Angular.js

Scotty Labs WDW

WHAT is Angular?

- Framework for Web Applications
- Follows an MVC-like setup to organize your code
- It is MVC because of the way it handles data and other web frameworks work similarly
- Extend the capabilities of HTML
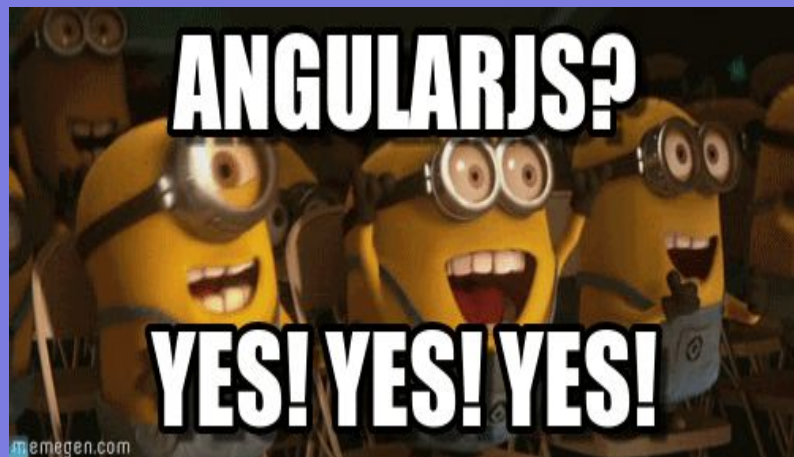- Has two-way data binding aka when model is changed in view, the view is changed automatically

Why is it Called Angular?

HTML has angle brackets, which we use to create some functionality with Angular

Why Should You Use Angular?

~ Google made it so it has to be good?

Made with Angular

Javascript Versus Angular For Hello World

hello.js

```
document.getElementById("hello").innerHTML = "Hello World"
```

app.js

```
angular.module('App', [])
.controller('MainCtrl', ['$scope', function($scope){
        $scope.test = 'Hello world!';
}]);
```

HTML Versus Angular for Hello World

Angular index.html

```html
<html>
  <head>
    <title>My Angular App!</title>
    <script src="angular.min.js"></script>
    <script src="app.js"></script>
  </head>
  <body ng-app="App" ng-controller="MainCtrl">
    <div>
      {{test}}
    </div>
  </body>
</html>
```

index.html

```html
<html>
  <head>
    <title>My Web App!</title>
  </head>
  <body>
    <div id= "hello">

    </div>
  </body>
</html>
```
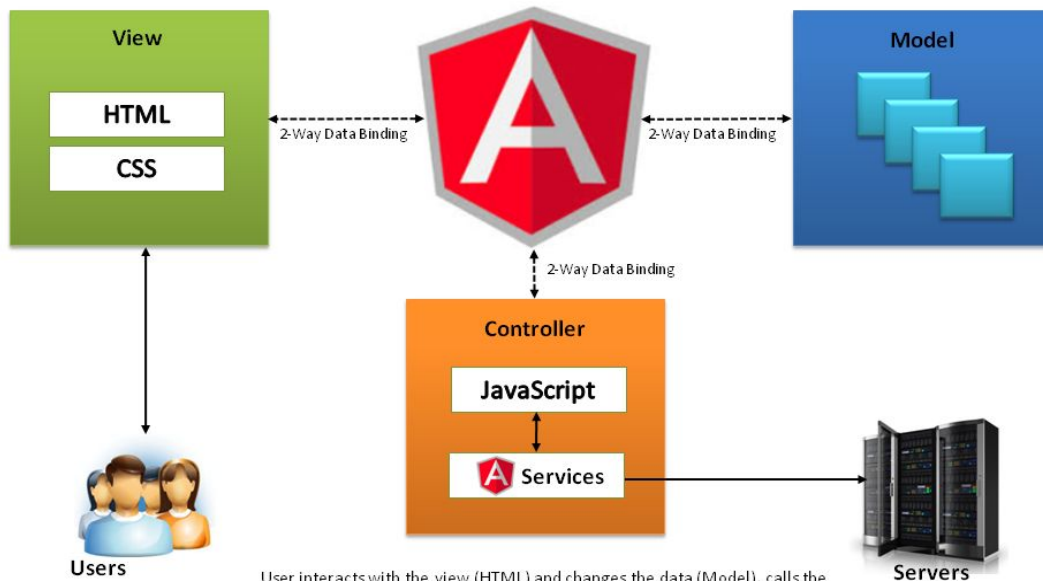
Angular Structure

```
app/
----- controllers/
---------- mainController.js
----- directives/
---------- mainDirective.js
---------- colorDirective.js
----- services/
---------- userService.js
----- js/
---------- bootstrap.js
---------- jquery.js
----- app.js
views/
----- mainView.html
----- index.html
```


View
HTML
CSS

2-Way Data Binding

Model

2-Way Data Binding

2-Way Data Binding

Controller
JavaScript
Services

Users

Servers

User interacts with the view (HTML) and changes the data (Model), calls the controller (interaction), Controller modifies the Model, interacts with Servers via services and performs CRUD/Lookup operations on the data. AngularJS detects any model changes and updates the View via 2-way data binding.

Angular Syntax: Controllers

- Defines the functions and values for the app behavior
  - Format:
    app.controller('ControllerName') , function(){ });
  - The object $scope is often used as the variable for The controller.

  Ex: $watch looks for changes in the model

Angular Syntax: Directives

- Use these in your html code in order to run the Javascript code. There are many different types of directives, but they all start with "ng-"
    - ng-controller: Initializes a controller that needs to be used
    - ng-app: Initializes the app
    - ng-show: Can show or hide elements based on a condition
    - You can also make your own directives!

Angular Modules

- Every angular app needs a module, which is where all of the code for a specific app will be written. Think of it as a main function that defines the characteristics of your entire app or code needed to create a canvas in Python and tkinter.
  - To inject the module into the html code, use the directive
    - ng-app = "appName"
    - Creates the Angular app by calling the javascript code that creates the angular module

Angular Expressions

Expressions: Add dynamic values to HTML

- Numerical Expression : `{{ 2 + 3}}` evaluates to 5
- String Expression: `{{"Hello " + "World"}}` evaluates to "Hello World"
- Variable Expression: `{{text}}` prints out the value of text as defined in the angular app

Angular Filters

- Similar to the filters in Python, but there are more built-ins
- Format: taking some data and put that into a filter which modifies the data
- {{2 | currency}} outputs $2.00

Angular Services

- Helps you organize your code and share it
  - Some built in services:
    - $location, for the path of the current web page
    - $http: request to server for information
  - You can create your own service:
    - Format: app.service("myService", function() {});
    app.factory('serviceName' function serviceFunction(){});

Putting This All Together, Let's go Back to Hello World!

app.js
```
angular.module('App', [])
.controller('MainCtrl',
['$scope', function($scope){
        $scope.test = 'Hello
world!';
}]);
```

Angular index.html
```
<html>
  <head>
    <title>My Angular App!</title>
    <script
src="angular.min.js"></script>
    <script src="app.js"></script>
  </head>
  <body ng-app="App"
ng-controller="MainCtrl">
    <div>
      {{test}}
    </div>
  </body>
</html>
```

There's Much More Magic to Angular, but these are the basics. Now you are ready to make your own Web App

NEW WEB APP
IS COMING

Interactive Lab

You will be making a portfolio website, for Scotty Terrier, by using Angular.js

http://bit.do/AngularJSWDW