SHAPING UP WITH ANGULAR.JS

Shaping Up with Angular

Level 1: Getting Started

SHAPING UP WITH ANGULAR.JS

What you need to know

Must know

```
HTML & CSS
JavaScript
```

Nice to know

```
Automated Testing
BDD - Behavior Driven Development
TDD - Test Driven Development
etc
```

Not so important

```
jQuery
Ruby on Rails
Python, PHP, etc
Databases
```

Why Angular?

If you're using JavaScript to create a dynamic website, Angular is a good choice.

- Angular helps you organize your JavaScript
- Angular helps create responsive (as in fast) websites.
- Angular plays well with jQuery
- Angular is easy to test

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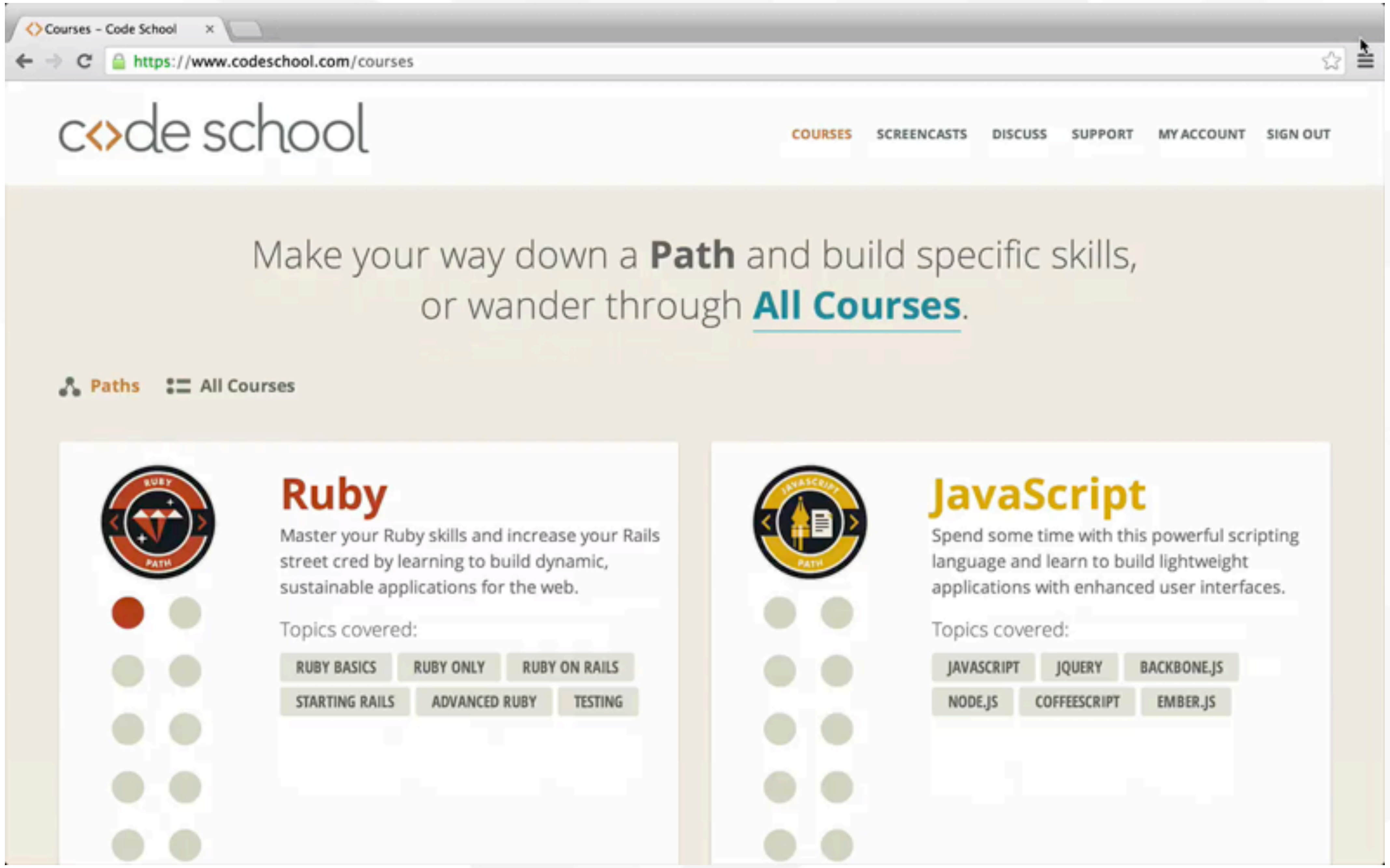
Traditional Page-Refresh


Courses - Code School

https://www.codeschool.com/courses

code school

COURSES SCREENCASTS DISCUSS SUPPORT MY ACCOUNT SIGN OUT

Make your way down a **Path** and build specific skills,
or wander through **All Courses**.

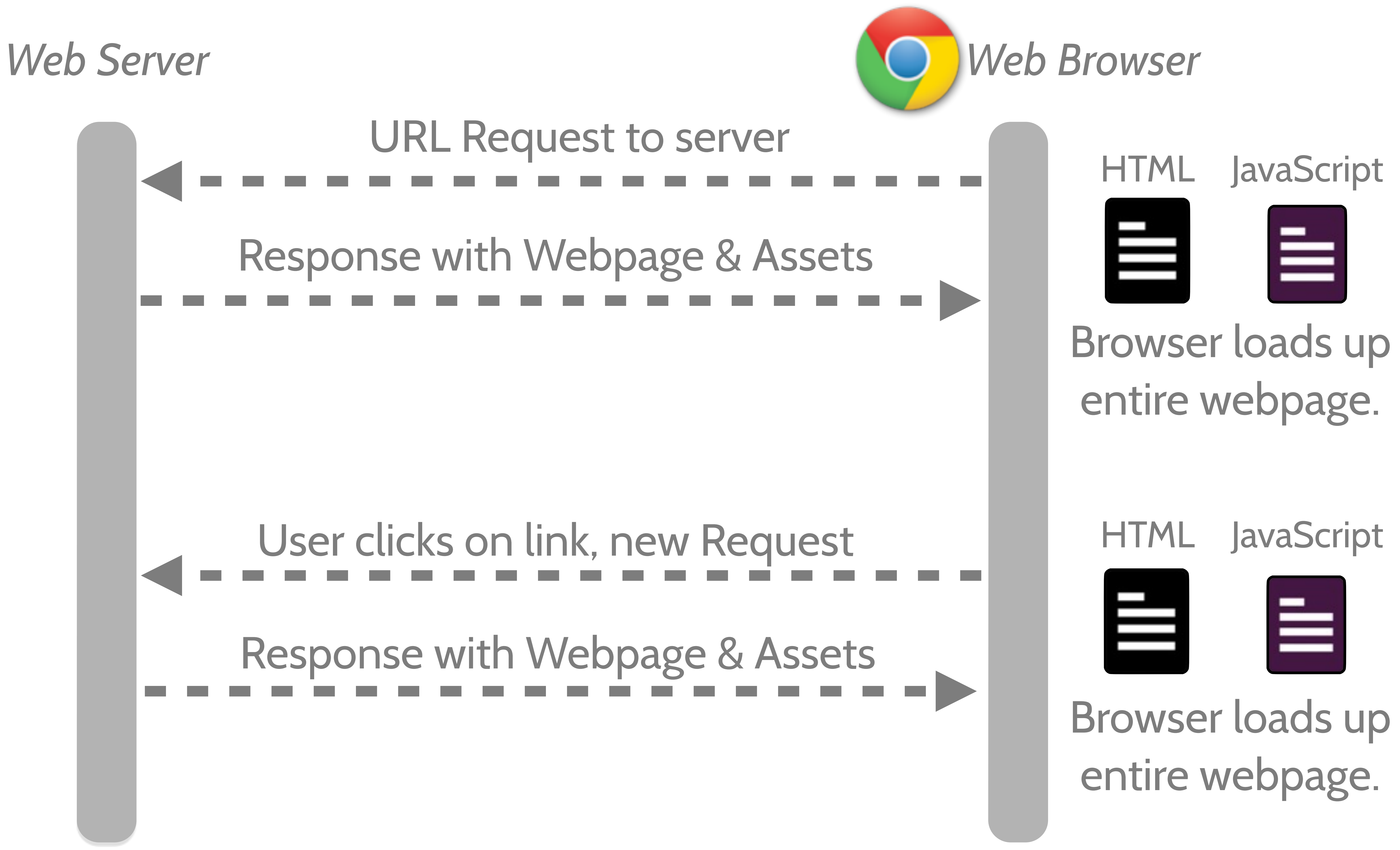
Paths All Courses

Ruby
Master your Ruby skills and increase your Rails street cred by learning to build dynamic, sustainable applications for the web.

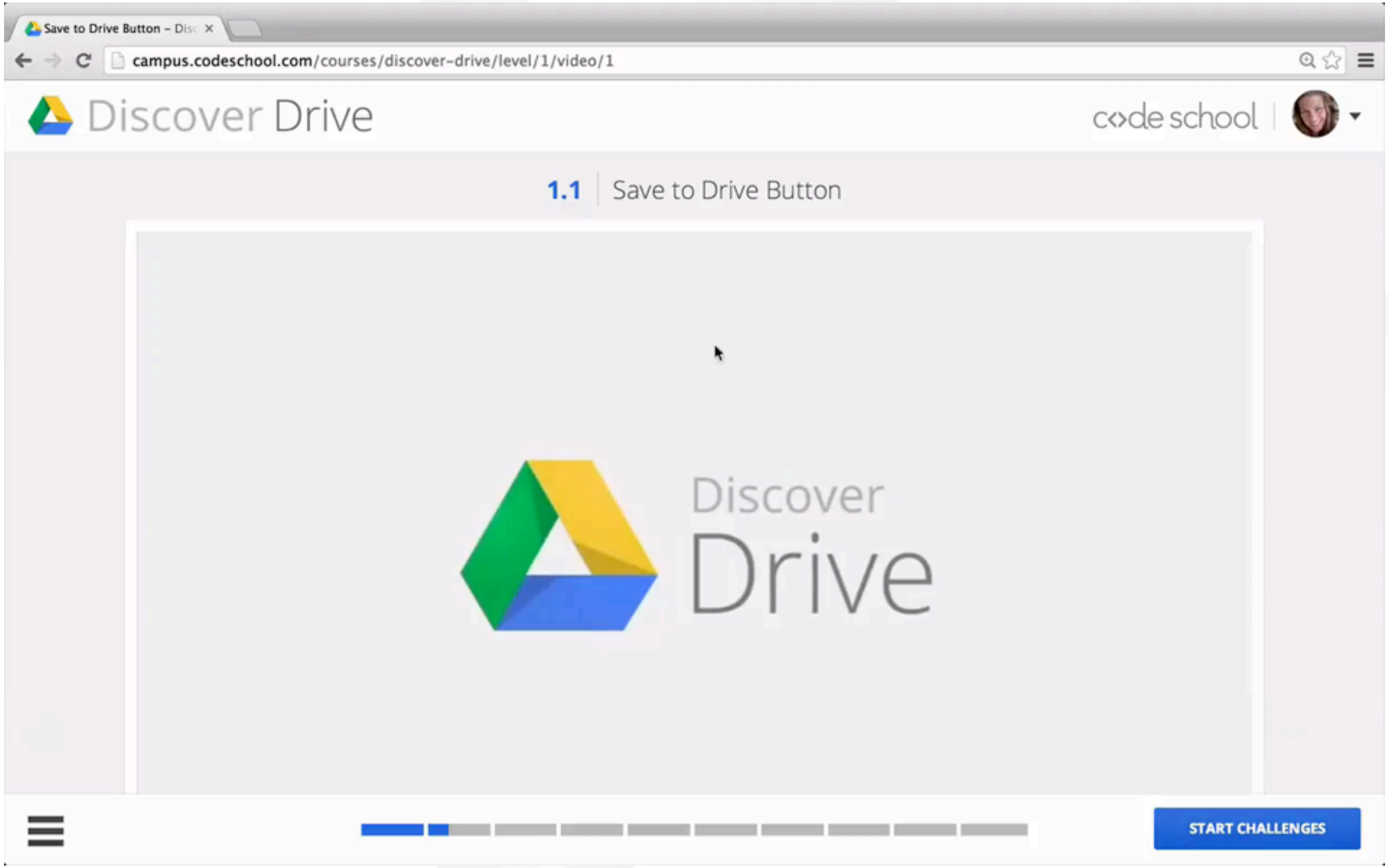
Topics covered:
RUBY BASICS RUBY ONLY RUBY ON RAILS STARTING RAILS ADVANCED RUBY TESTING

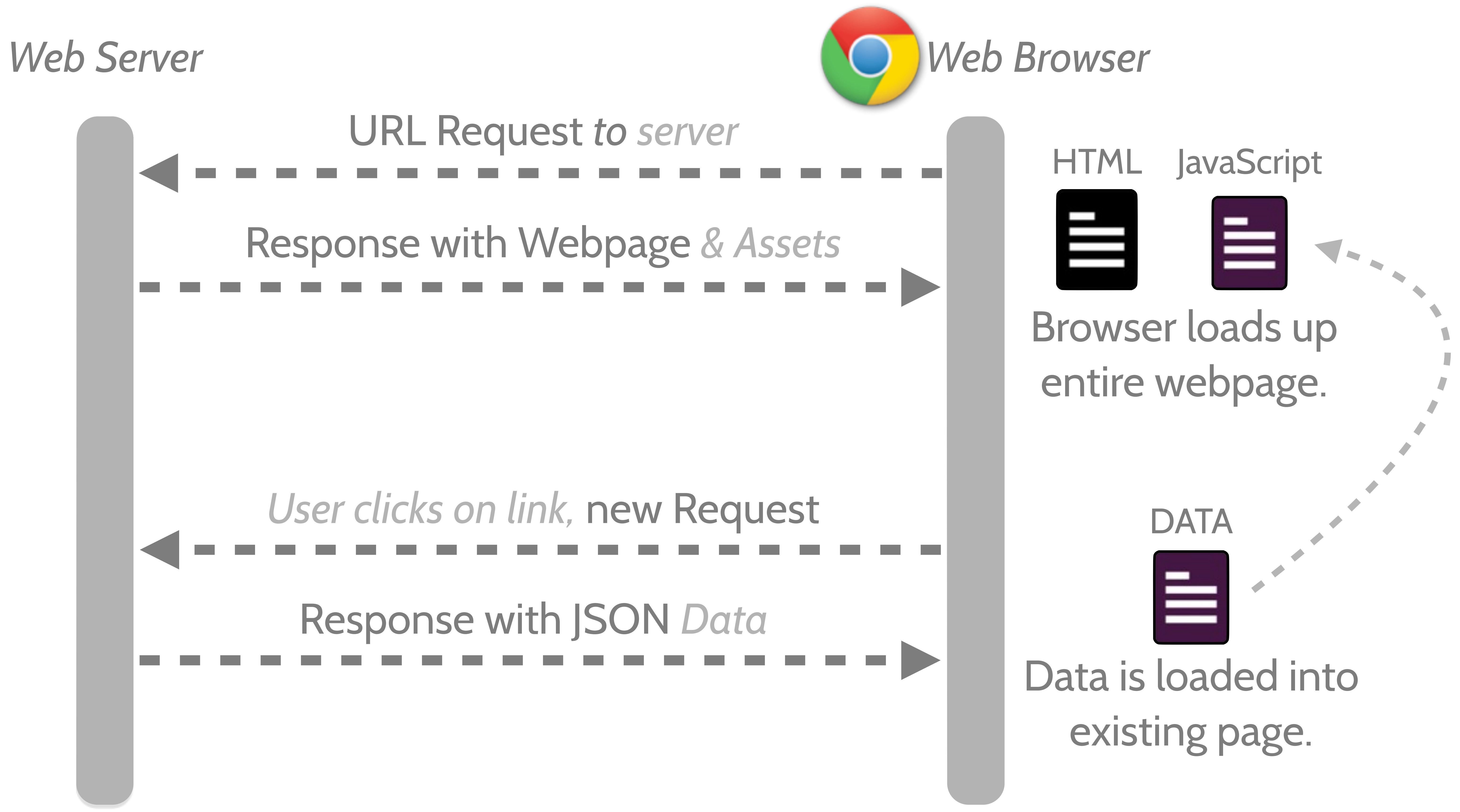
JavaScript
Spend some time with this powerful scripting language and learn to build lightweight applications with enhanced user interfaces.

Topics covered:
JAVASCRIPT JQUERY BACKBONE.JS NODE.JS COFFEESCRIPT EMBER.JS

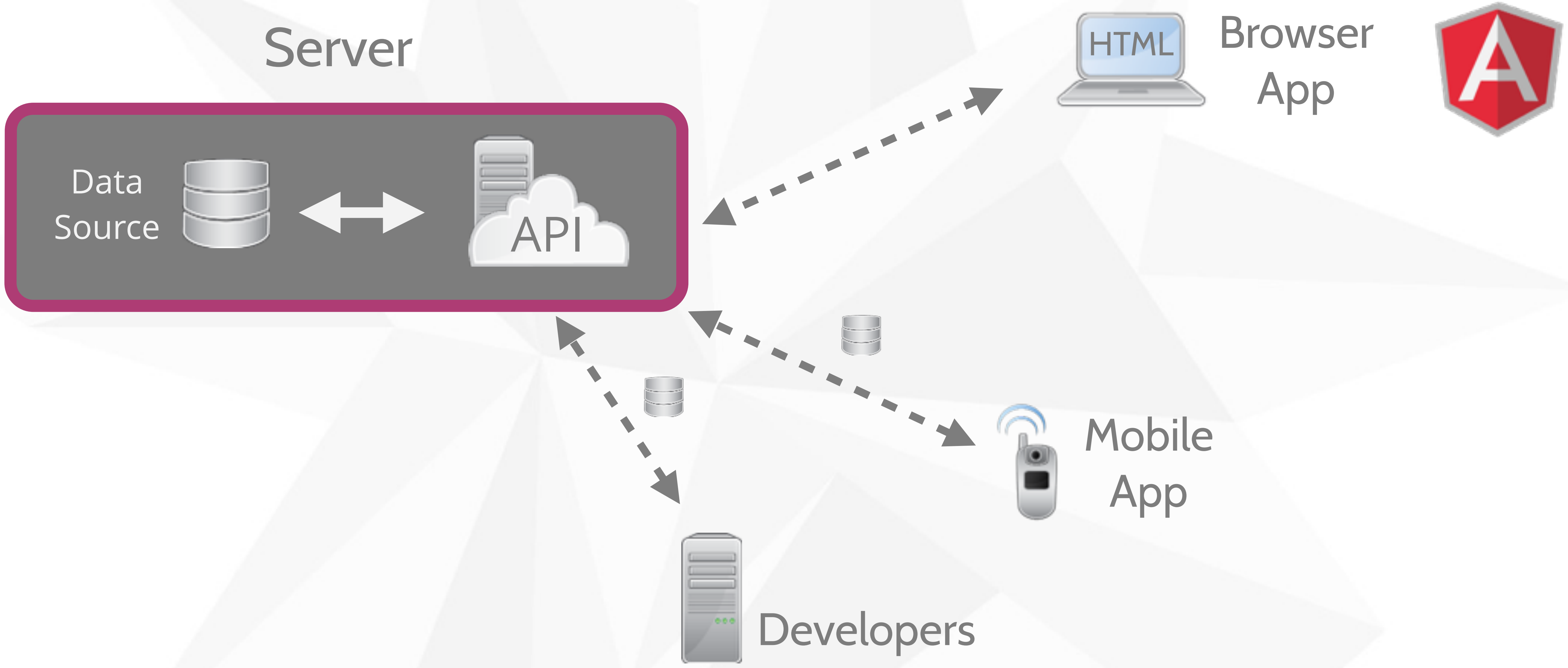

Web Server
Web Browser
URL Request to server
Response with Webpage & Assets
HTML
JavaScript
Browser loads up entire webpage.
User clicks on link, new Request
Response with Webpage & Assets
HTML
JavaScript
Browser loads up entire webpage.

A “responsive” website using Angular


Save to Drive Button – Disc
campus.codeschool.com/courses/discover-drive/level/1/video/1
Discover Drive
code school
1.1 Save to Drive Button
Discover Drive
START CHALLENGES


Web Server
Web Browser
URL Request *to server*
Response with Webpage *& Assets*
HTML
JavaScript
Browser loads up entire webpage.
User clicks on link, new Request
Response with JSON *Data*
DATA
Data is loaded into existing page.

Modern API-Driven Application



What is Angular JS?

A client-side JavaScript Framework for adding interactivity to HTML.

How do we tell our **HTML** when to trigger our **JavaScript**?

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

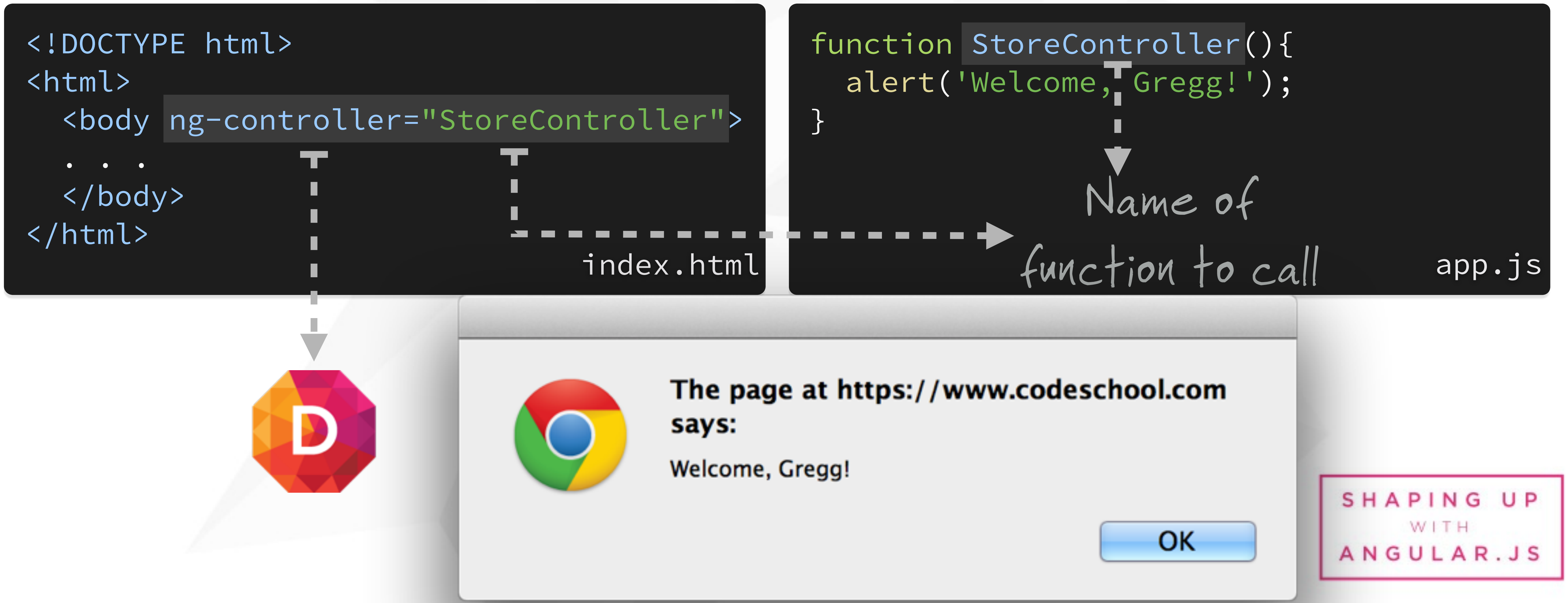
index.html

```
function Store(){
  alert('Welcome, Gregg!');
}
```

app.js

Directives

A **Directive** is a marker on a **HTML tag** that tells Angular to run or reference some **JavaScript code**.



```
<!DOCTYPE html>
<html>
  <body ng-controller="StoreController">
  . . .
  </body>
</html>
```

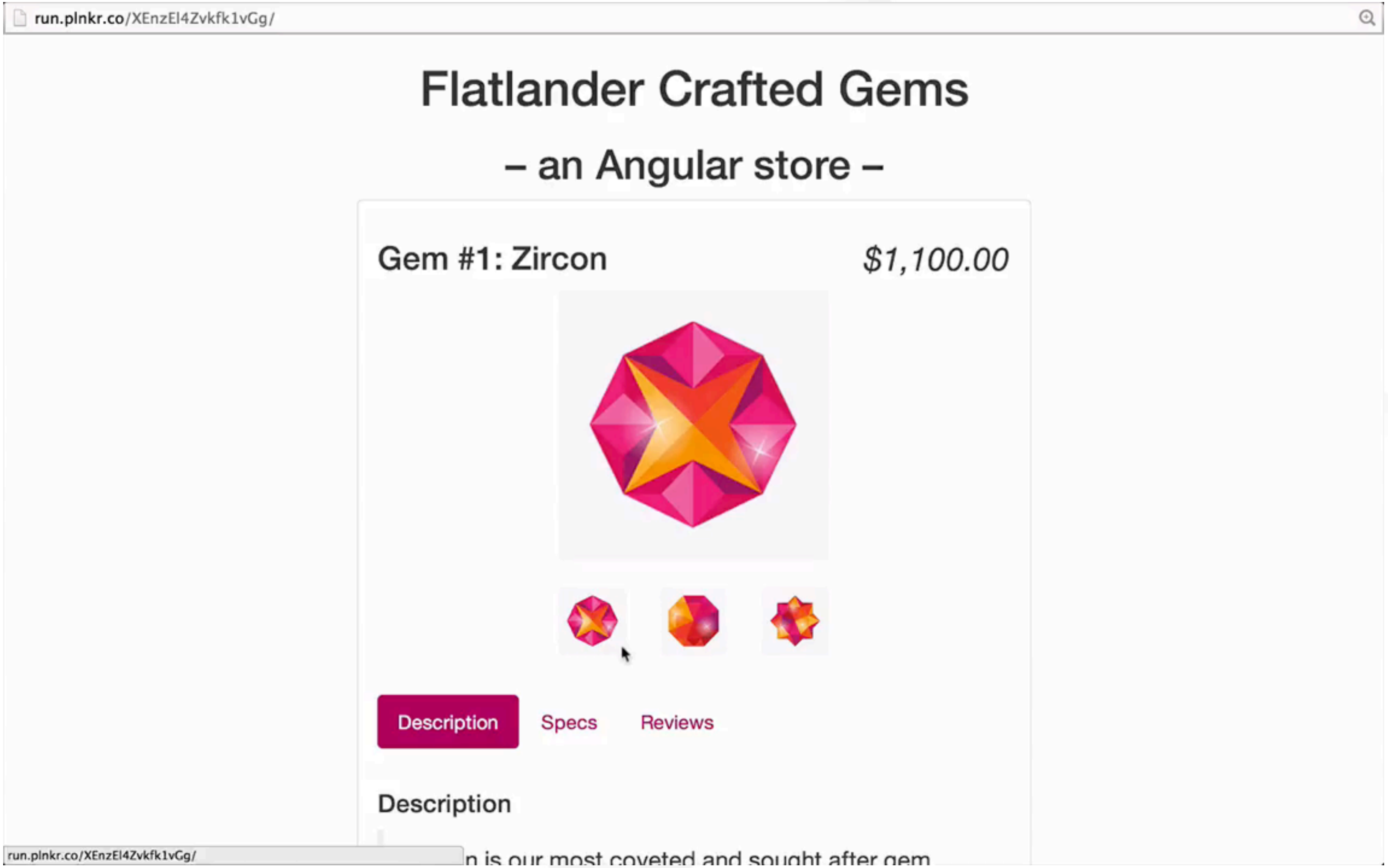
index.html

```
function StoreController(){
  alert('Welcome, Gregg!');
}
```

app.js

The page at https://www.codeschool.com says:

Welcome, Gregg!



run.plnkr.co/XEnzEl4Zvkfk1vGg/

Flatlander Crafted Gems

– an Angular store –

Gem #1: Zircon

$1,100.00

Description

n is our most coveted and sought after gem

run.plnkr.co/XEnzEl4Zvkfk1vGg/

Downloading the libraries

Download AngularJS *http://angularjs.org/*

We'll need **angular.min.js**

Download Twitter Bootstrap *http://getbootstrap.com/*

We'll need **bootstrap.min.css**

Getting Started

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" type="text/css" href="bootstrap.min.css" />
  </head>
  <body>
    <script type="text/javascript" src="angular.min.js"></script>
  </body>
</html>
```

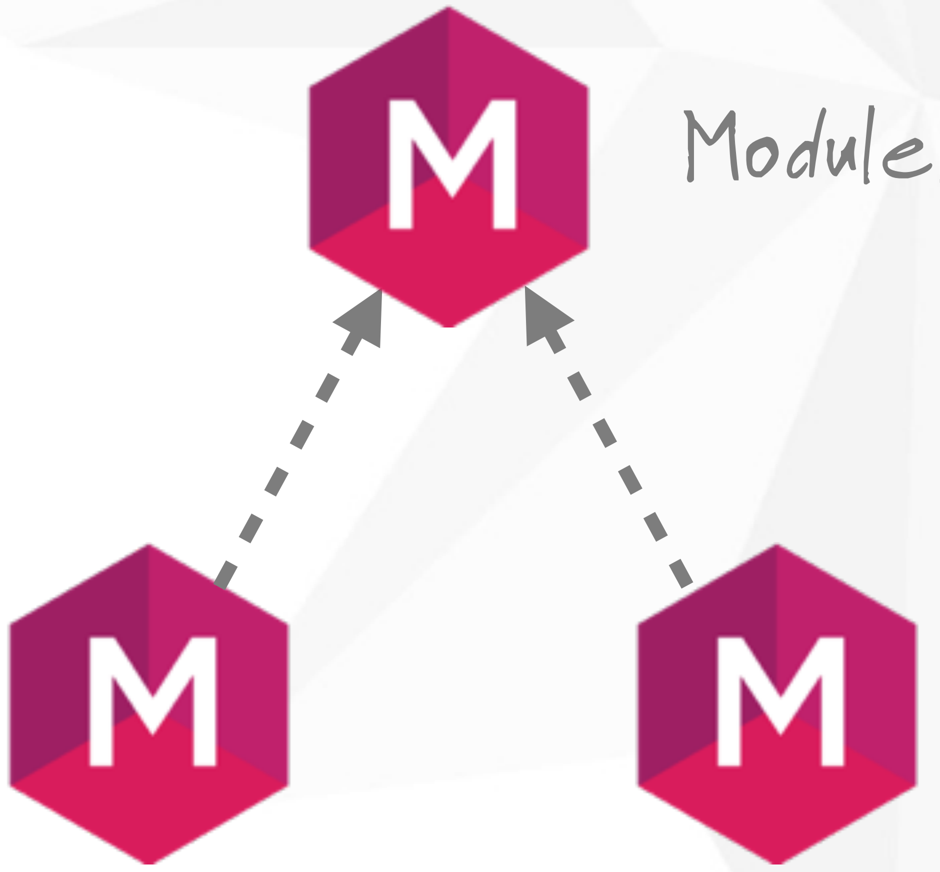
Twitter Bootstrap

AngularJS

index.html

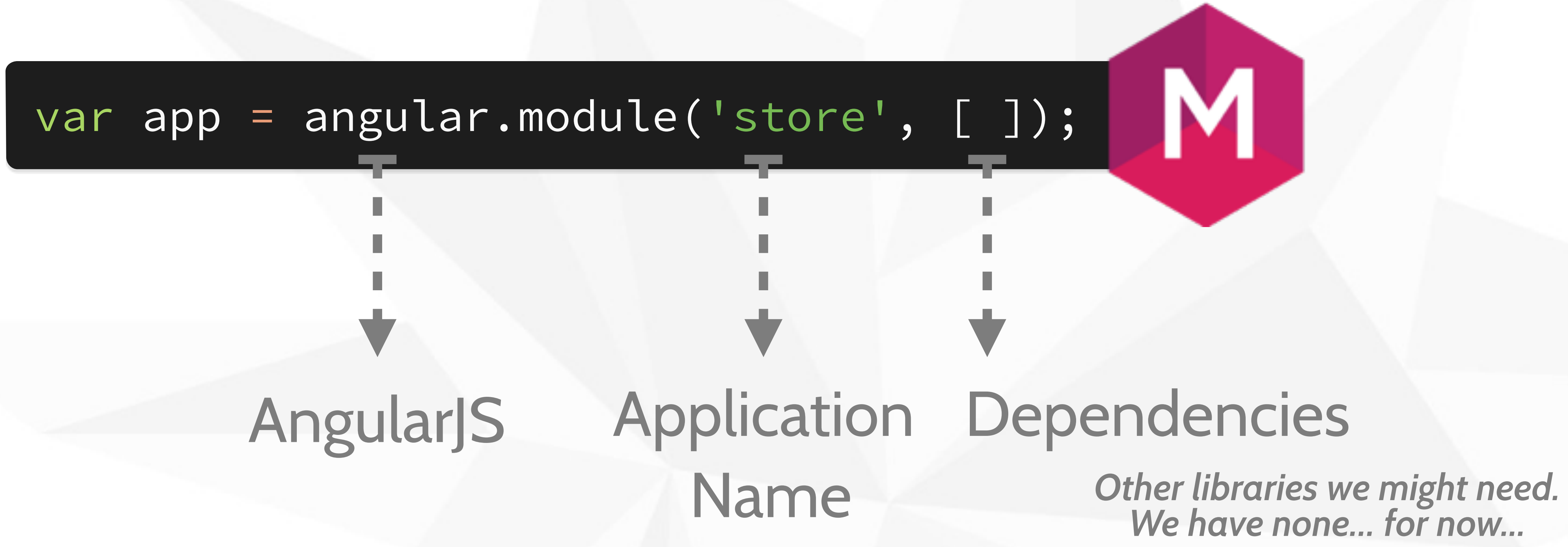
Modules

- Where we write pieces of our Angular application.
- Makes our code more maintainable, testable, and readable.
- Where we define dependencies for our app.



Modules can use other Modules...

Creating Our First Module



```
var app = angular.module('store', [ ]);
```

Other libraries we might need.
We have none... for now...

Including Our Module

```html
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" type="text/css" href="bootstrap.min.css" />
  </head>
  <body>
    <script type="text/javascript" src="angular.min.js"></script>
    <script type="text/javascript" src="app.js"></script>
  </body>
</html>
```

index.html

```javascript
var app = angular.module('store', [ ]);
```

app.js

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Including Our Module

Run this module when the document loads

```
<!DOCTYPE html>
<html ng-app="store">
  <head>
    <link rel="stylesheet" type="text/css" href="bootstrap.min.css" />
  </head>
  <body>
    <script type="text/javascript" src="angular.min.js"></script>
    <script type="text/javascript" src="app.js"></script>
  </body>
</html>
```

index.html

```
var app = angular.module('store', [ ]);
```

app.js

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Expressions

Allow you to insert dynamic values into your HTML.

Numerical Operations

```
<p>
  I am {{4 + 6}}
</p>
```

evaluates to

```
<p>
  I am 10
</p>
```

String Operations

```
<p>
  {{"hello" + " you"}}
</p>
```

evaluates to

```
<p>
  hello you
</p>
```

+ More Operations:
  http://docs.angularjs.org/guide/expression

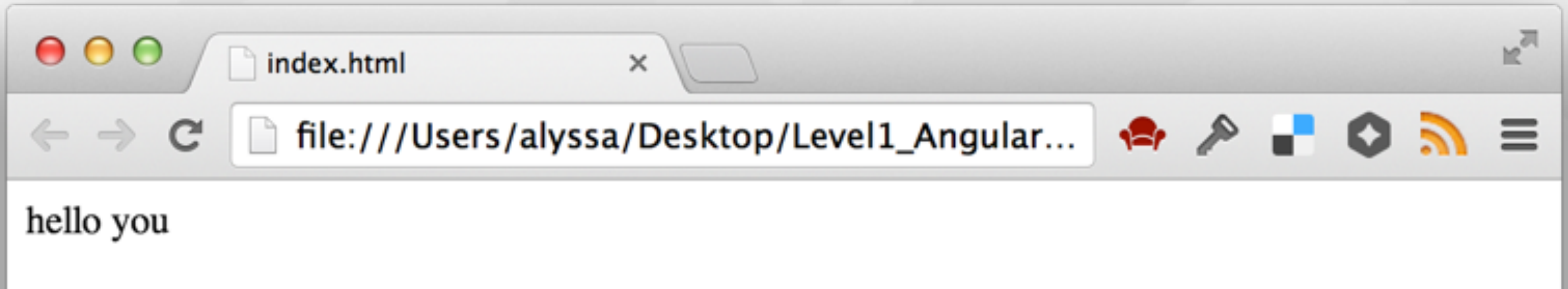
Including Our Module

```html
<!DOCTYPE html>
<html ng-app="store">
  <head>
    <link rel="stylesheet" type="text/css" href="bootstrap.min.css" />
  </head>
  <body>
    <script type="text/javascript" src="angular.min.js"></script>
    <script type="text/javascript" src="app.js"></script>
    <p>{{"hello" + " you"}}</p>
  </body>
</html>
```

index.html

```javascript
var app = angular.module('store', [ ]);
```

app.js


index.html

file:///Users/alyssa/Desktop/Level1_Angular...

```
hello you
```

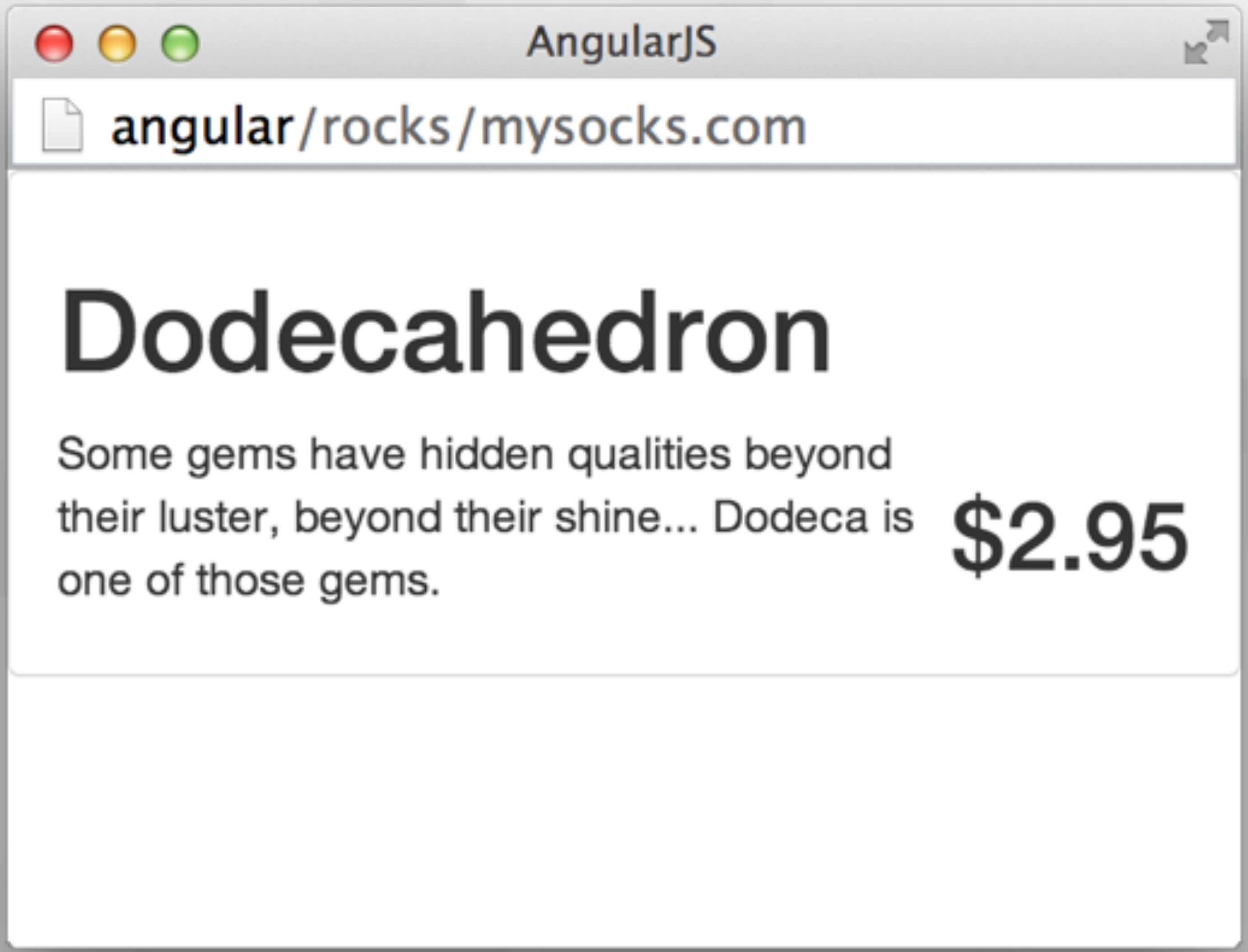
Challenges

SHAPING UP WITH ANGULAR.JS

Working With Data

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
}
```

...just a simple object we want to print to the page.


AngularJS

angular/rocks/mysocks.com

Dodecahedron

Some gems have hidden qualities beyond their luster, beyond their shine... Dodeca is one of those gems.

$2.95

Controllers

Controllers are where we define our app's behavior by defining functions and values.

Wrapping your Javascript in a closure is a good habit!

```
(function(){
  var app = angular.module('store', [ ]);

  app.controller('StoreController', function(){

  });
})();
```

app.js

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
}
```

Notice that controller is attached to (inside) our app.

Storing Data Inside the Controller

```
(function(){
  var app = angular.module('store', [ ]);

  app.controller('StoreController', function(){
    this.product = gem;
  });

  var gem = {
    name: 'Dodecahedron',
    price: 2.95,
    description: '. . .',
  }
})();
```

app.js

Now how do we print out this data inside our webpage?

Our Current HTML

```html
<!DOCTYPE html>
<html ng-app="store">
  <head>
    <link rel="stylesheet" type="text/css" href="bootstrap.min.css" />
  </head>
  <body>
    <div>
      <h1> Product Name </h1>
      <h2> $Product Price </h2>
      <p> Product Description </p>
    </div>
    <script type="text/javascript" src="angular.min.js"></script>
    <script type="text/javascript" src="app.js"></script>
  </body>
</html>
```

Let's load our data into this part of the page.

index.html

Attaching the Controller

```html
<body>
  <div>
    <h1> Product Name </h1>
    <h2> $Product Price </h2>
    <p> Product Description </p>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```
index.html

```javascript
(function(){
  var app = angular.module('store', [ ]);

  app.controller('StoreController', function(){
    this.product = gem;
  });
  . . .
})();
```
app.js

SHAPING UP WITH ANGULAR.JS

Attaching the Controller

Directive Controller name Alias

```
<body>
  <div ng-controller="StoreController as store">
    <h1> Product Name </h1>
    <h2> $Product Price </h2>
    <p> Product Description </p>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

```
(function(){
  var app = angular.module('store', [ ]);

  app.controller('StoreController', function(){
    this.product = gem;
  });
  . . .
})();
```

app.js

SHAPING UP WITH ANGULAR.JS

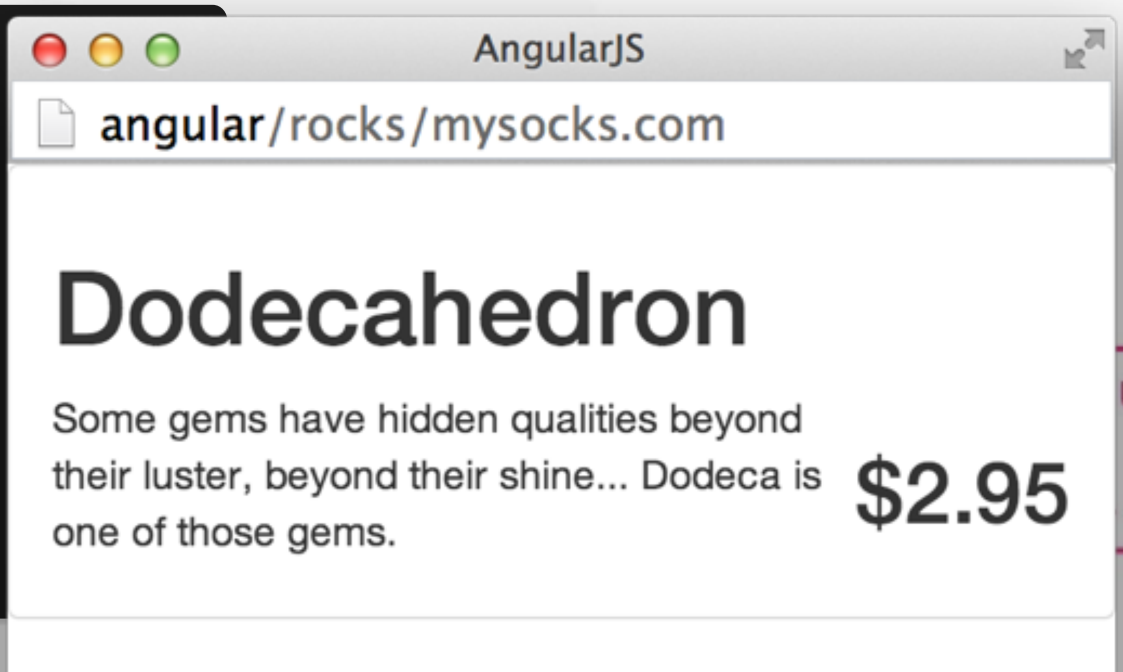
Displaying Our First Product

```html
<body>
  <div ng-controller="StoreController as store">
     <h1> {{store.product.name}} </h1>
     <h2> ${{store.product.price}} </h2>
     <p> {{store.product.description}} </p>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

```javascript
(function(){
  var app = angular.module('store', [ ]);

  app.controller('StoreController', function(){
    this.product = gem;
  });
  . . .
})();
```


AngularJS

angular/rocks/mysocks.com

Dodecahedron

Some gems have hidden qualities beyond their luster, beyond their shine... Dodeca is one of those gems.

$2.95

Understanding Scope

```
<body>
  <div ng-controller="StoreController as store">
     <h1> {{store.product.name}} </h1>
     <h2> ${{store.product.price}} </h2>
     <p> {{store.product.description}} </p>
  </div>
  {{store.product.name}}
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

The scope of the Controller is only inside here...

Would never print a value!

Challenges

SHAPING UP WITH ANGULAR.JS

Adding A Button

```
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.product.name}} </h1>
    <h2> ${{store.product.price}} </h2>
    <p> {{store.product.description}} </p>

  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
}
```

SHAPING UP WITH ANGULAR.JS

Adding A Button

```
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.product.name}} </h1>
    <h2> ${{store.product.price}} </h2>
    <p> {{store.product.description}} </p>
    <button> Add to Cart </button>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

Directives to the rescue!

How can we only show this button...

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
  canPurchase: false
}
```

...when this is true?

SHAPING UP WITH ANGULAR.JS

NgShow Directive

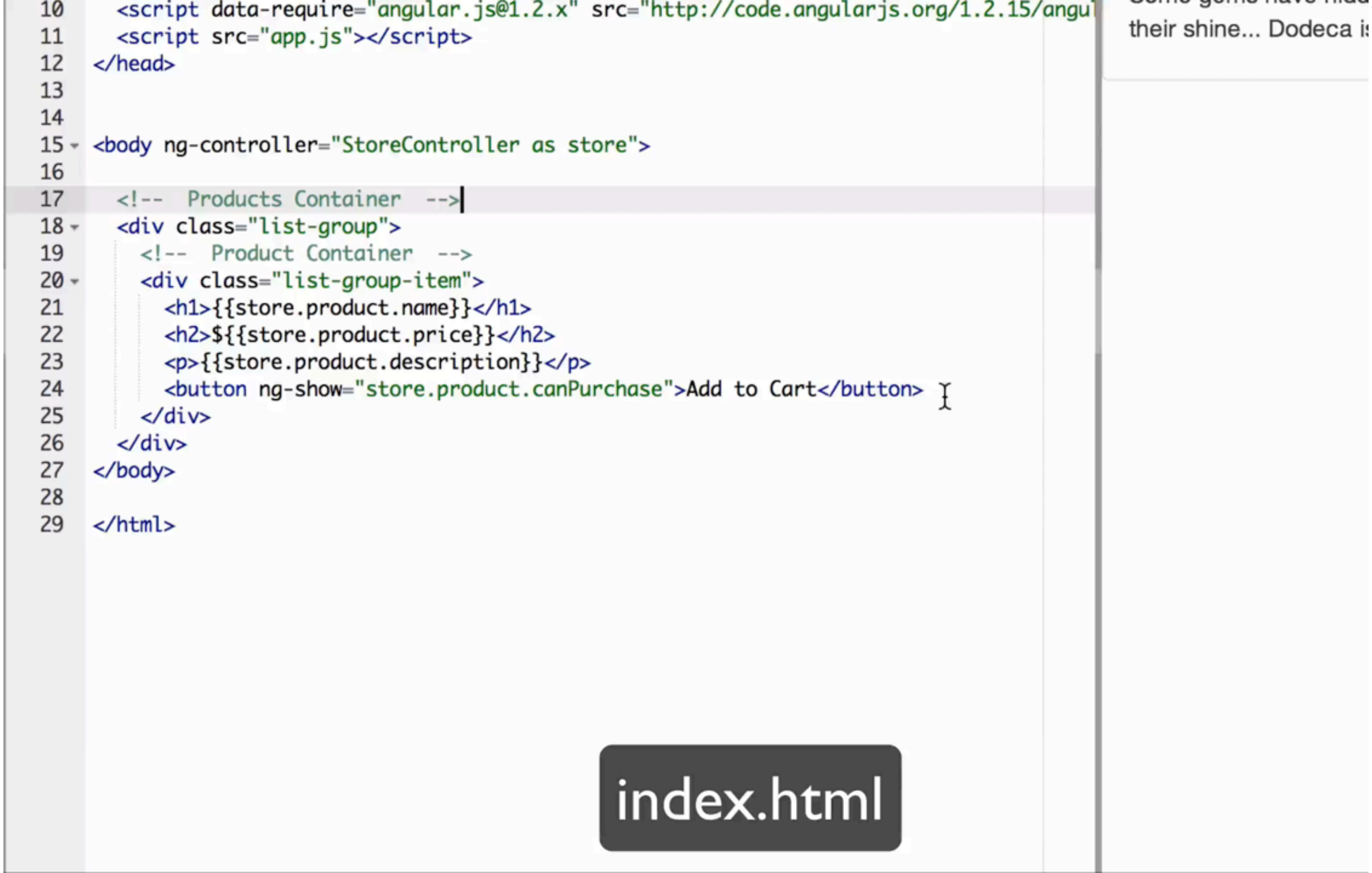
```
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.product.name}} </h1>
    <h2> ${{store.product.price}} </h2>
    <p> {{store.product.description}} </p>
    <button ng-show="store.product.canPurchase"> Add to Cart </button>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
  canPurchase: false
}
```

Will only show the element if the value of the Expression is **true**.

SHAPING UP WITH ANGULAR.JS



```
  <script data-require="angular.js@1.2.x" src="http://code.angularjs.org/1.2.15/angu
  <script src="app.js"></script>
</head>


<body ng-controller="StoreController as store">

  <!--  Products Container  -->
  <div class="list-group">
    <!--  Product Container  -->
    <div class="list-group-item">
      <h1>{{store.product.name}}</h1>
      <h2>${{store.product.price}}</h2>
      <p>{{store.product.description}}</p>
      <button ng-show="store.product.canPurchase">Add to Cart</button>
    </div>
  </div>
</body>

</html>
```

their shine... Dodeca i

index.html

NgHide Directive

```
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.product.name}} </h1>
    <h2> ${{store.product.price}} </h2>
    <p> {{store.product.description}} </p>
    <button ng-show="store.product.canPurchase"> Add to Cart </button>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
  canPurchase: true,
  soldOut: true
}
```

If the product is sold out
we want to hide it.

SHAPING UP WITH ANGULAR.JS

NgHide Directive

```
<body ng-controller="StoreController as store">
  <div ng-show="!store.product.soldOut">
    <h1> {{store.product.name}} </h1>
    <h2> ${{store.product.price}} </h2>
    <p> {{store.product.description}} </p>
    <button ng-show="store.product.canPurchase"> Add to Cart </button>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```

index.html

This is awkward and a good example to use ng-hide!

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
  canPurchase: true,
  soldOut: true,
}
```

If the product is sold out we want to hide it.

SHAPING UP WITH ANGULAR.JS

NgHide Directive

```
<body ng-controller="StoreController as store">
  <div ng-hide="store.product.soldOut">
    <h1> {{store.product.name}} </h1>
    <h2> ${{store.product.price}} </h2>
    <p> {{store.product.description}} </p>
    <button ng-show="store.product.canPurchase"> Add to Cart </button>
  </div>
  <script type="text/javascript" src="angular.min.js"></script>
  <script type="text/javascript" src="app.js"></script>
</body>
```
index.html

Much better!

```
var gem = {
  name: 'Dodecahedron',
  price: 2.95,
  description: '. . .',
  canPurchase: true,
  soldOut: true,
}
```

If the product is sold out we want to hide it.

SHAPING UP WITH ANGULAR.JS

Multiple Products

```
app.controller('StoreController', function(){
  this.product = gem;
});


var gem = {
  name: "Dodecahedron",
  price: 2.95,
  description: ". . .",
  canPurchase: true,
}
```

app.js

SHAPING UP WITH ANGULAR.JS

Multiple Products

```
app.controller('StoreController', function(){
  this.products = gems;
});
```

So we have multiple products...

```
var gems = [
  {
    name: "Dodecahedron",
    price: 2.95,
    description: ". . .",
    canPurchase: true,
  },
  {
    name: "Pentagonal Gem",
    price: 5.95,
    description: ". . .",
    canPurchase: false,
  }…
];
```

Now we have an array...

Maybe a Directive?

How might we display all these products in our template?

app.js

Working with An Array

```
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.products[0].name}} </h1>
    <h2> ${{store.products[0].price}} </h2>
    <p> {{store.products[0].description}} </p>
    <button ng-show="store.products[0].canPurchase">
      Add to Cart</button>
  </div>
  . . .
</body>
```

index.html

Working with An Array

```html
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.products[0].name}} </h1>
    <h2> ${{store.products[0].price}} </h2>
    <p> {{store.products[0].description}} </p>
    <button ng-show="store.products[0].canPurchase">
      Add to Cart</button>
  </div>
  . . .
</body>
```

Displaying the first product is easy enough...

index.html

Working with An Array

```
<body ng-controller="StoreController as store">
  <div>
    <h1> {{store.products[0].name}} </h1>
    <h2> ${{store.products[0].price}} </h2>
    <p> {{store.products[0].description}} </p>
    <button ng-show="store.products[0].canPurchase">
      Add to Cart</button>
  </div>
  <div>
    <h1> {{store.products[1].name}} </h1>
    <h2> ${{store.products[1].price}} </h2>
    <p> {{store.products[1].description}} </p>
    <button ng-show="store.products[1].canPurchase">
      Add to Cart</button>
  </div>
  . . .
</body>
```

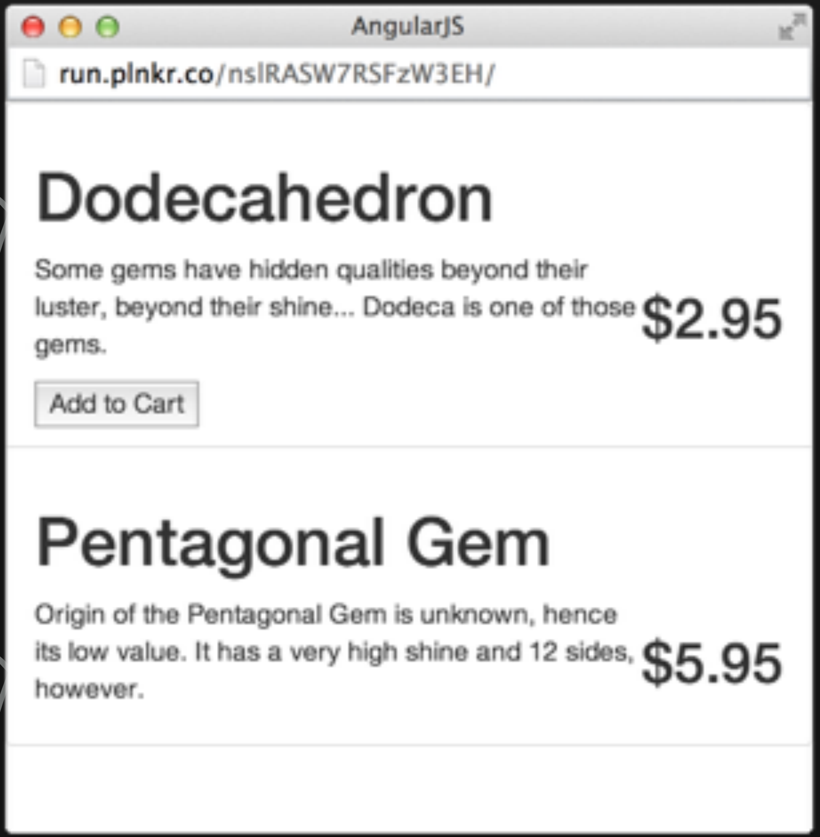
Why

Why

That works...

Why... You get it.

index.html


AngularJS
run.plnkr.co/nslRASW7RSFzW3EH/

Dodecahedron

$2.95

Some gems have hidden qualities beyond their luster, beyond their shine... Dodeca is one of those gems.

Add to Cart

Pentagonal Gem

$5.95

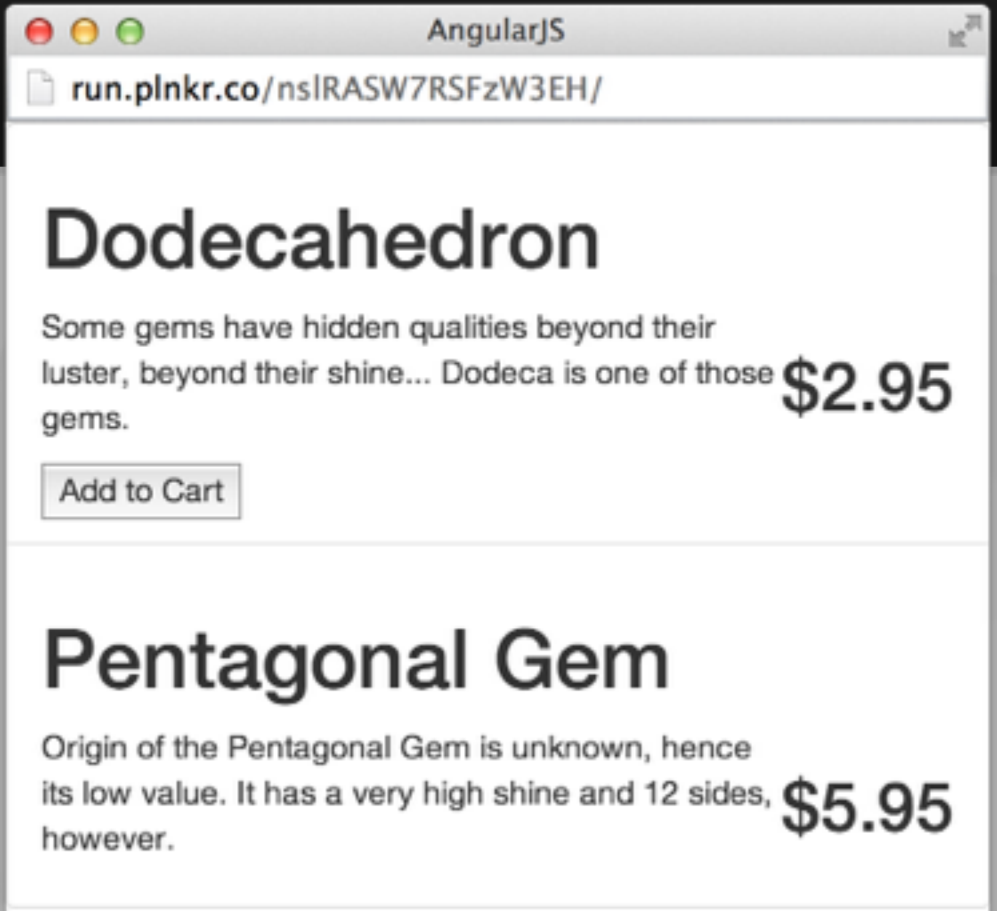
Origin of the Pentagonal Gem is unknown, hence its low value. It has a very high shine and 12 sides, however.

Working with An Array

```
<body ng-controller="StoreController as store">
  <div ng-repeat="product in store.products">
    <h1> {{product.name}} </h1>
    <h2> ${{product.price}} </h2>
    <p> {{product.description}} </p>
    <button ng-show="product.canPurchase">
      Add to Cart</button>
  </div>
  . . .
</body>
```

Repeat this section for each product.

index.html


AngularJS
run.plnkr.co/nslRASW7RSFzW3EH/

Dodecahedron
$2.95
Some gems have hidden qualities beyond their luster, beyond their shine... Dodeca is one of those gems.
Add to Cart

Pentagonal Gem
$5.95
Origin of the Pentagonal Gem is unknown, hence its low value. It has a very high shine and 12 sides, however.

What We Have Learned So Far

D **Directives** – HTML annotations that trigger Javascript behaviors

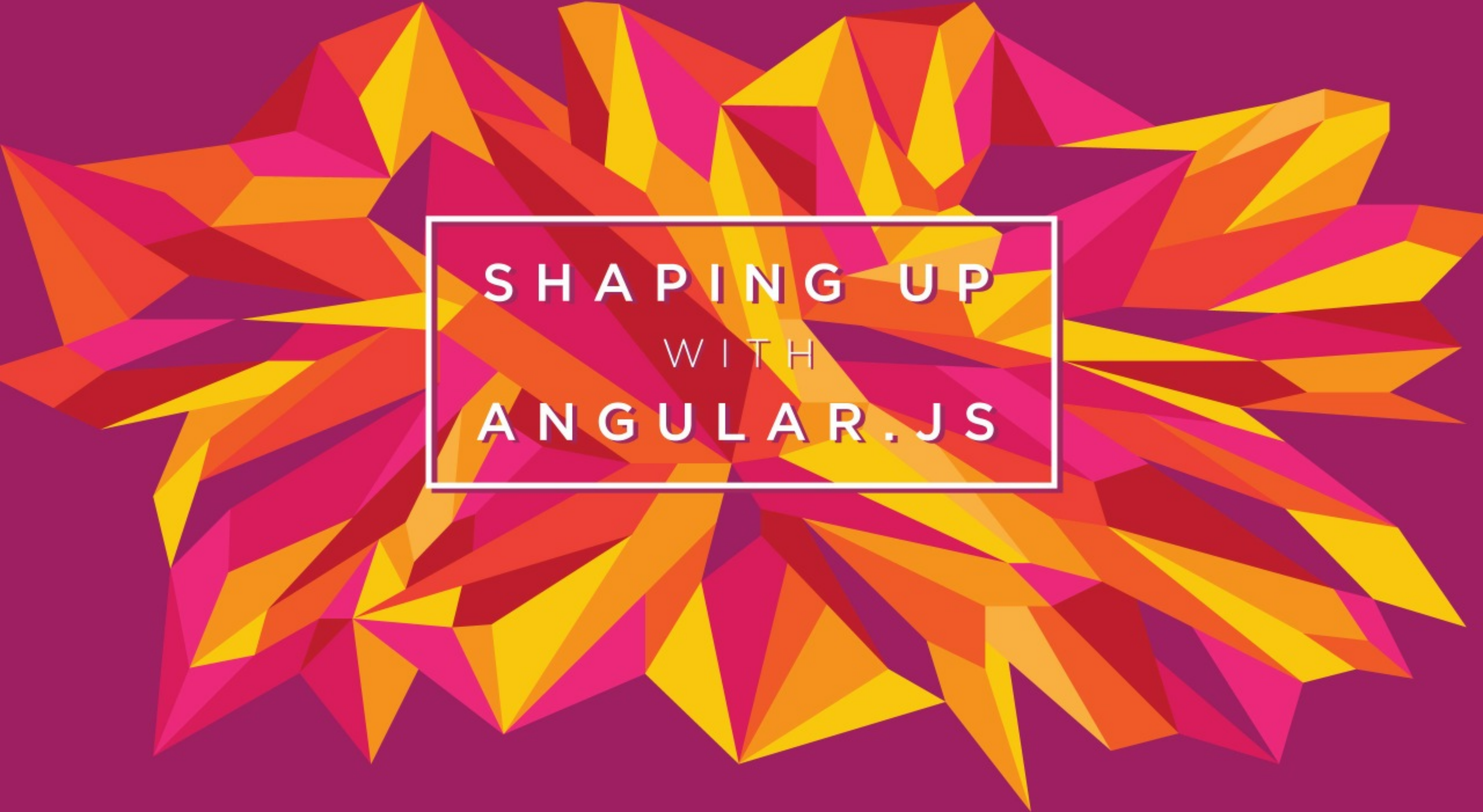
M **Modules** – Where our application components live

C **Controllers** – Where we add application behavior

E **Expressions** – How values get displayed within the page

Challenges

SHAPING UP WITH ANGULAR.JS



SHAPING UP WITH ANGULAR.JS