# WEBAPPS WITH ANGULARJS

## AN OVERVIEW OF THE FRAMEWORK


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# WHAT IS ANGULARJS

It's a structural framework for dynamic web apps
that's easy to maintain, in a fast and testable way.

# THE PRINCIPLES

- Rapid development
- Modularity
- Built to be testable
- Write less code

# WHAT IT OFFERS US

- Controllers
- Templates
- Two-Way data bindings
- Services
- Directives
- Dependency Injection

# THE SIMPLEST EXAMPLE

```
<!DOCTYPE html>
<html ng-app>
  <head>
    <script src="js/angular.min.js"></script>
  </head>
  <body>
    <form>
      <label>Your name?</label>
      <input type="text" ng-model="name" placeholder="Your name?">
    </form>
    <h3>My name is {{ name }}!</h3>
  </body>
</html>
```

# $SCOPE

$scope is an object that refers to the application model.
It connects the **View** and the **Controller**

## myController.js

```
function MyController($scope) {
  $scope.name = 'Vitor Leal';
}
```

## myView.html

```
<form ng-controller="MyController">
  <input type="text" ng-model="name">
</form>
```

# CONTROLLERS

The controller is a function that augment the $scope object.
It's used to add a value or to add a behavior to the $scope.

```
function TodoCtrl($scope) {
  $scope.todos = [
    { text: 'Learn AngularJS', done: true  },
    { text: 'Create an App',   done: false }
  ];

  $scope.addTodo = function () {
    $scope.todos.push({ text: $scope.todoText, done: false });
    $scope.todoText = '';
  };
};
```

# TEMPLATES

The templates are simply HTML5.
All the presentation logic of the app must be in there.

```
<div ng-controller="TodoCtrl">
  <ul>
    <li ng-repeat="todo in todos">
      <input type="checkbox" ng-model="todo.done">
      <span>{{ todo.text }}</span>
    </li>
  </ul>
  <form ng-submit="addTodo()">
    <input type="text" ng-model="todoText">
    <button type="submit">Add</button>
  </form>
</div>
```

# RESULT

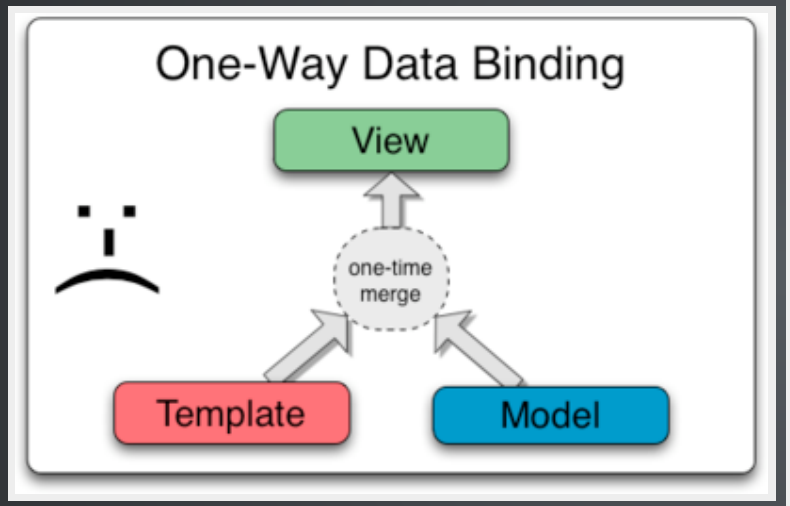
- [x] ~~Learn AngularJS~~
- [ ] Create an App

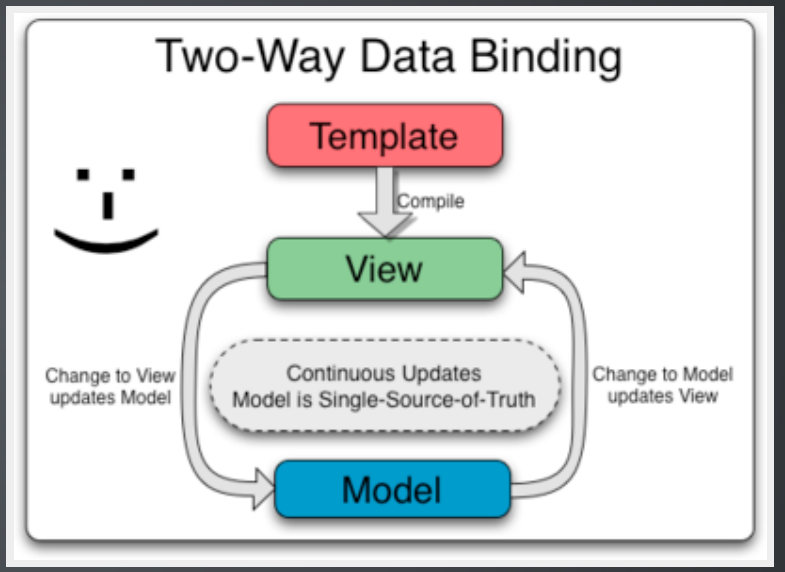
add new task Add

[{ "text": "Learn AngularJS", "done": true },{ "text": "Create an App", "done": false }]

# TWO-WAY DATA BINDING

Two-way data binding is the automatic synchronization of data between the model and view.



# $SCOPE INHERITANCE

When a new $scope is created, it's added as a children of their parent $scope.

MyControllers.js

```
function ParentController($scope) {
  $scope.person = {
    name     : 'Vitor Leal',
    helloText: ''
  };
};

function ChildController($scope) {
  $scope.sayHello = function () {
    $scope.person.helloText = "Hi " + $scope.person.name;
  }
};
```

# $SCOPE INHERITANCE 2

## MyView.html

```
<div ng-controller="ParentController">
  <form ng-controller="ChildController">
    <input type="text" ng-model="person.name" placeholder="Name">
    <button ng-click="sayHello()">Say hello</button>
  </form>
  <p>{{ person.helloText }}</p>
</div>
```


person.helloText =

# SERVICES

Injctable objects that carry out specific tasks.
Provide a way to separate concerns and re-use code.

- $http (ajax)
- $locale
- $timeout
- $filter

# $HTTP

The $http *service* makes easier to integration with external APIs.

Main methods: .get, .post, .put, .delete, .jsonp

```
$http.get('http://address-of.the/api')
  .success(successCallback)
  .error(errorCallback);

$http.post('http://address-of.the/api', data)
  .success(successCallback)
  .error(errorCallback);
```

# $HTTP - EXAMPLE

```
function BeerController($scope, $http) {
  $scope.makeRequest = function () {
    $http.jsonp('http://api.openbeerdatabase.com/v1/beers.json')
      .success(function (data, status) {
        $scope.beers = data.beers;
      })
      .error(function () {
        $scope.beers = [{ name: "No beer for you :(" }]
      });
  };
};
```

```
<div ng-controller="BeerController">
  <ul>
    <li ng-repeat="beer in beers | limitTo:15">
      {{ beer.name }} - {{ beer.brewery.name }}
    </li>
  </ul>
  <button ng-click="makeRequest()">Get beers</button>
</div>
```

# $HTTP - RESULT

Get beers

# MODULES

Angular modules declaratively specify how an application should be bootstrapped.

```
var app = angular.module('myApp', ['third-part-module']);

app.config(function () { ... });     <!-- Configuration -->
app.controller('myController', ...); <!-- Create a controller -->
app.service('myService', ...);       <!-- Create a service -->
```

```
<html ng-app="myApp">
  ...
</html>
```

# ROUTING

In a more complex app you can use the *$routeProvider* service, to define which *controller* and *template* will be loaded in each *path*.

```
var app = angular.module('myApp');

app.config(function ($routeProvider) {
  $routeProvider
    .when('/', {
      controller :'mainController', templateUrl :'/views/index.html'
    })
    .when('/newPost/', {
      controller :'newPostController', templateUrl :'/views/newPost.html'
    })
    .when('/posts/:id', {
      controller :'postsController', templateUrl :'/views/posts.html'
    })
    .otherwise({ redirectTo : '/' });
  });
```

# DIRECTIVES

*"Teach new tricks to the HTML"*

1. Create custom attributes
2. Create custom HTML tags
   (based on W3C *webcomponents* specification)

# DIRECTIVES 2

All the attributes that begin with "ng" are AngularJS directives.

- ng-app
- ng-controller
- ng-model
- ng-repeat
- ng-click
- ng-view
- ...

# DIRECTIVES 3

## How to use *directives*

```
<!doctype html>
<html ng-app="myApp">
  <head>
    <script src="../js/angular.min.js"></script>
  </head>
  <body>
    <ul ng-controller="myListController">
      <li ng-repeat="item in items">
        {{ item.name }}
      </li>
    </ul>
  </body>
</html>
```

# DIRECTIVES 4

You can also create you own *directive*.

- **element**: <my-directive></my-directive>
- **atribute**: 
- **class**: 
- **comment**: <!-- directive: my-directive value -->

# DIRECTIVES 5

```
var app = angular.module('myApp');

app.directive('myDirective', function () {
  return {
    restrict: 'EA',
    link: function ($scope, element) {
      element.text('Text from directive');
    }
  };
});
```

```
<my-directive> </my-directive>  <!-- Directive as element -->

<div my-directive> </div>       <!-- Directive as attribute -->
```

# DIRECTIVES 6

```
var app = angular.module('myApp');

app.directive('myDirective', function () {
  return {
    restrict: 'E',
    replace:  true,
    template: '<h1 class="title"></h1>'
    link: function ($scope, element) {
      element.text('Text from directive');
    }
  };
});
```

```
<my-directive> </my-directive>              <!-- Custom tag -->

<h1 class="title">Text from directive</h1> <!-- Replaced by the template
```

# TESTING YOUR APP

A framework to be easily tested

## TOOLS:

- Karma Test runner
- Jasmine Test framework

# TESTING A CONTROLLER

```
describe('Testing Controller', function () {
  var ctrl, scope;

  beforeEach(angular.mock.module('myApp'));

  beforeEach(inject(function ($controller, $rootScope) {
    scope = $rootScope.$new();
    ctrl  = $controller('myController', { $scope: scope });
  }));

  it('should exist a controller called myController', function() {
    expect(scope).not.toBeUndefined();
  });
});
```

# END-TO-END TESTS

```
describe('Grocery list', function () {
  beforeEach(function () {
    browser().navigateTo('/');
  });

  it('filters the grocery list based on the search query', function() {
    expect(repeater('.groceries li').count()).toBe(5);

    input('query').enter('b');
    expect(repeater('.groceries li').count()).toBe(3);

    input('query').enter('blueberry');
    expect(repeater('.groceries li').count()).toBe(1);
  });
});
```

# REFERENCES

- Angular - http://angularjs.org/
- Karma - http://karma-runner.github.io/
- Jasmine - http://pivotal.github.io/jasmine/
- HandsOn - https://github.com/vitorleal/angular-start.git

# THE END

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