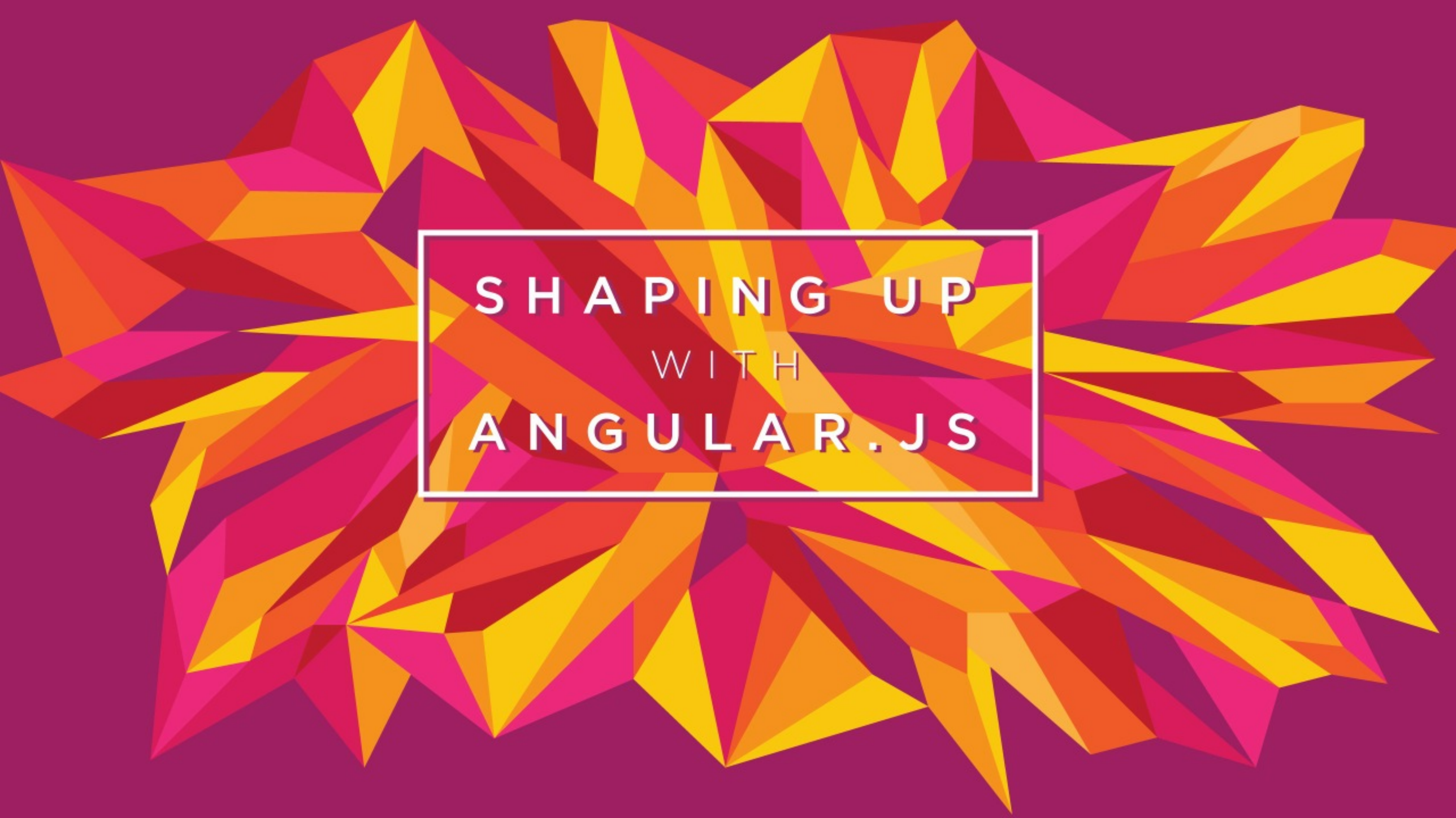

SHAPING UP
WITH
ANGULAR.JS

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

Traditional Page-Refresh

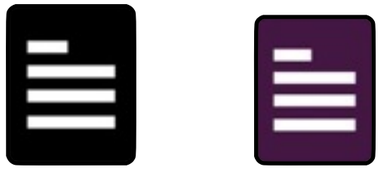
Web Server

Web Browser

URL Request to server

Response with Webpage & Assets

HTML JavaScript

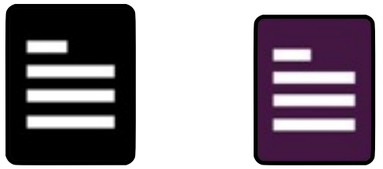


Browser loads up entire webpage.

User clicks on link, new Request

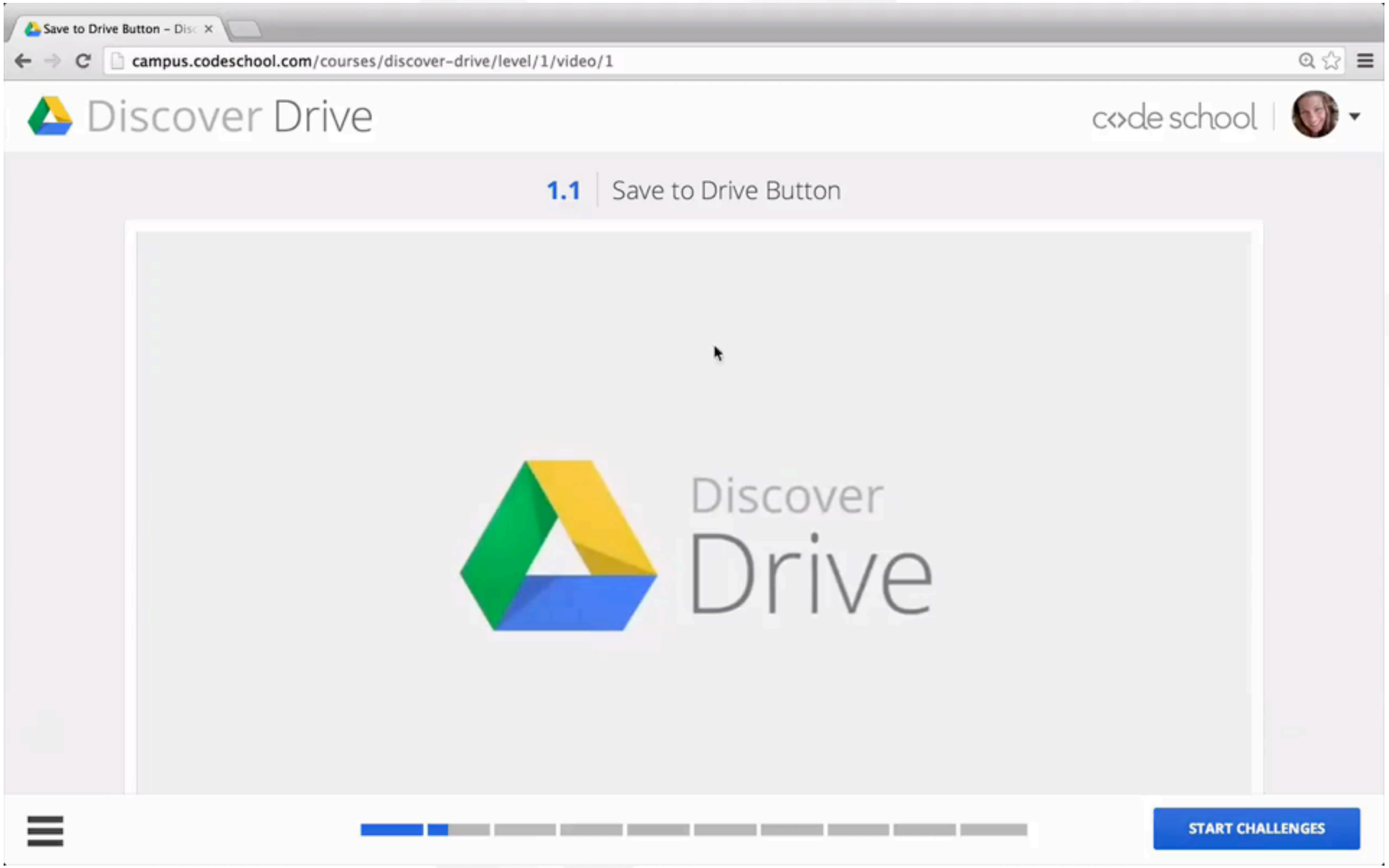
Response with Webpage & Assets

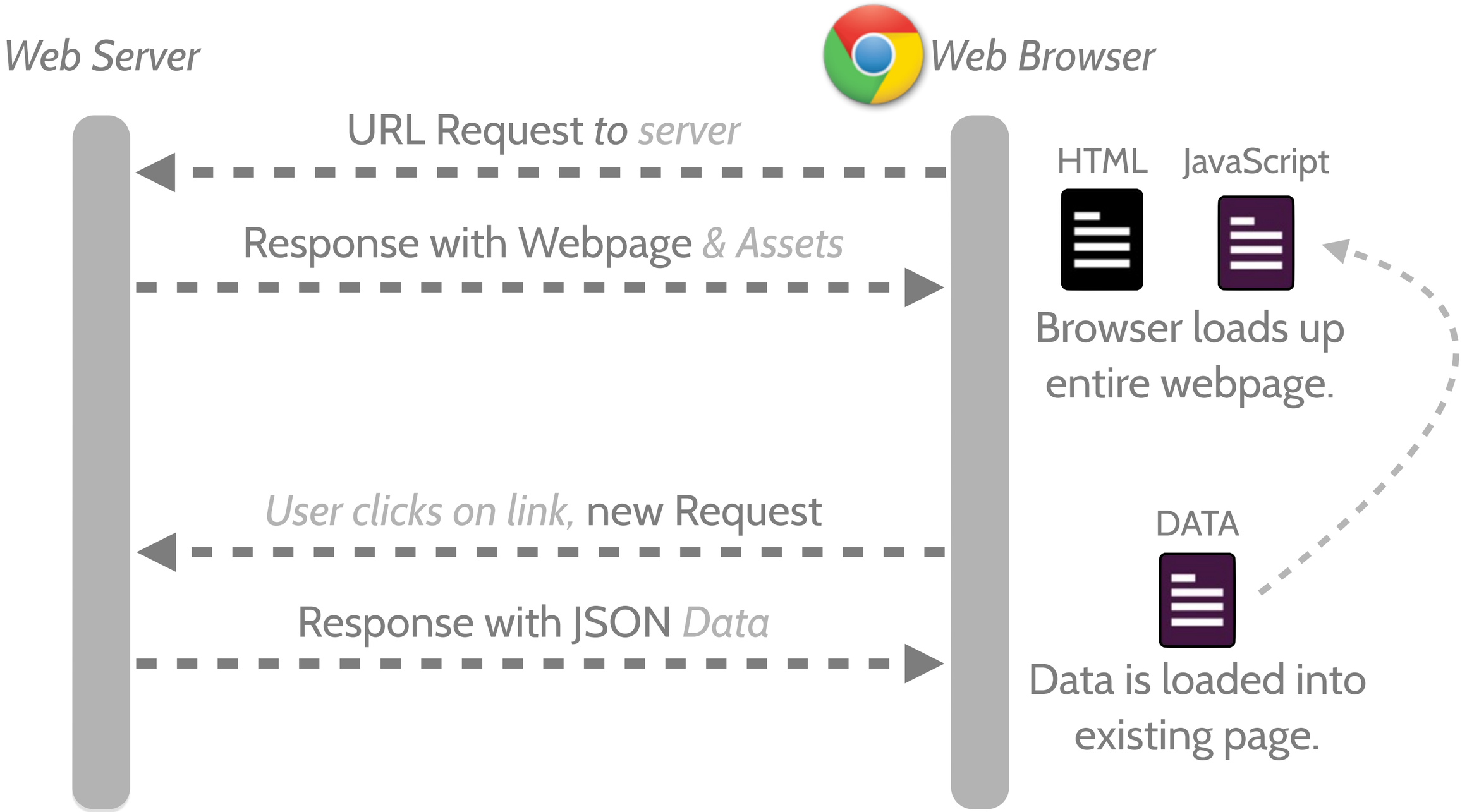
HTML JavaScript



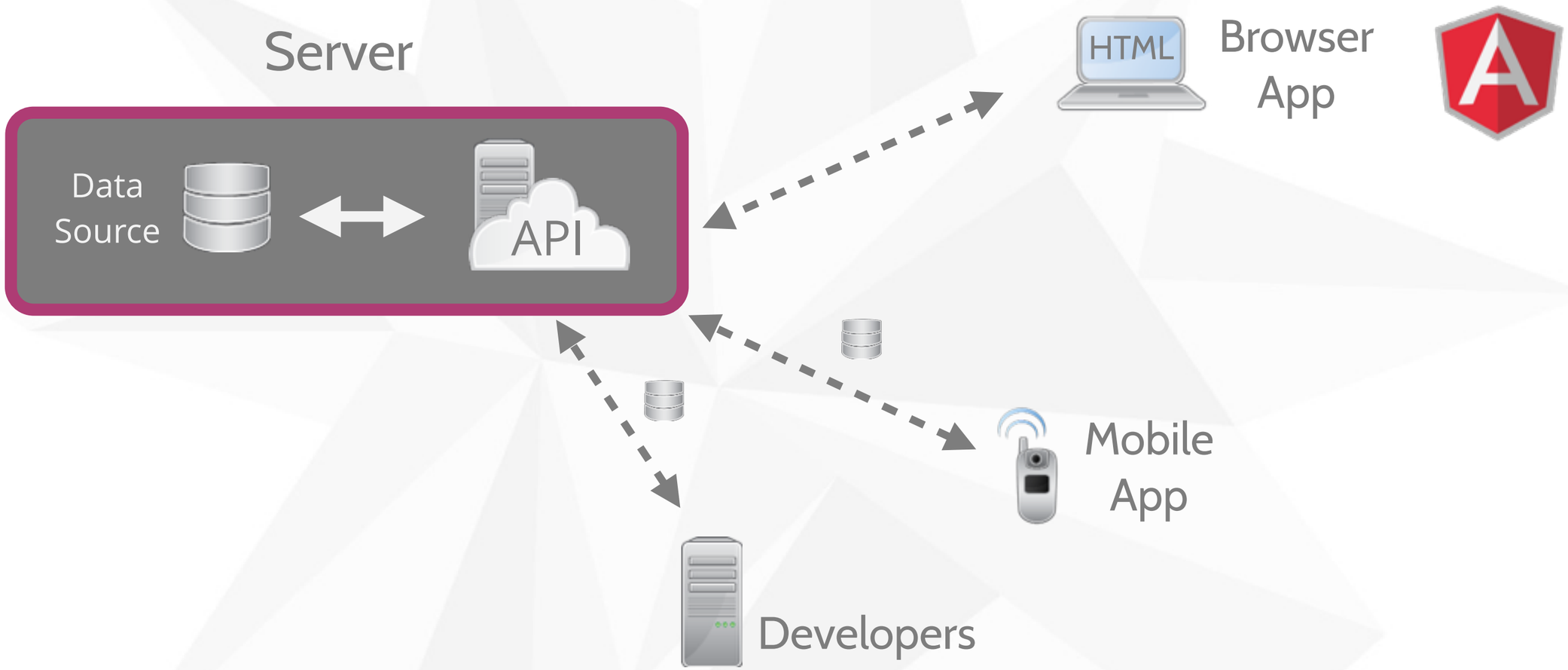
Browser loads up entire webpage.

A “responsive” website using Angular




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
DATA
Response with JSON 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

SHAPING UP WITH ANGULAR.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!');
}
```

Name of function to call

app.js

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

Welcome, Gregg!

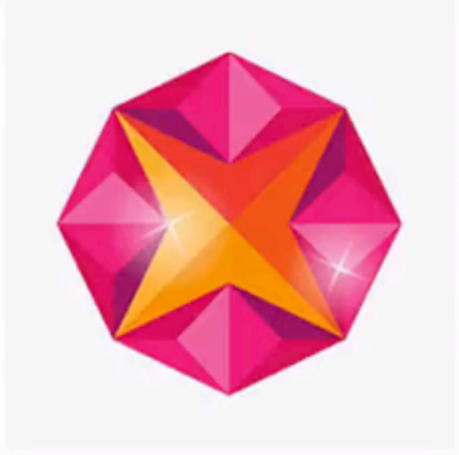
OK

SHAPING UP WITH ANGULAR.JS

Flatlander Crafted Gems

– an Angular store –

Gem #1: Zircon *$1,100.00*



Description Specs Reviews

Description

n is our most coveted and sought after gem

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**

SHAPING UP
WITH
ANGULAR.JS

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

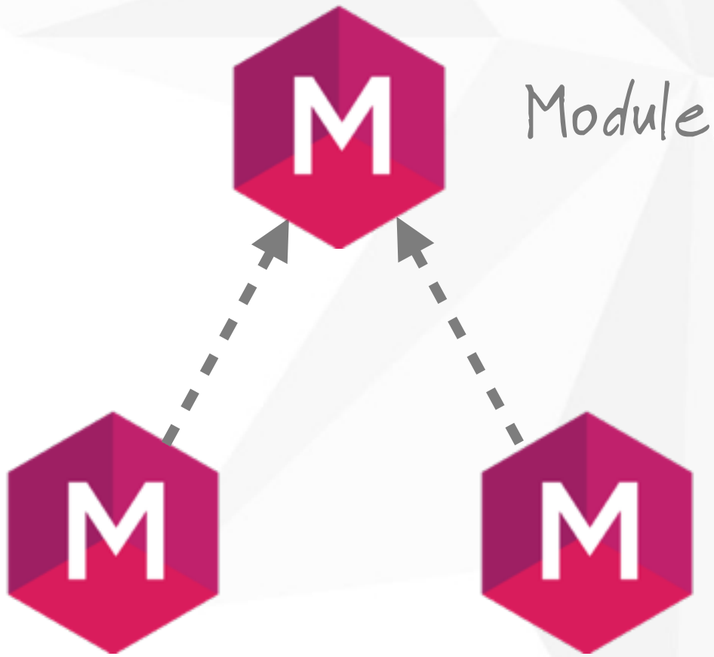
AngularJS

index.html

SHAPING UP WITH ANGULAR.JS

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...

SHAPING UP WITH ANGULAR.JS

Creating Our First Module

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

AngularJS

Application Name

Dependencies

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

SHAPING UP WITH ANGULAR.JS

Including Our Module

```
<!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

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

app.js

SHAPING UP WITH ANGULAR.JS

Including Our Module

```
<!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>
```

Run this module when the document loads.

index.html

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

app.js

SHAPING UP WITH ANGULAR.JS

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

SHAPING UP WITH ANGULAR.JS

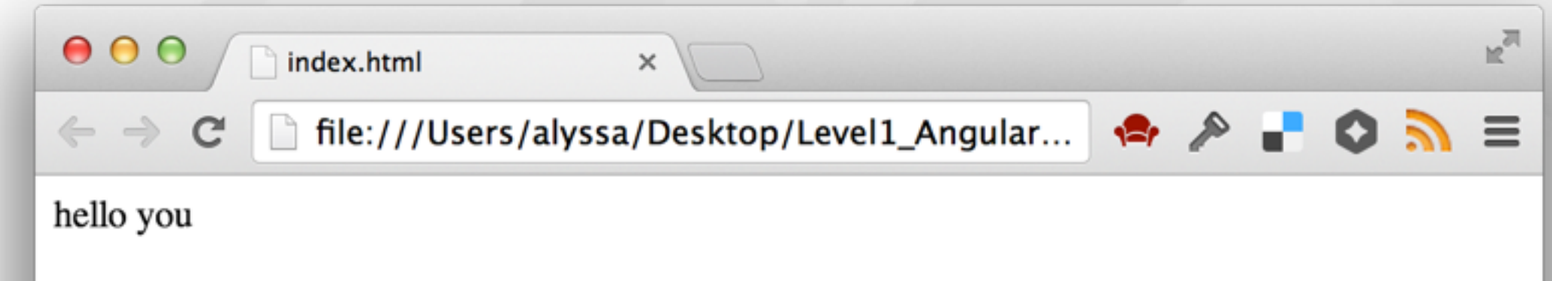
Including Our Module

```
<!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

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

app.js



SHAPING UP WITH ANGULAR.JS

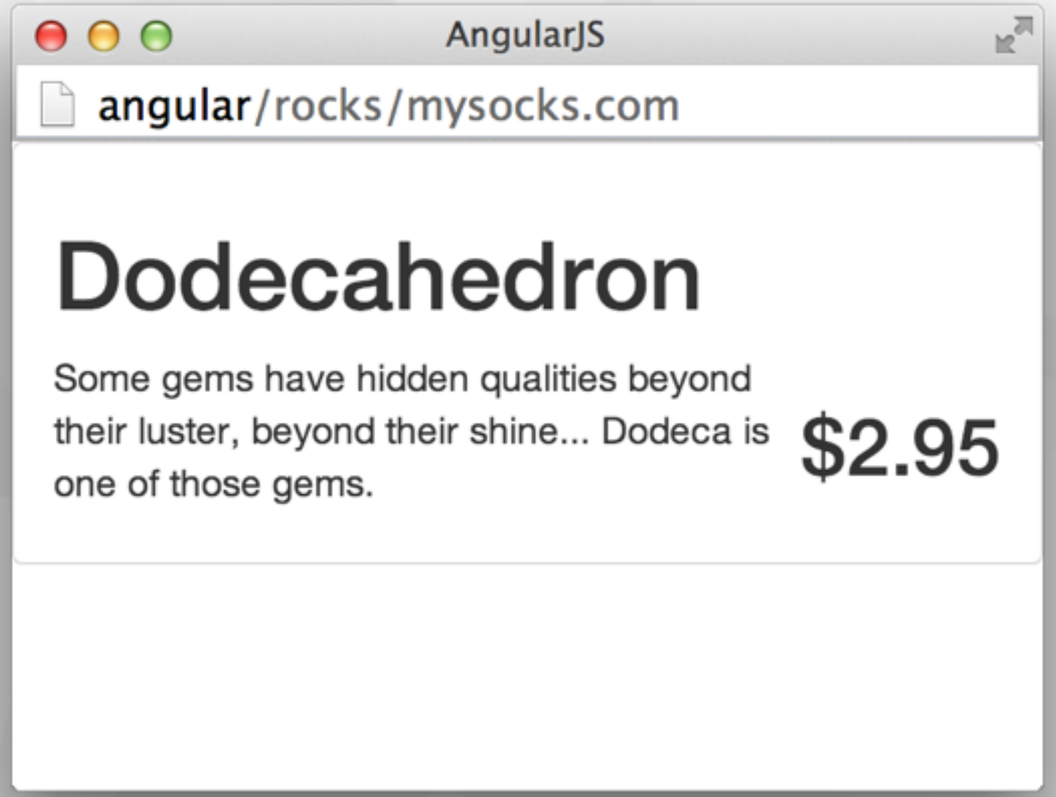
Challenges

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.



SHAPING UP WITH ANGULAR.JS

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.

SHAPING UP WITH ANGULAR.JS

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?

SHAPING UP WITH ANGULAR.JS

Our Current 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>
```

Lets load our data into this part of the page.

index.html

Attaching the Controller

```
<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

```
(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

```
<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

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

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

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!

SHAPING UP WITH ANGULAR.JS

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

```
10    <script data-require="angular.js@1.2.x" src="http://code.angularjs.org/1.2.15/angul
11    <script src="app.js"></script>
12  </head>
13
14
15  <body ng-controller="StoreController as store">
16
17    <!--  Products Container  -->
18    <div class="list-group">
19      <!--  Product Container  -->
20      <div class="list-group-item">
21        <h1>{{store.product.name}}</h1>
22        <h2>${{store.product.price}}</h2>
23        <p>{{store.product.description}}</p>
24        <button ng-show="store.product.canPurchase">Add to Cart</button>
25      </div>
26    </div>
27  </body>
28
29  </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;
});

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

So we have multiple products...

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

```
<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>
```

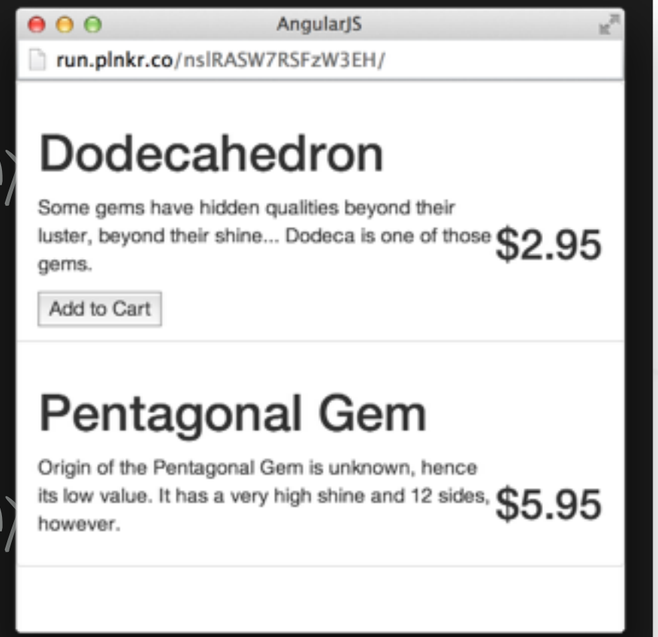
Displaying the first product is easy enough...

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>
```

That works...



Why

Why

Why... You get it.

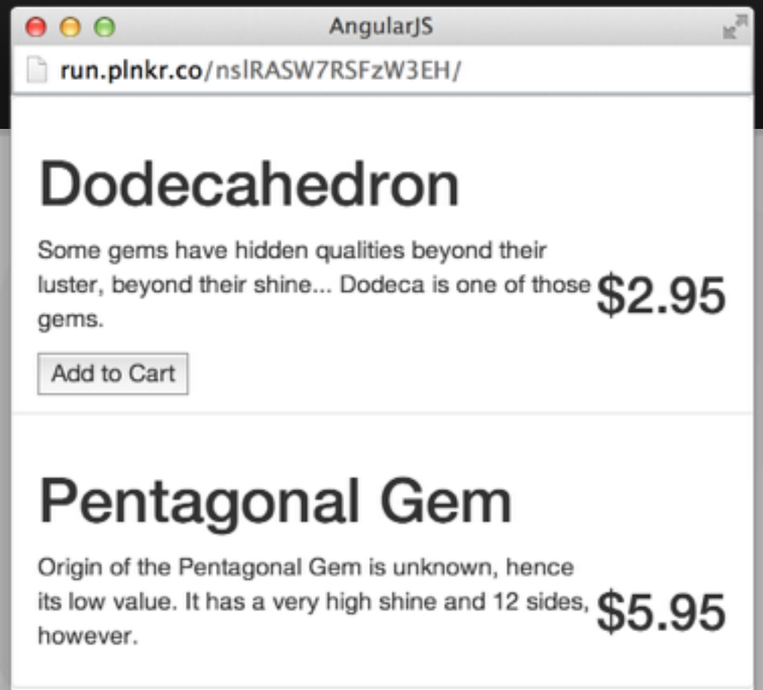
index.html

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="products.canPurchase">
      Add to Cart</button>
  </div>
  . . .
</body>
```

Repeat this section for each product.

index.html



What We Have Learned So Far

Directives – HTML annotations that trigger Javascript behaviors

Modules – Where our application components live

Controllers – Where we add application behavior

Expressions – How values get displayed within the page

SHAPING UP
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Challenges

SHAPING UP
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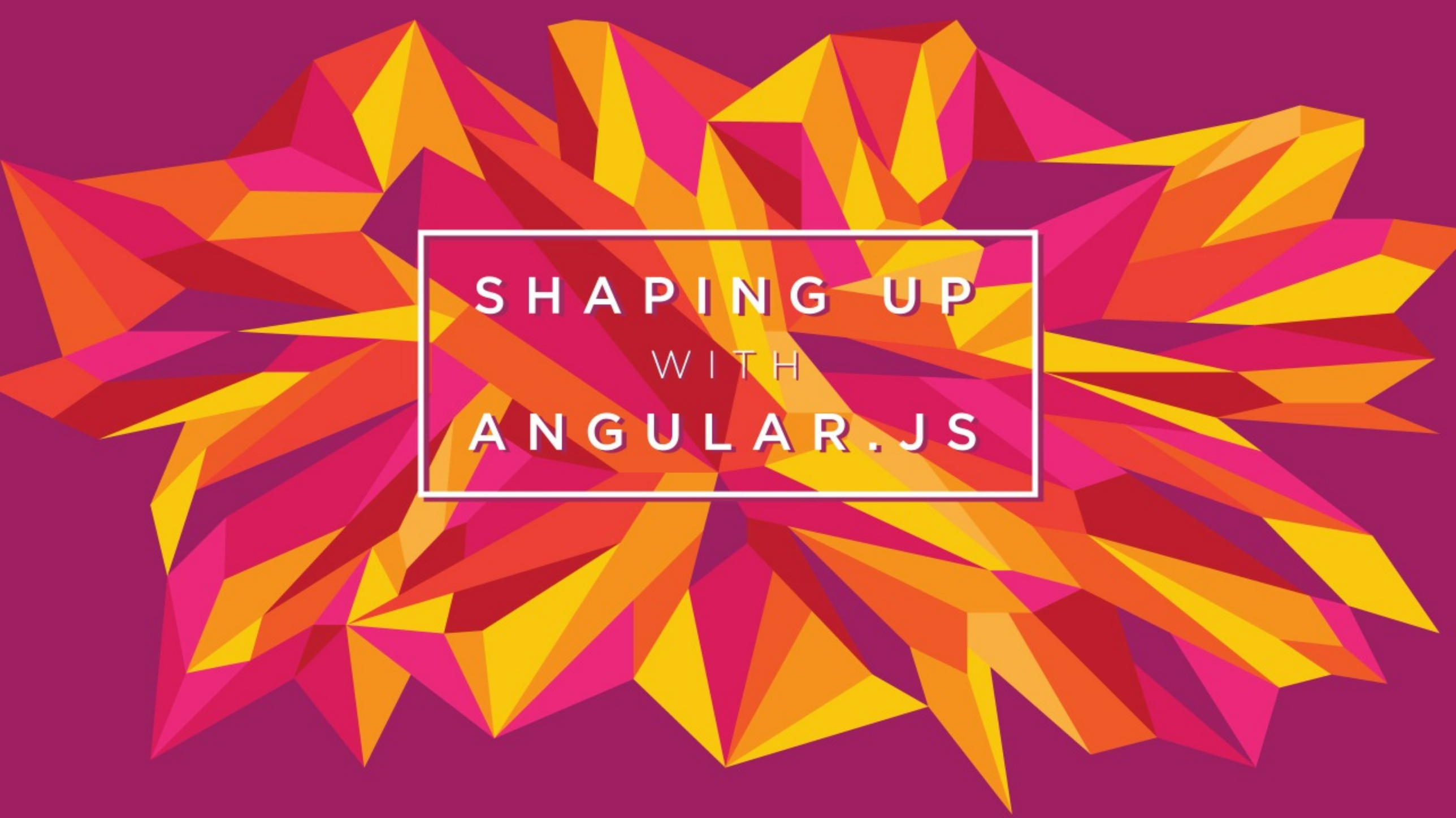
SHAPING UP
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