

# Build an eCommerce website using AngularJS

## AngularJS Basic

We start from an exist project (named AngularJS in Google Drive>Tutorial>Week5) in this tutorial. In this project, some preliminary codes are provided including AngularJS library, jQuery library, bootstrap and some CSS files to simplify the development and we only focus on the usage of AngularJS related files.

Play with some AngularJS basic expressions:

```
<p>Nothing here {{'yet' + '!'}}</p>
<p>1 + 2 = {{1+2}}</p>
Your name: <input type="text" ng-model="yourname" placeholder="World">
Hello {{yourname || 'World'}}!
<table>
  <tr><th>row number</th></tr>
  <tr ng-repeat="i in [0, 1, 2, 3, 4, 5, 6, 7]"><td>{{i}}</td></tr>
</table>
```

More expression examples can be found on W3 School.

## Make a template for product list page

In index.html page, we change the body part as:

```
<body ng-controller="PhoneListCtrl">
  <div class="container-fluid">
    <div class="row">
      <div class="col-md-2">
        <!--Sidebar content-->
        Search: <input ng-model="query">
        Sort by:
        <select ng-model="orderProp">
          <option value="name">Alphabetical</option>
          <option value="age">Newest</option>
        </select>
        <p>result for: {{query}}</p>
      </div>
      <div class="col-md-10">
        <!--Body content-->
        <p>Total number of phones: {{phones.length}}</p>
        <ul class="phones">
          <li ng-repeat="phone in phones | filter:query | orderBy: orderProp">
            <span>{{phone.name}}</span>
            <p>{{phone.snippet}}</p>
          </li>
        </ul>
      </div>
    </div>
  </div>
```

```
</div>
</div>
</body>
```

And add some data in an AngularJS function:

```
<script type="text/javascript">
  function PhoneListCtrl($scope) {
    $scope.phones = [
      {"name": "Nexus S",
       "snippet": "Fast just got faster with Nexus S.",
       "age": 0},
      {"name": "Motorola XOOM with Wi-Fi",
       "snippet": "The Next, Next Generation tablet.",
       "age": 1},
      {"name": "MOTOROLA XOOM",
       "snippet": "The Next, Next Generation tablet.",
       "age": 2}
    ];

    $scope.orderProp = 'age';
  }
</script>
```

Till this step, we can show product information and do a basic search and sorting function.

## Request data from server

To implement this part, we need to put the project on MAMP/WAMP local server folder, or we can setup a Node server using Node.js (with npm and bower tool and start a node server. Refers to: <https://docs.angularjs.org/tutorial>)

First, delete the data script above and replace with:

```
<script src="js/controllers.js"></script>
```

We can maintain and change the controller part easier by keep it in a js file.

Change `js/controllers.js` like this:

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

phonecatApp.controller('PhoneListCtrl', ['$scope', '$http', function($scope, $http) {
  $http.get('phones/phones.json').success(function(data) {
    $scope.phones = data;
  });

  $scope.orderProp = 'age';
}]);
```

This controller will load data from phones.json and keep them in the object of phones. You can change the json file to a server side script (like process.php) to obtain data.

## Add image and link

As shown in the phones.json file,

```
{
  "age": 0,
  "id": "motorola-xoom-with-wi-fi",
  "imageUrl": "img/phones/motorola-xoom-with-wi-fi.0.jpg",
  "name": "Motorola XOOM\u2122 with Wi-Fi",
  "snippet": "The Next, Next Generation\r\n\r\nExperience the future with Motorola XOOM with Wi-Fi, the world's first tablet powered by Android 3.0 (Honeycomb)."
```

we can use imageUrl as the parameter of product image source, also edit a link the detail page for each product using its id.

Modify `index.html` as:

```
<ul class="phones">
  <li ng-repeat="phone in phones | filter:query | orderBy:orderProp" class="thumbnail">
    <a href="#/phones/{{phone.id}}" class="thumb"></a>
    <a href="#/phones/{{phone.id}}">{{phone.name}}</a>
    <p>{{phone.snippet}}</p>
  </li>
</ul>
```

## Routing with multiple templates

We want to use index.html to show product list and product detail in the same page rather than redirect to a new page. To do so, we need to use ng-view in the index.html and fill the DOM with other template by routing mechanism.

Modify `index.html` as:

```
<head>
  <meta charset="utf-8">
  <title>Google Phone Gallery</title>
  <link rel="stylesheet" href="bower_components/bootstrap/dist/css/bootstrap.css">
  <link rel="stylesheet" href="css/app.css">
  <script src="bower_components/angular/angular.js"></script>
  <script src="bower_components/angular-route/angular-route.js"></script>
  <script src="js/app.js"></script>
  <script src="js/controllers4.js"></script>
</head>
<body>
  <div ng-view></div>
</body>
```

We use a routing file(`js/app.js`) to load different controller to control the data and html template in the ng-view part.

```

var phonecatApp = angular.module('phonecatApp', [
    'ngRoute',
    'phonecatControllers'
]);

phonecatApp.config(['$routeProvider',
    function($routeProvider) {
        $routeProvider.
            when('/phones', {
                templateUrl: 'partials/phone-list.html',
                controller: 'PhoneListCtrl'
            }).
            when('/phones/:phoneId', {
                templateUrl: 'partials/phone-detail.html',
                controller: 'PhoneDetailCtrl'
            }).
            otherwise({
                redirectTo: '/phones'
            });
    }
]);

```

Using the `phonecatApp.config()` method, we request the `$routeProvider` to be injected into our config function and use the `$routeProvider.when()` method to define our routes.

Our application routes are defined as follows:

- **`when('/phones')`**: The phone list view will be shown when the URL hash fragment is `/phones`. To construct this view, Angular will use the `phone-list.html` template and the `PhoneListCtrl` controller.
- **`when('/phones/:phoneId')`**: The phone details view will be shown when the URL hash fragment matches `/phones/:phoneId`, where `:phoneId` is a variable part of the URL. To construct the phone details view, Angular will use the `phone-detail.html` template and the `PhoneDetailCtrl` controller.
- **`otherwise({redirectTo: '/phones'})`**: triggers a redirection to `/phones` when the browser address doesn't match either of our routes.

Then we need to create controller in `controller.js`:

```

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

phonecatControllers.controller('PhoneListCtrl', ['$scope', '$http',
    function ($scope, $http) {
        $http.get('phones/phones.json').success(function(data) {
            $scope.phones = data;
        });
    }
]);

```

```

    $scope.orderProp = 'age';
  }]);

  phonecatControllers.controller('PhoneDetailCtrl', ['$scope', '$routeParams', '$http',
    function($scope, $routeParams, $http) {
      $http.get('phones/' + $routeParams.phoneId + '.json').success(function(data) {
        $scope.phone = data;
      });
    }]);

```

There are many phone json file in **phones/** folder having a name same as the phoneId (e.g. **phones/nexus-s.json**)

'PhoneDetailCtrl' will read data from these json file and load them in detail page separately.

Then we create some view template files.

**Partials/phone-list.html**

```

<div class="container-fluid">
  <div class="row">
    <div class="col-md-2">
      <!--Sidebar content-->

      Search: <input ng-model="query">
      Sort by:
      <select ng-model="orderProp">
        <option value="name">Alphabetical</option>
        <option value="age">Newest</option>
      </select>

    </div>
    <div class="col-md-10">
      <!--Body content-->

      <ul class="phones">
        <li ng-repeat="phone in phones | filter:query | orderBy:orderProp" class="thumbnail">
          <a href="#/phones/{{phone.id}}" class="thumb"></a>
          <a href="#/phones/{{phone.id}}">{{phone.name}}</a>
          <p>{{phone.snippet}}</p>
        </li>
      </ul>

    </div>
  </div>
</div>

```

```


<h1>{{phone.name}}</h1>
<p>{{phone.description}}</p>
<ul class="phone-thumbs">
  <li ng-repeat="img in phone.images">
    
  </li>
</ul>
<ul class="specs">
  <li>
    <span>Availability and Networks</span>
    <dl>
      <dt>Availability</dt>
      <dd ng-repeat="availability in phone.availability">{{availability}}</dd>
    </dl>
  </li>
  <li>
    <span>Battery</span>
    <dl>
      <dt>Type</dt>
      <dd>{{phone.battery.type}}</dd>
      <dt>Talk Time</dt>
      <dd>{{phone.battery.talkTime}}</dd>
      <dt>Standby time (max)</dt>
      <dd>{{phone.battery.standbyTime}}</dd>
    </dl>
  </li>
  <li>
    <span>Storage and Memory</span>
    <dl>
      <dt>RAM</dt>
      <dd>{{phone.storage.ram}}</dd>
      <dt>Internal Storage</dt>
      <dd>{{phone.storage.flash}}</dd>
    </dl>
  </li>
  <li>
    <span>Connectivity</span>
    <dl>
      <dt>Network Support</dt>
      <dd>{{phone.connectivity.cell}}</dd>
      <dt>WiFi</dt>
      <dd>{{phone.connectivity.wifi}}</dd>
      <dt>Bluetooth</dt>
      <dd>{{phone.connectivity.bluetooth}}</dd>
    </dl>
  </li>

```

```
<dt>Infrared</dt>
<dd>{{phone.connectivity.infrared}}</dd>
<dt>GPS</dt>
<dd>{{phone.connectivity.gps}}</dd>
</dl>
</li>
<li>
  <span>Android</span>
  <dl>
    <dt>OS Version</dt>
    <dd>{{phone.android.os}}</dd>
    <dt>UI</dt>
    <dd>{{phone.android.ui}}</dd>
  </dl>
</li>
<li>
  <span>Size and Weight</span>
  <dl>
    <dt>Dimensions</dt>
    <dd ng-repeat="dim in phone.sizeAndWeight.dimensions">{{dim}}</dd>
    <dt>Weight</dt>
    <dd>{{phone.sizeAndWeight.weight}}</dd>
  </dl>
</li>
<li>
  <span>Display</span>
  <dl>
    <dt>Screen size</dt>
    <dd>{{phone.display.screenSize}}</dd>
    <dt>Screen resolution</dt>
    <dd>{{phone.display.screenResolution}}</dd>
    <dt>Touch screen</dt>
    <dd>{{phone.display.touchScreen}}</dd>
  </dl>
</li>
<li>
  <span>Hardware</span>
  <dl>
    <dt>CPU</dt>
    <dd>{{phone.hardware.cpu}}</dd>
    <dt>USB</dt>
    <dd>{{phone.hardware.usb}}</dd>
    <dt>Audio / headphone jack</dt>
    <dd>{{phone.hardware.audioJack}}</dd>
    <dt>FM Radio</dt>
    <dd>{{phone.hardware.fmRadio}}</dd>
    <dt>Accelerometer</dt>
    <dd>{{phone.hardware.accelerometer}}</dd>
```

```

    </dl>
  </li>
  <li>
    <span>Camera</span>
    <dl>
      <dt>Primary</dt>
      <dd>{{phone.camera.primary}}</dd>
      <dt>Features</dt>
      <dd>{{phone.camera.features.join(', ')}}</dd>
    </dl>
  </li>
  <li>
    <span>Additional Features</span>
    <dd>{{phone.additionalFeatures}}</dd>
  </li>
</ul>

```

## AngularJS filter

We can use filter function to replace some certain value to some other content (normally some icons).

Add `<script src="js/filters.js"></script>` in `index.html`

In `js/filter.js` add:

```

angular.module('phonecatFilters', []).filter('checkmark', function() {
  return function(input) {
    return input ? '\u2713' : '\u2718';
  };
});

```

Modify `js/app.js` :

```

angular.module('phonecatApp', ['ngRoute', 'phonecatControllers', 'phonecatFilters']);

```

Modify `partials/phone-detail.html`:

```

<dl>
  <dt>Infrared</dt>
  <dd>{{phone.connectivity.infrared | checkmark}}</dd>
  <dt>GPS</dt>
  <dd>{{phone.connectivity.gps | checkmark}}</dd>
</dl>

```



## Image effect

We can replace the large image with any of the thumbnails just by clicking on the desired thumbnail image.

Modify the PhoneDetailCtrl in `js/controllers.js` as:

```
phonecatControllers.controller('PhoneDetailCtrl', ['$scope', '$routeParams', '$http',
function($scope, $routeParams, $http) {
    $http.get('phones/' + $routeParams.phoneId + '.json').success(function(data) {
        $scope.phone = data;
        $scope.mainImageUrl = data.images[0];
    });

    $scope.setImage = function(imageUrl) {
        $scope.mainImageUrl = imageUrl;
    };
}]);
```

Modify `partials/phone-detail.html` as:

```

...
<ul class="phone-thumbs">
    <li ng-repeat="img in phone.images">
        
    </li>
</ul>
...
```

## Animation Effect

Add these into `index.html`

```
<link rel="stylesheet" href="css/animations.css">
<script src="bower_components/jquery/dist/jquery.js"></script>
<script src="bower_components/angular-animate/angular-animate.js"></script>
<script src="js/animations.js"></script>
```

Modify `js/app.js`

```
angular.module('phonecatApp', [
    'ngRoute',
    'phonecatAnimations',
    'phonecatControllers',
    'phonecatFilters',
]);
```

Modify `index.html`

```
<div class="view-container">
  <div ng-view class="view-frame"></div>
</div>
```

Modify `partials/phone-list.html`

```
<ul class="phones">
  <li ng-repeat="phone in phones | filter:query | orderBy:orderProp"
      class="thumbnail phone-listing">
    <a href="#/phones/{{phone.id}}" class="thumb"></a>
    <a href="#/phones/{{phone.id}}">{{phone.name}}</a>
    <p>{{phone.snippet}}</p>
  </li>
</ul>
```

Modify `partials/phone-detail.html`

```
<div class="phone-images">
  
</div>

<h1>{{phone.name}}</h1>

<p>{{phone.description}}</p>

<ul class="phone-thumbs">
  <li ng-repeat="img in phone.images">
    
  </li>
</ul>
```

Have fun with your own website!

YJ @2015