3 Days Training Program

What is AngularJS?

- A JavaScript framework for creating dynamic web applications
- Open Source
  - GitHub: https://github.com/angular/angular.js
  - MIT License
- Uses jQuery
  - jQuery 1.7.1 or above
  - jQLite

MVC

- Model
  - The data
- Controller
  - The behavior
  - Modifying / updating the models
- View
  - The interface
  - How the data is presented to the user

JavaScript

HTML

Data Binding

- Views are declarative
  - The structure of the interface
- Controllers do not need to directly manipulate the view
  - Changes in the models / data are automatically reflected in the view
  - Updates are managed by the frameworks

Sample Application

- GitHub:
  - https://github.com/christophertfoo/AngularSample

Views

- Make use of special ng attributes (directives) on the HTML elements
  - ng-app
    - Determines which part of the page will use AngularJS
    - If given a value it will load that application module
  - ng-controller
    - Determines which Javascript Controller should be used for that part of the page
  - ng-model
    - Determines what model the value of an input field will be bound to
    - Used for two-way binding

Views

- More ng directives
  - ng-if="<model expression>"
    - Inserts HTML element if expression is true
    - Does not insert element in the DOM if it is false
  - ng-repeat="<variable> in <array>"
    - Repeats the HTML element for each value in the array
    - Also a key-value pair version for JSON objects
      - "(<key>, <value>) in <JSON>"

Views

- {{ }}
  - Angular expressions
    - Like JavaScript expressions except:
      - Evaluated in the current scope (see Controllers later on), not the global window
      - More forgiving to undefined and null errors
      - No control statements: conditionals, loops, or throw
  - Insert model values directly into the view

Controller

- Function that takes at least one parameter: $scope
  - Function is a constructor
  - Ex:
    - function MyCtrl($scope) { … }
  - We will see a different way of creating a controller constructor later
- $scope
  - JavaScript object
  - Contains data (i.e. models) and methods (i.e. functions)
  - Can add own properties
    - $scope.<my new property> = <value>;

Controller

- Dependency Injection
  - Pass the modules and services that you need as parameters
  - In the previous case $scope is a service that will be injected
  - Can be passed as an array of strings to the controller function as well
    - Prevents errors when performing minification
  - Other useful services
    - $http
      - Used to handle Ajax calls
      - Wrappers around jQuery

Controller

- Typically also contains module loading
- angular.module(<name>, [<dependencies>]);
  - Creates a module with the given name
  - This module can then be configured
  - Ex.
    - var myApp = angular.module(‘myApp’, []);

      myApp.controller(‘MyCtrl’, function($scope) { … });

      myApp.controller(‘OtherCtrl’, [‘$scope’, ‘$http’, function($scope, $http) { … }]);

Models

- Properties on the Controller's $scope object
- Standard JavaScript values

Modules

- Can be used to separate the application into parts
- Application module can include the other modules by listing them as dependencies

Modules

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

// Add controllers to the module
myControllers.controller(…);

var myApp = angular.module('myApp',
   ['myControllers']);
```

More

- You can do a lot more with AngularJS
  - Custom directives
    - http://docs.angularjs.org/guide/directive
  - Filters
    - http://docs.angularjs.org/guide/dev_guide.templates.filters
- To learn more:
  - Tutorial: http://docs.angularjs.org/tutorial
  - Documentation: http://docs.angularjs.org/guide/overview

Thank you for listening!

- Questions / Comments?

Routing

- Use different views for different URL fragments
- Makes use of template partials
  - Templates that are not a whole web page (i.e. part of a page)
  - Used in conjunction with the ng-view directive
    - ng-view determines where the partial will be placed
    - Can only have one ng-view per page

Routing

- Enable by injecting the $routeProvider
  - myApp = angular.module('myApp', ['ngRoute']);

    myApp.config(['$routeProvider', function($routeProvider) { … }]);
- $routeProvider.when(<path>, {<route>});
  - Defines a new route that uses the given path
  - The path may have parameters
    - Parameters start with a colon (':')
    - Ex
      - '/user/:userId'
  - Typical route fields:
    - controller = The name of the controller that should be used
    - templateUrl = A path to the template partial that should be used
- $routeProvider.otherwise({<route>});
  - Typical route fields:
    - redirectTo: '<path>'
- API: http://docs.angularjs.org/api/ngRoute.$routeProvider

Routing

- URL parameters
  - To access the parameters in the URL, use the $routeParams service
  - The $routeParams object will have a field with the same name as the parameter
  - Ex.
    - $routeParams.userId

Routing

- Paths default to Hashbang mode
  - Example URL.
    - http://www.mysite.com/#/users
- Can use HTML 5 mode by configuring the $locationProvider
  - Ex.
    - // Inject $locationProvider into the module using config

      $locationProvider.html5Mode(true);
  - Example URL:
    - http://www.mysite.com/users