# Intro to JavaScript

September 29th, 2015 DeskHub

- What is JavaScript?
- Why use JavaScript?

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- Where did JavaScript come from?

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- HTML basics

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- HTML basics
- How are websites built?

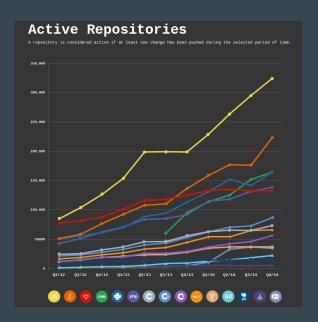
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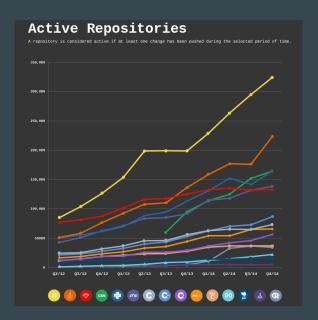
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- JavaScript frameworks

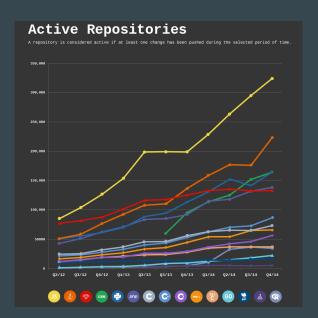
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- JavaScript libraries
- JavaScript frameworks
- Snake demo



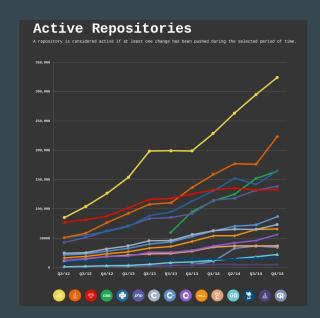
• Most popular programming language in the world



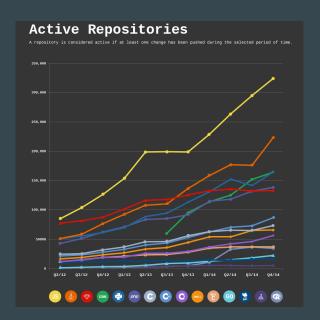
- Most popular programming language in the world
- Runs most commonly in a web browser



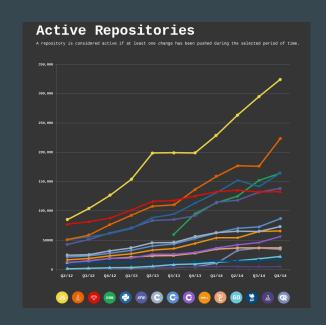
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- Adds interactivity to web sites



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- Can also be used on the server (Node.js)



- 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!





























• You have to!

- You have to!
- Interactivity

- You have to!
- Interactivity
- In-browser games

- You have to!
- Interactivity
- In-browser games
- Faster than going back to the server

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

• Netscape wanted a "lightweight" language to compete with Java

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- Yearly releases from now on (ES2016, etc.)



Markup language

Content



Markup language

Content



Stylesheet language

Styling and layout



Markup language

Content



General-purpose programming language

**Behavior** 

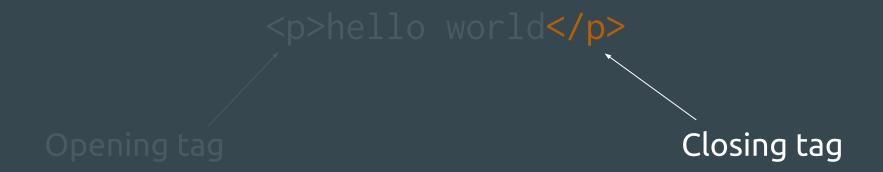


Stylesheet language

Styling and layout

hello world

```
hello world
Opening tag
```







hello world

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

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

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

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

```
<html>
```

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

</html>

```
<html>
```

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

```
<title>My Page</title>
</head>
 <div align="center">
   hello world
```

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

```
</body>
```

```
<!DOCTYPE html>
 <head>
  <title>My Page</title>
 </head>
  first
  second
  third
```

```
first
second
```

```
IDs should be unique to a page!
   first
    second
```

```
second
third
```

```
Classes don't have to be unique.
    second
    third
```

# **Every Website Ever (pretty much)**

# **Every Website Ever (pretty much)**

Server

# **Every Website Ever (pretty much)**



Server

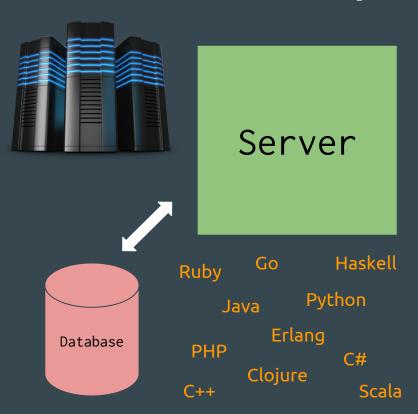


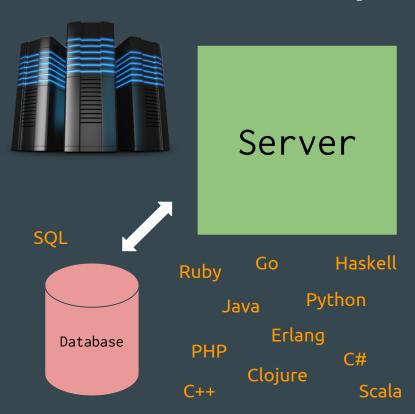


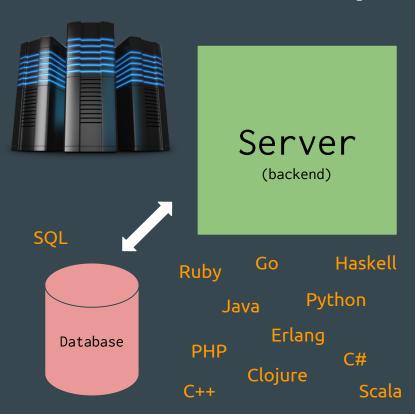
```
Ruby Go Haskell

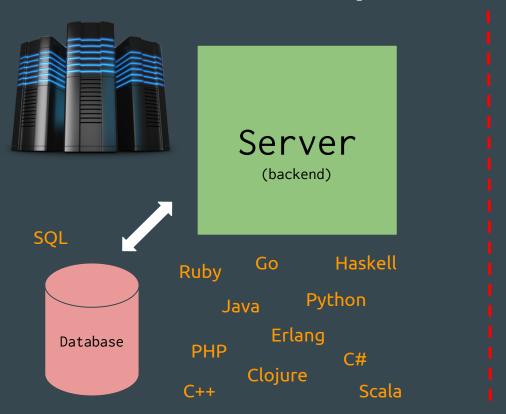
Java Python

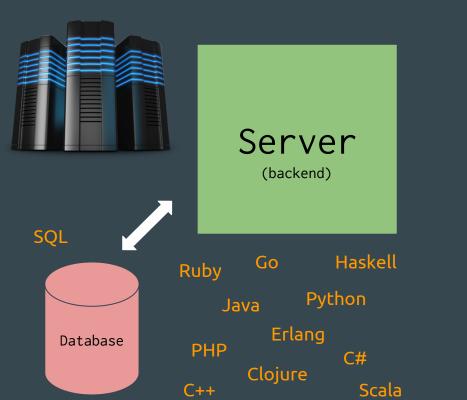
Erlang
PHP C#
Clojure
C++ Scala
```



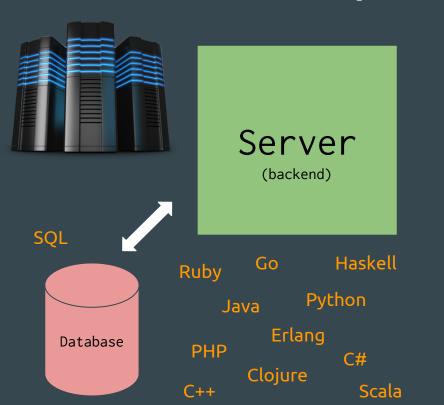






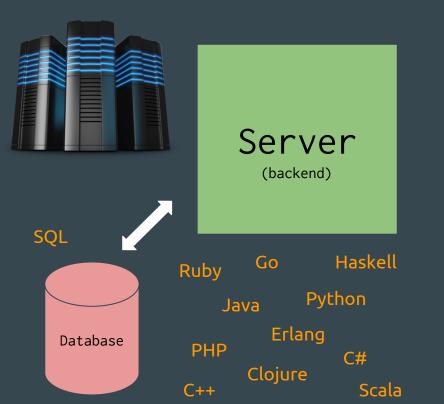


Client



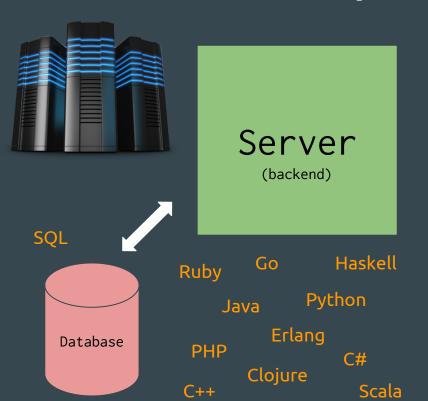
Client



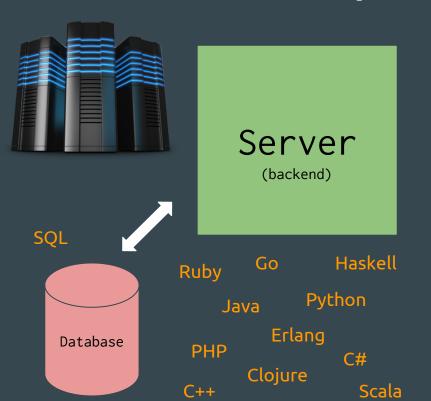


Client

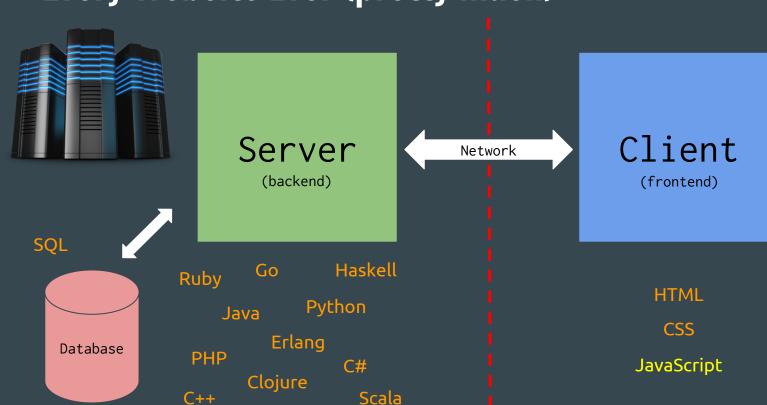




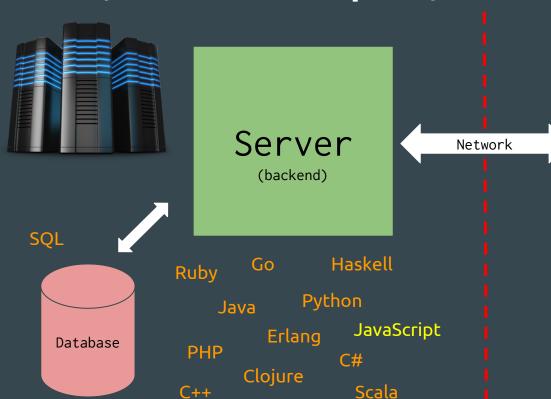












Client (frontend)

**HTML CSS JavaScript** 



1. User instructs the browser to load a URL

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- 2. The browser requests the page from the server

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- 3. The server returns some HTML to the browser

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- 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 = Document Object Model

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

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

```
Hello World
         Elements
                  Network Sources Timeline Profiles Resources Audits Console
 <!DOCTYPE html>
▼<html>
 ▼<head>
    <title>My Page</title>
  </head>
 ▼ <bodv>
  ▼<div color="red">
     Hello World
    </div>
  </body>
 </html>
```

.

Time for some JavaScript!

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

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

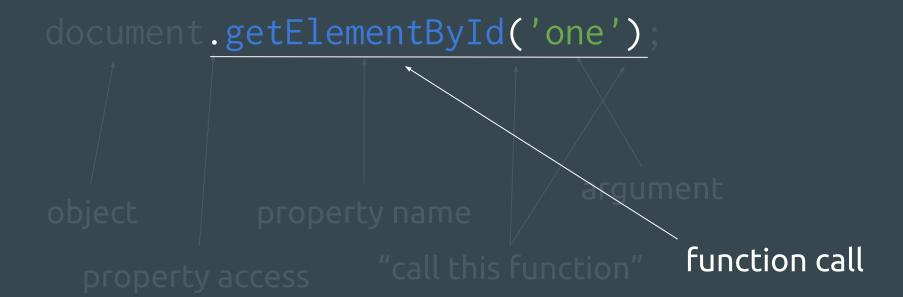
//
object
```

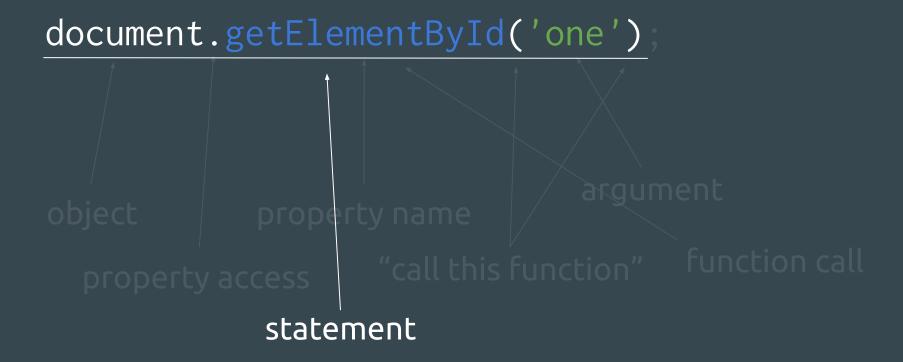
```
property access
```

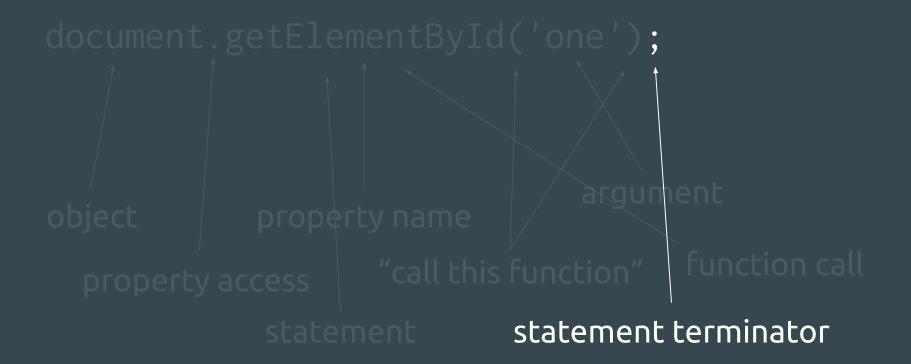
```
document.getElementById('one');
           property name
```













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

#### DOM Manipulation with JavaScript

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

## DOM Manipulation with JavaScript

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

```
var big = 99999;
                       // number
var small = 0.0001;
                       // number
                       // boolean
var yes = true;
var no = false;
                       // boolean
var things = [big, small, yes, no]; // array
```

```
console.log('ten is greater than five!');
```

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

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

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

```
var i = 10;
```

```
var i = 10;
while (i > 0) {
}
```

```
var i = 10;
while (i > 0) {
  console.log(i);
}
```

```
var i = 10;
while (i > 0) {
  console.log(i);
  i = i - 1;
}
```

```
var i = 10;
while (i > 0) {
  console.log(i);
  i = i - 1;
console.log('BLAST OFF!');
```

```
function blastOff() {
  var i = 10;
  while (i > \emptyset) {
     console.log(i);
     i = i - \overline{1};
  console.log('BLAST OFF!');
```

```
function blastOff() {
                                        blastOff();
  var i = 10;
  while (i > \emptyset) {
    console.log(i);
    i = i - 1;
  console.log('BLAST OFF!');
```

```
function blastOff(     ) {
                                        blastOff();
  var i = 10;
  while (i > \emptyset) {
    console.log(i);
    i = i - 1;
  console.log('BLAST OFF!');
```

```
function blastOff(start) {
  var i = 10;
  while (i > \emptyset) {
    console.log(i);
    i = i - 1;
  console.log('BLAST OFF!');
```

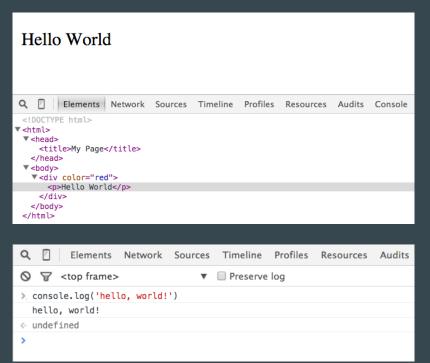
blastOff();

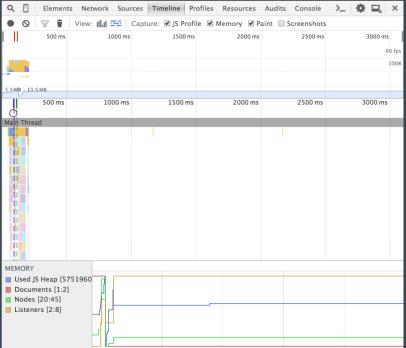
```
function blastOff(start) {
                                        blastOff();
  var i = start;
  while (i > \emptyset) {
    console.log(i);
    i = i - 1;
  console.log('BLAST OFF!');
```

```
blastOff( );
function blastOff(start) {
  var i = start;
  while (i > 0)
    console.log(i);
    i = i - 1;
  console.log('BLAST OFF!');
```

```
function blastOff(start) {
                                       blastOff(10);
  var i = start;
  while (i > \emptyset) {
    console.log(i);
    i = i - 1;
  console.log('BLAST OFF!');
```

#### **Chrome DevTools**





# **DEMO**Basic JavaScript

http://js-intro.kevinjs.com

## **JavaScript Libraries**

## 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

Popular JavaScript library

- Popular JavaScript library
- Used on 71.6% of the top million websites (according to builtwith.com)

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- 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');
```

```
document.
document.

document.

('one');

('fave');

document.

('p');
```

```
document.
document.

document.

('one');

('fave');

document.

('p');
```

```
document.
document.

document.

('#one');

('fave');

document.

('p');
```

```
document.
document.

document.

('#one');

('.fave');

document.

('p');
```

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

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

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

```
$('#one')
```

```
$('#one').on(
);
```

```
$('#one').on('click'
);
```

```
$('#one').on('click', function () {
});
```

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

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

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

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

```
document.getElementById('one').
  console.log('one was clicked!');
  $(this).css('color', 'blue');
});
```

```
('click', function () {
```

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

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

Bigger than a library

- Bigger than a library
- A library gives you some tools to use in your code

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















#### HTML enhanced for web apps!















Learn Angular in your browser for free!

**AngularJS** 

#### 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.

# A framework for creating ambitious web applications

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

More downloads



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#### 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.

# Ember.js



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React Native



A JAVASCRIPT LIBRARY FOR BUILDING USER INTERFACES

**Get Started** 

Download React v0.13.3

### React

#### JUST THE UI

Lots of people use React as the V in MVC. Since React makes no assumptions about the rest of your technology stack, it's easy to try it out on a small feature in an existing project.

#### VIRTUAL DOM

React abstracts away the DOM from you, giving a simpler programming model and better performance. React can also render on the server using Node, and it can power native apps using React Native.

#### **DATA FLOW**

React implements one-way reactive data flow which reduces boilerplate and is easier to reason about than traditional data binding.



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(technically not a "framework")

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

(but it's still awesome)

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Create a new folder on your desktop called "Snake"

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- Open the folder in Sublime Text

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- In the Snake folder, create two files:
  - index.html
  - o snake.js

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- In the Snake folder, create two files:
  - o index.html
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- 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

- o 6 weeks, starts November 3rd
- DeskHub (here!)
- Meets Tuesdays, 6pm 9pm
- O 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

ksmithbaylor@gmail.com