-applications. AngularJS lets you extend HTML vocabulary for your application. The resulting environment is extraordinarily expressive, readable, and quick to develop.
Alternatives
Other frameworks deal with HTML's shortcomings by either abstracting away HTML, CSS, and/or JavaScript or by providing an imperative way for manipulating the DOM. Neither of these address the root problem that HTML was not designed for dynamic views.
Extensibility
AngularJS is a toolset for building the framework most suited to your application development. It is fully extensible and works well with other libraries. Every feature can be modified or replaced to suit your unique development workflow and feature needs. Read on to find out how.

Ember.js

ember

ABOUT GUIDES API COMMUNITY BLOG BUILDS

FORK US!

A framework for creating **ambitious** web applications

```
npm install -g ember-cli
ember new my-app
```

More downloads

Follow @emberjs Follow on

MORE PRODUCTIVE OUT OF THE BOX.

Write dramatically less code with Ember's Handlebars integrated templates that update automatically when the underlying data changes.

Don't waste time making trivial choices. Ember.js incorporates common idioms so you can focus on what makes your app special, not reinventing the wheel.

Ember.js is built for productivity. Designed with developer ergonomics in mind, its friendly APIs help you get your job done—fast.

React

(technically not a “framework”)

(so it’s really React PLUS a bunch of stuff)

(but it’s still awesome)

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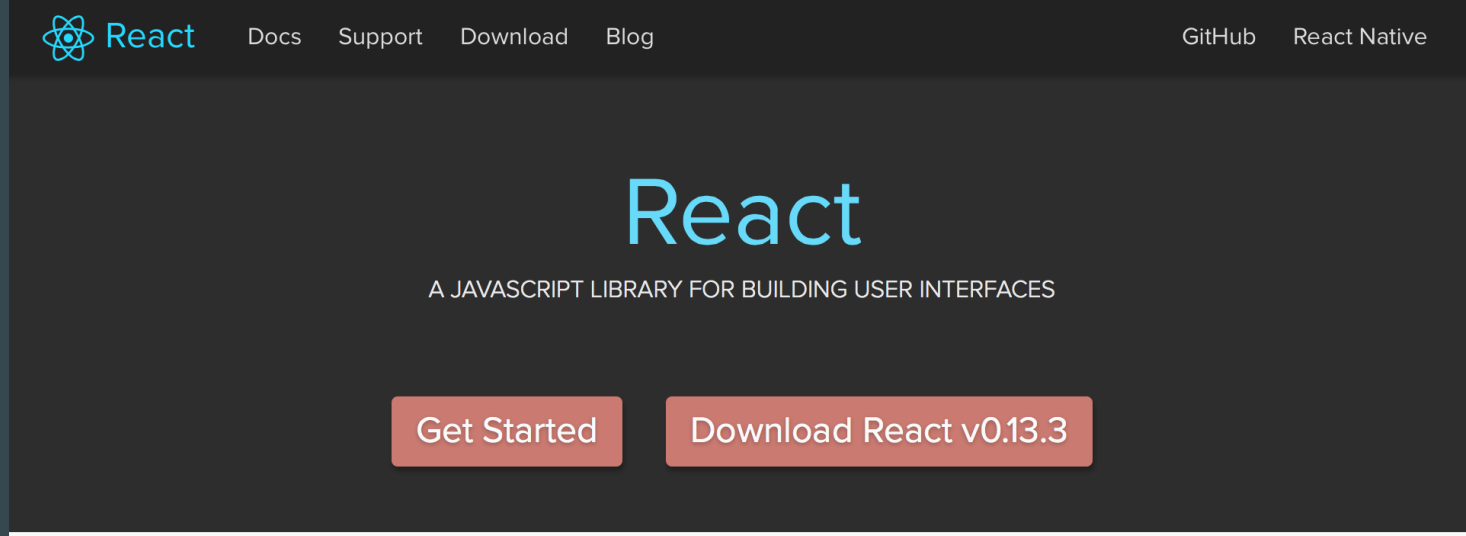

Snake Demo

- Create a new folder on your desktop called “Snake”
- Open the folder in Sublime Text
- In the Snake folder, create two files:
  - `index.html`
  - `snake.js`
- Copy the HTML and JavaScript from my site into the appropriate files
- Open `index.html` in Chrome and play Snake!

Upcoming Tech Talent South Courses

- **Code Immersion**
  - 8 weeks, starts October 13th
  - Strongbox West
  - Full-time meets Monday - Thursday, 8am - 12:30pm
  - Part-time meets Mondays and Wednesdays, 6pm - 9pm

- **JavaScript 101**
  - 6 weeks, starts November 3rd
  - DeskHub (here!)
  - Meets Tuesdays, 6pm - 9pm
  - Taught by me :)

Upcoming Tech Talent South Courses

- **Intro to Web Design and Creation**
  - 8 weeks, starts January 5th
  - Strongbox West
  - Meets Mondays or Tuesdays, 6pm - 9pm

- **More!**
  - Check them out at techtalentsouth.com

THANK YOU!

Questions?

Kevin Smith

http://github.com/ksmithbaylor

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