

# UI Architecture Developer Tool Kit- Whitepaper

(Reusable component for all the projects)

- Author: Varadarajan, Baskaran

## VERSION HISTORY

Date	Version	Author	Description
25/9/2015	0.1	Varadarajan, Baskaran <a href="mailto:baskaran.varadarajan@accenture.com">baskaran.varadarajan@accenture.com</a>	First draft
8/10/2015	0.2	Soundararajan, D. A. <a href="mailto:d.a.soundararajan@accenture.com">d.a.soundararajan@accenture.com</a> Joseph, Jerish <a href="mailto:jerish.joseph@accenture.com">jerish.joseph@accenture.com</a>	Updated Framework and reviewed
24/1/2016	1.1	Varadarajan, Baskaran <a href="mailto:baskaran.varadarajan@accenture.com">baskaran.varadarajan@accenture.com</a>	Updated review and added Yslow reported
16/2/2016	2.0	Manoharan, Ramasamy <a href="mailto:ramasamy.manoharan@accenture.com">ramasamy.manoharan@accenture.com</a>	Final version

## Contents

<b>1. ABSTRACT UI ARCHITECTURE DEVELOPER TOOL KIT .....</b>	<b>4</b>
1.1 Abstract: .....	4
<b>2. UI ARCHITECTURE DEVELOPER TOOL KIT .....</b>	<b>5</b>
2.1 SONAR: .....	5
2.1.1 Development Tool List for Angular JS UI framework .....	6
2.1.2 Install and Configure sonarqube .....	7
2.1.3 Install and Configure sonar-runner for angularjs.....	9
2.1.4 Starting sonar server with client ui project .....	10
2.2 Karma jasmine unit test case for Angular JS.....	15
2.2.1 Karma, jasmine and yeoman .....	16
2.2.2 Folder structure .....	16
2.2.3 Configuration files .....	17
2.2.4 Dependency files and bower components .....	18
2.2.5 writing test file using jasmine .....	20
2.2.6 running test file using karma .....	22
2.2.7 R2 code base configuration .....	25
2.3 HTML Validation for UI .....	26
2.3.1 Sample configuration for HTML Validation: .....	27
2.3.2 Sample HTML Validation report: .....	27
2.4 CSS Validation for UI.....	27
2.4.1 Sample configuration for CSS validation .....	28
2.4.2 Sample CSS Validation Report .....	28
2.5 YSlow report .....	29
2.5.1 Sample performance report of YSlow application.....	29
<b>3. REFERENCES LINK IN KX SITE.....</b>	<b>30</b>
3.1 KX site links: .....	30

## 1. ABSTRACT UI ARCHITECTURE DEVELOPER TOOL KIT

### 1.1 ABSTRACT:

UI ARCHITECTURE DEVELOPER TOOL KIT: For developers using AngularJS, Angular Material is both a UI Component framework and a reference implementation of Google's Material Design Specification. This project provides a set of reusable, well-tested, and accessible UI components based on Material Design.

Angular UI **Bootstrap** is built on top of the front-end framework called **Bootstrap**. The framework contains a set of native AngularJS directives based on **Bootstrap HTML** and CSS components.

Now that you are well-versed in the basics, it is time to get started on building your own web application with AngularJS. AngularJS made building a JavaScript-based app more intuitive using what's called directives, which works hand-in-hand with your HTML mark-ups.

If building a web application from the ground seems overwhelming to you, not to worry. Some very generous developers have adapted a few frontend frameworks to support AngularJS. Like a typical framework, they come with pre-built web components. These make using the framework the perfect tool for anyone who needs to get a web application up and running quick.

- Sonar:
- Karam Jasmine unite test for angular js
- HTML Validation for UI
- CSS Validation for UI
- Y-slow report
- Page load Performances

## 2. UI ARCHITECTURE DEVELOPER TOOL KIT

### 2.1 SONAR:

A new version of the standard also means that each browser needs to provide support for it, at least the major ones. It might take years before it happens, but you don't have to wait for that to take advantage of the innovations in ECMAScript 6! Thanks to the availability of ES6-to-ES5 transpilers, it is possible to use ES6 features today. A transpiler will translate your ECMAScript 6 code to ECMAScript 5 code so it can be run by today's browsers.

**The SonarQube JavaScript Plugin 2.1 fully supports ES6. What does that mean?**

It means that the plugin is able to:

1. parse ES6 source code,

The screenshot shows the SonarQube web interface for a file named `src/Utils.js`. At the top, there are summary metrics: 20 Lines of code, 40min Debt, and 3 Issues. Below this, a table provides a detailed breakdown of the code's quality:

Size		Complexity		Structure	
Lines	26	Complexity	9	Classes	1
Lines of code	20	Complexity /function	9.0	Functions	1
				Accessors	0
				Statements	10

Below the table, the 'Documentation' section shows 1 Comment line and 4.8% Comments (%).

The source code for `Utils.js` is displayed below the metrics, showing an ES6 class definition:

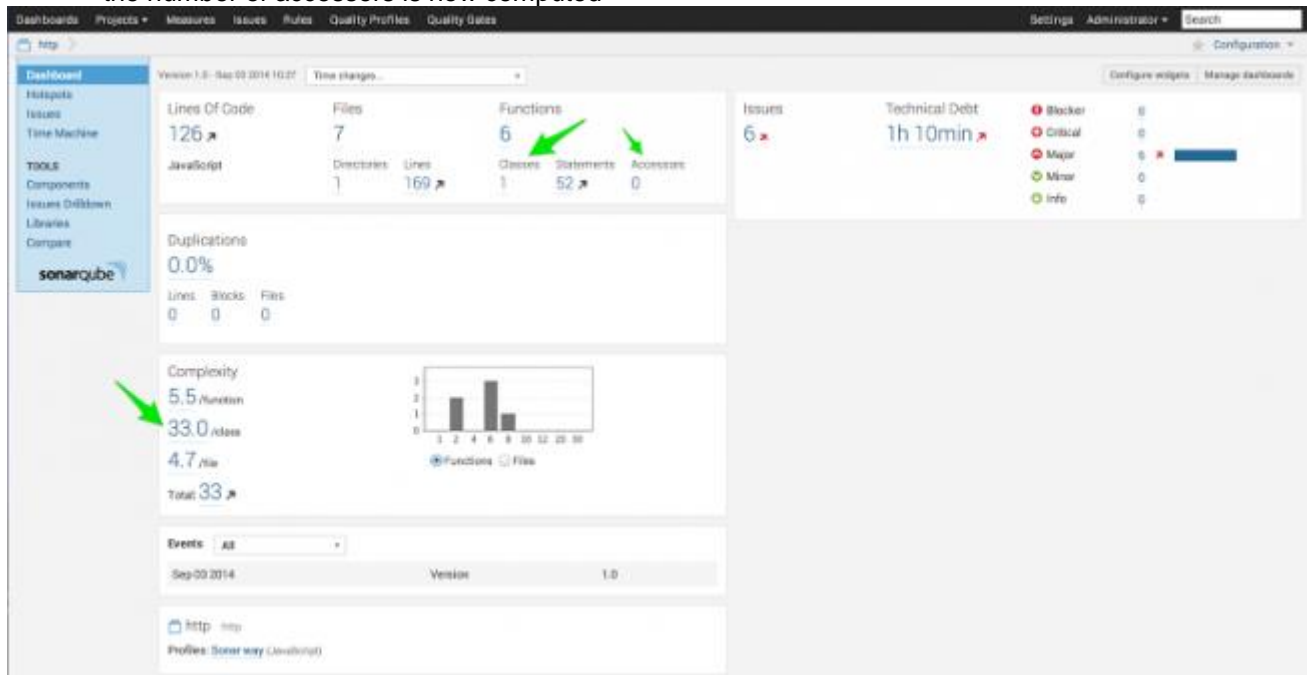
```

1 export class Utils {
2   static objectEquals(obj1, obj2) {
3     let a = 1;
4     var i, obj1Keys = Object.keys(obj1),
5         obj2Keys = Object.keys(obj2);
6
7     if (obj1Keys.length !== obj2Keys.length) return false;
8
9     for (i = 0; i < obj1Keys.length; i++) {
10      key = obj1Keys[i];
11      if (obj1[key] === obj2[key]) {
12        //Move along
13      }
14      else if (
15        typeof obj1[key] === 'object' &&
16        typeof obj2[key] === 'object' &&
17        !Utils.objectEquals(obj1, obj2)) {
18
19        return false;
20      }
21    }
22
23    return true;
24  }
25 }
26

```

2. Compute all relevant metrics accordingly:  
a classes count is computed when classes are used

class complexity is computed when classes are used  
the function count includes generator functions  
general complexity metrics take generators into account  
the number of accessors is now computed



3. Analyse code against rules, all existing coding rules have been updated to cover the new features, e.g: “unused variable” will detect unused variables & constants declared with let and const.

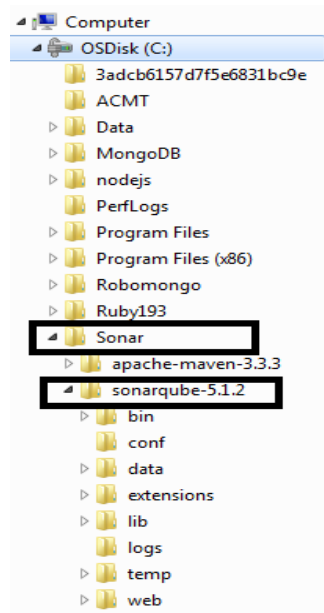


### 2.1.1 Development Tool List for Angular JS UI framework

Tool Name	Version	Download Url
sonarQube	5.1.2	<a href="https://sonarsource.bintray.com/Distribution/sonarqube/sonarqube-5.1.2.zip">https://sonarsource.bintray.com/Distribution/sonarqube/sonarqube-5.1.2.zip</a>
sonar-runner	2.4	<a href="http://repo1.maven.org/maven2/org/codehaus/sonar/runner/sonar-runner-dist/2.4/sonar-runner-dist-2.4.zip">http://repo1.maven.org/maven2/org/codehaus/sonar/runner/sonar-runner-dist/2.4/sonar-runner-dist-2.4.zip</a>

### 2.1.2 Install and Configure sonarqube

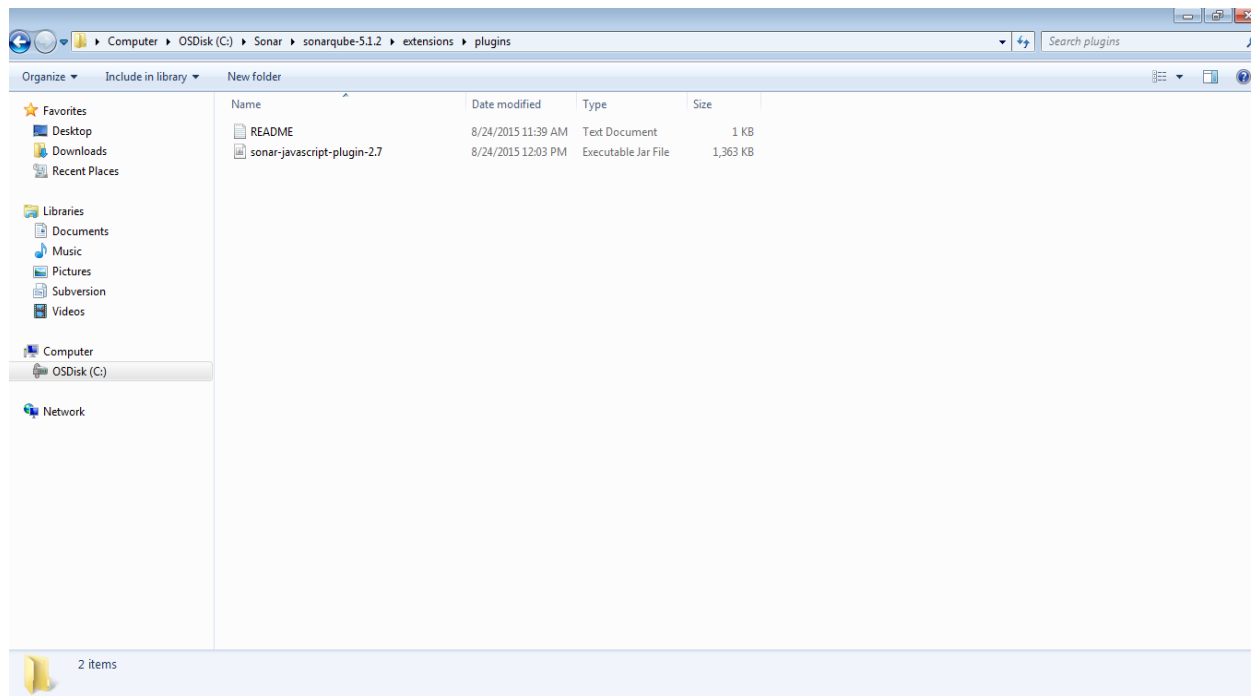
1. Download the correct version from download url for angular UI framework.
2. Unzip the file and move files to **c:\sonar\** folder (Please verify the folder structure should be same as mentioned below)



3. Place the below mentioned jar file under **c:\sonar\sonarqube-5.1.2\extensions\plugins\**



sonar-javascript-plugin-2.7.jar



4. Open **C:\Sonar\sonarqube-5.1.2\conf\wrapper.conf** file and make sure **wrapper.java.command** key value is set to your java.exe path.

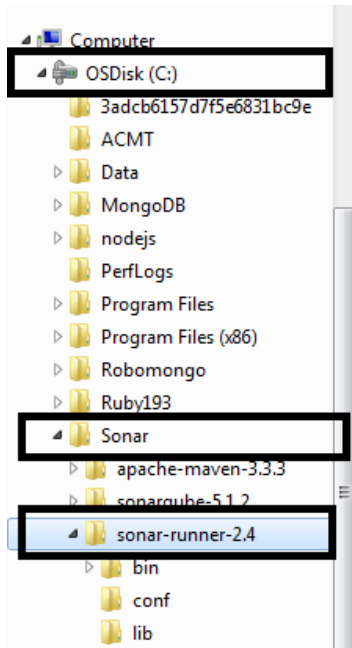
**Example:** wrapper.java.command=C:\Program Files\Java\jdk1.7.0\_79\bin\java.exe





### 2.1.3 Install and Configure sonar-runner for angularjs

1. Download the correct version from download url to map with sonarQube for validating angular JS file.
2. Unzip the file and move files to **C:\sonar\** (Please verify the file structure should be same as shown below)



3. Remove the **sonar-runner.properties** from **c:\sonar\sonar-runner-2.4\conf** folder and copy the below file into the same directory.



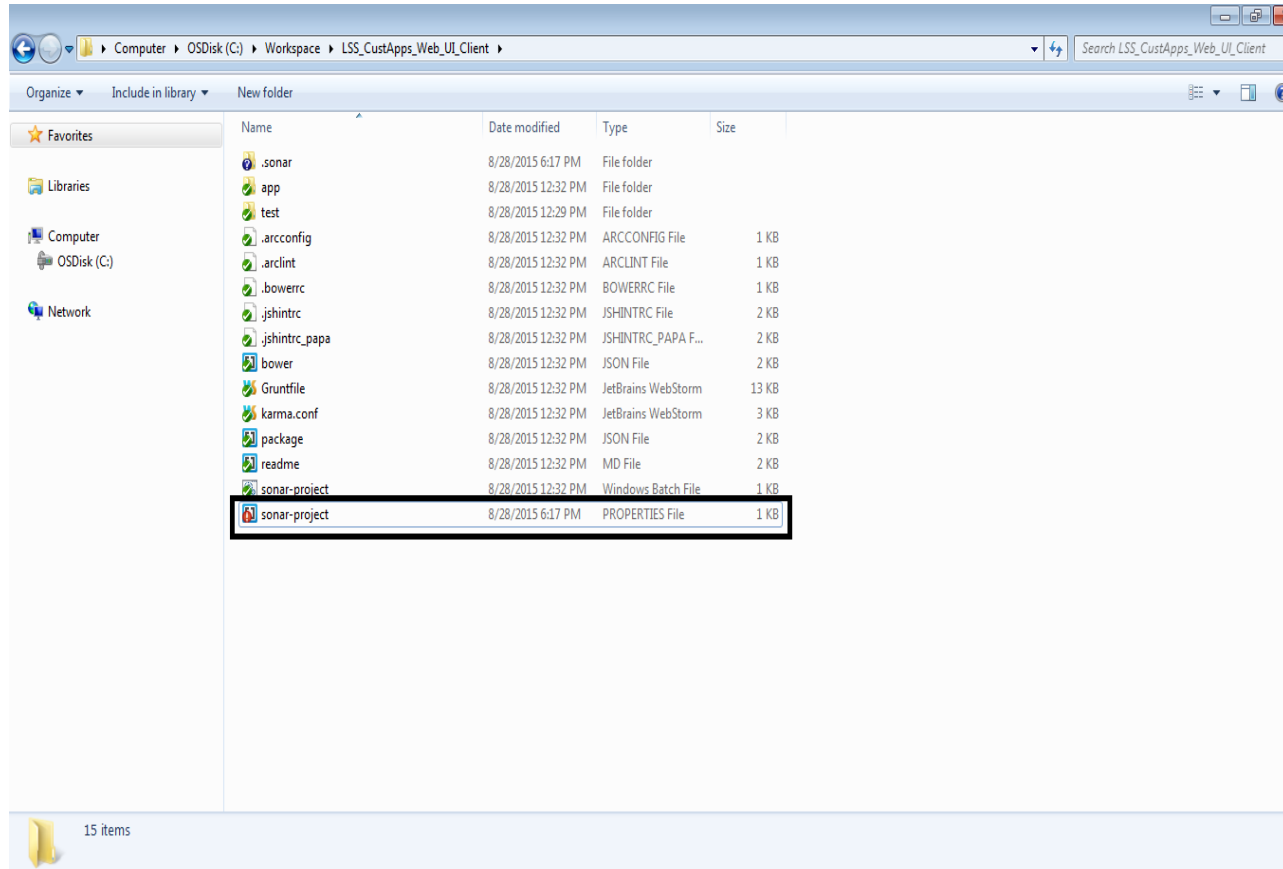
sonar-runner.properties

#### 2.1.4 Starting sonar server with client ui project

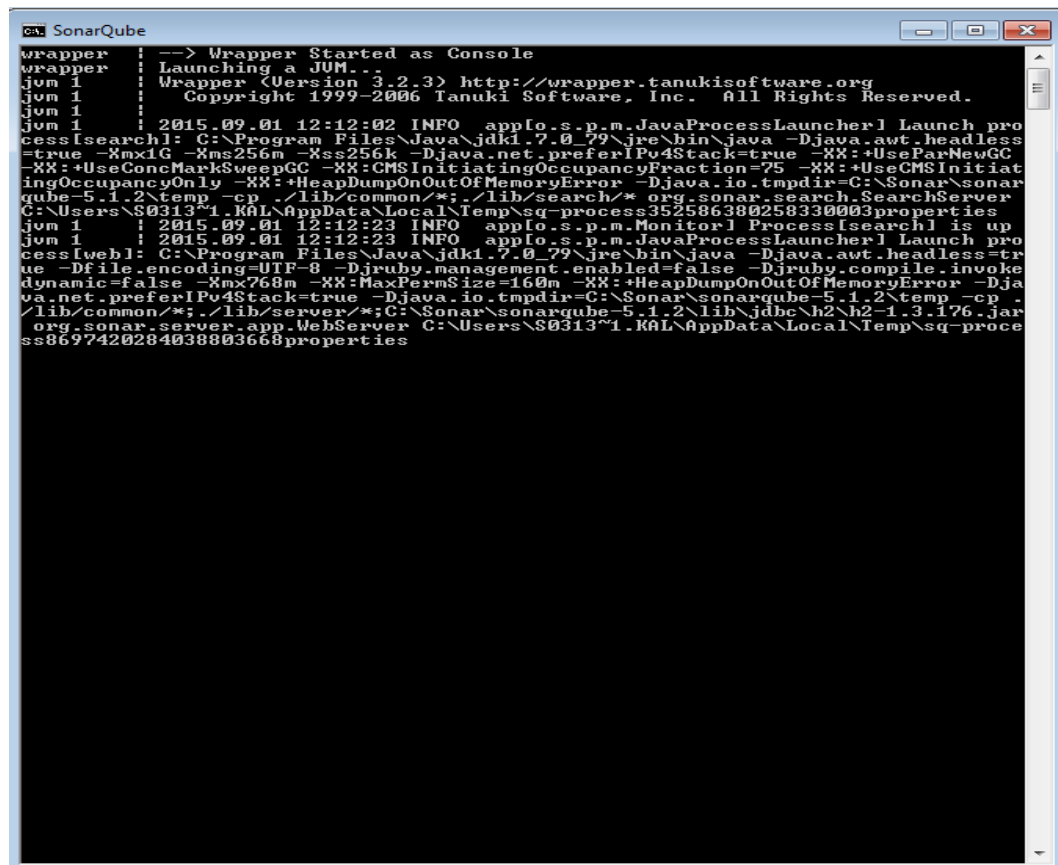
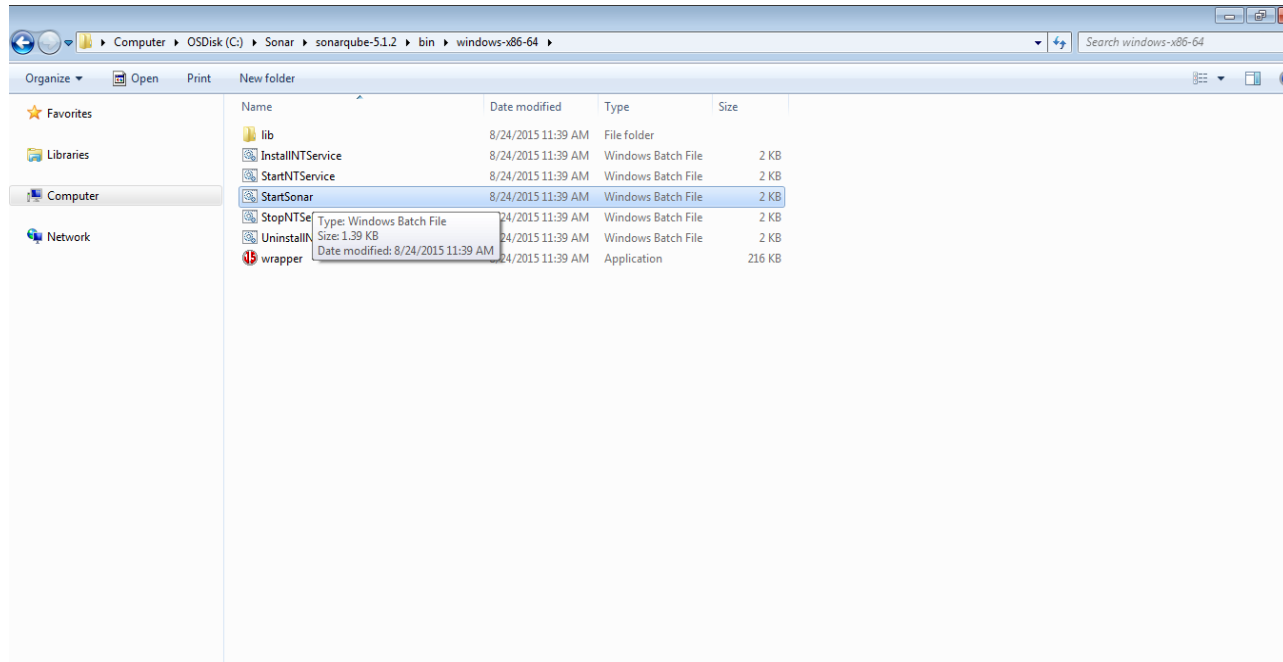
1. Place the below sonar-project.properties file into your client project folder directly.



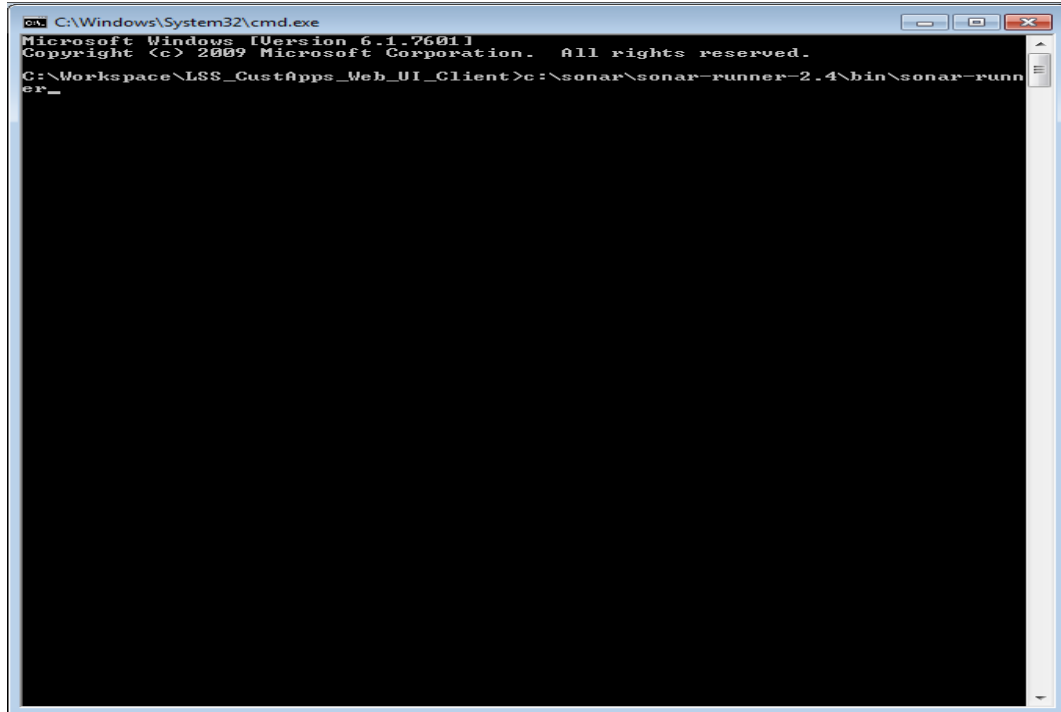
sonar-project.properties



2. Start the sonar server **StartSonar.bat** file from **C:\Sonar\sonarqube-5.1.2\bin\windows-x86-XX** as shown below



3. Once sonar server started, start the sonar runner from your client path command prompt to validate the UI angular project.

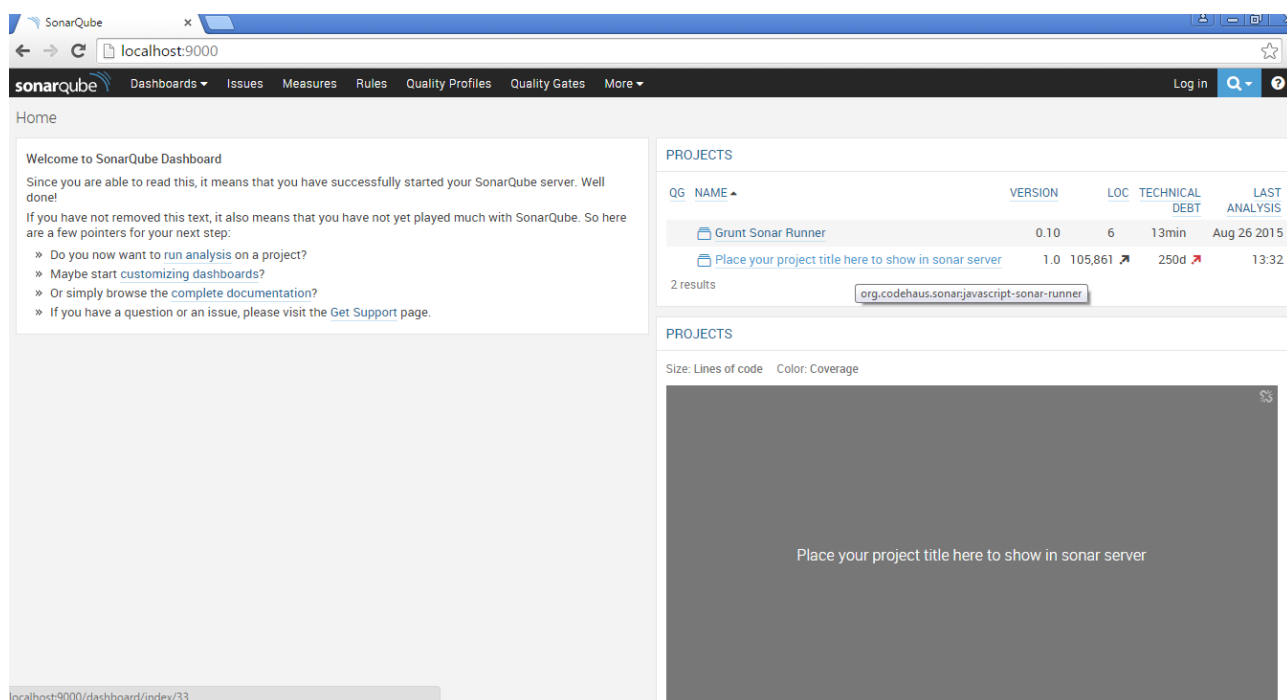


```

C:\Windows\System32\cmd.exe
13:32:39.952 INFO - Sensor VersionEventsSensor
13:32:39.967 INFO - Sensor VersionEventsSensor <done> ! time=15ms
13:32:39.967 INFO - Sensor JavaScriptSquidSensor
13:32:40.340 INFO - 222 source files to be analyzed
13:32:50.375 INFO - 61/222 files analyzed, current file: C:\Workspace\LSS_CustApp\Web_UI_Client\app\app_modules\cob\controllers\updateCustConsigneeController.js
13:33:00.407 INFO - 156/222 files analyzed, current file: C:\Workspace\LSS_CustApp\Web_UI_Client\app\app_modules\po\controllers\createPO\CreatePOSKUController.js
13:33:10.422 INFO - 220/222 files analyzed, current file: C:\Workspace\LSS_CustApp\Web_UI_Client\app\lssUI.routes.js
13:33:11.061 INFO - 222/222 source files have been analyzed
13:33:16.006 INFO - Sensor JavaScriptSquidSensor <done> ! time=36039ms
13:33:16.006 INFO - Sensor SCM Sensor
13:33:16.022 INFO - No SCM system was detected. You can use the 'sonar.scm.provider' property to explicitly specify it.
13:33:16.038 INFO - Sensor SCM Sensor <done> ! time=32ms
13:33:16.053 INFO - Sensor org.sonar.plugins.javascript.lcov.ITCoverageSensor@1bf85e2
13:33:16.069 INFO - Sensor org.sonar.plugins.javascript.lcov.ITCoverageSensor@1bf85e2 <done> ! time=16ms
13:33:16.069 INFO - Sensor org.sonar.plugins.javascript.lcov.ITCoverageSensor@2f934
13:33:16.084 INFO - Sensor org.sonar.plugins.javascript.lcov.ITCoverageSensor@2f934 <done> ! time=15ms
13:33:16.100 INFO - Sensor CPD Sensor
13:33:16.116 INFO - DefaultCpdEngine is used for js
13:33:16.116 INFO - Cross-project analysis disabled
13:33:19.532 WARN - Too many duplication groups on file app/app_modules/po/controllers/createPO/CreatePOHeaderController.js. Keep only the first 100 groups.
13:33:19.626 WARN - Too many duplication groups on file app/app_modules/po/controllers/createPO/CreatePOSKUController.js. Keep only the first 100 groups.
13:33:19.702 WARN - Too many duplication groups on file app/lssUI.routes.js. Keep only the first 100 groups.
13:33:19.797 INFO - Sensor CPD Sensor <done> ! time=3697ms
13:33:19.797 INFO - No quality gate is configured.
13:33:19.891 INFO - Compare to previous analysis <2015-08-28>
13:33:19.906 INFO - Compare over 30 days <2015-08-02, analysis of Thu Aug 27 14:07:04 IST 2015>
13:33:20.140 INFO - Execute decorators...
13:33:31.248 INFO - Store results in database
13:33:44.917 INFO - Analysis reports generated in 2683ms, dir size=3 MB
13:33:46.446 INFO - Analysis reports compressed in 1529ms, zip size=881 KB
13:33:46.992 INFO - Analysis reports sent to server in 546ms
13:33:47.007 INFO - ANALYSIS SUCCESSFUL, you can browse http://localhost:9000/dashboard/index/org.codehaus.sonar:javascript-sonar-runner
13:33:47.023 INFO - Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report.
INFO: EXECUTION SUCCESS
INFO:
Total time: 1:38.618s
Final Memory: 12M/247M
INFO:
C:\Workspace\LSS_CustApp\Web_UI_Client>

```

- Once sonar runner done successfully, open the sonar server in your browser using <http://localhost:9000> url.



- Choose your specific project from the PROJECT lists in sonar home page. Once selected specific project, the page will be looks as shown below

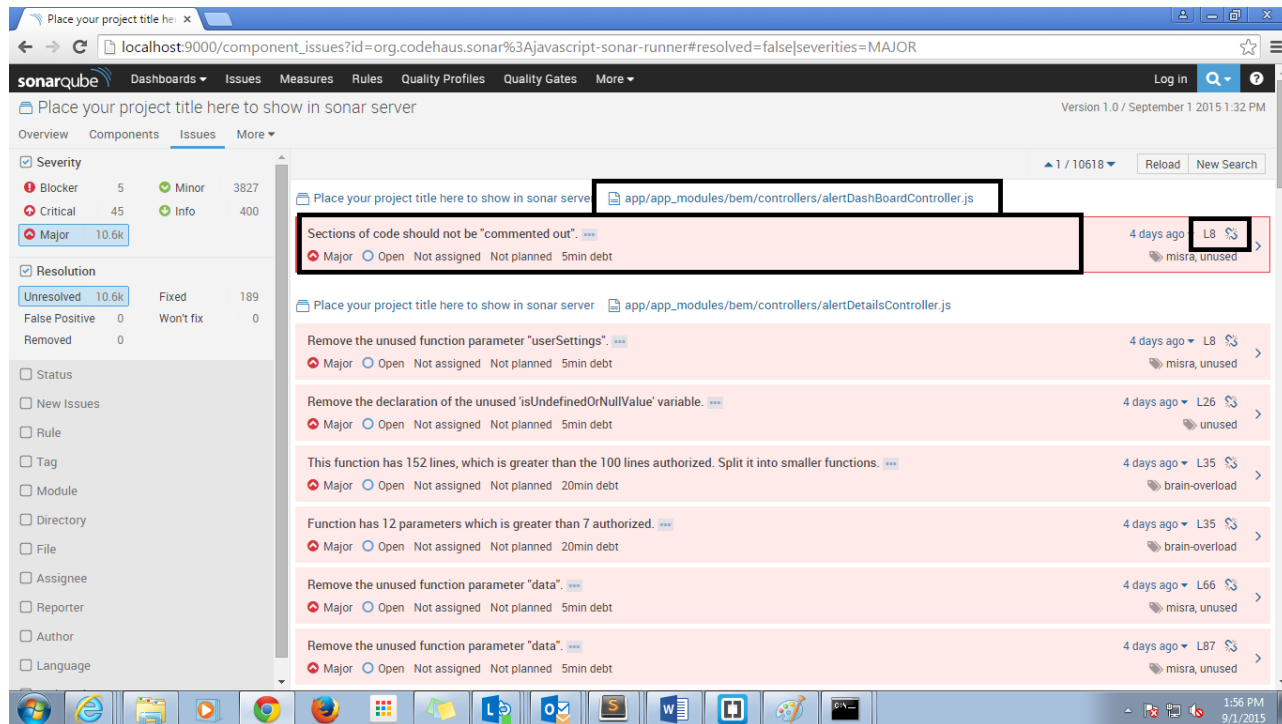
The top screenshot shows the SonarQube 'Home' page. The 'PROJECTS' table lists the following projects:

QG	NAME	VERSION	LOC	TECHNICAL DEBT	LAST ANALYSIS
	Grunt Sonar Runner	0.10	6	13min	Aug 26 2015
	Place your project title here to show in sonar server	1.0	105,861	250d	13:32

The bottom screenshot shows the 'Main Dashboard' for the selected project 'Place your project title here to show in sonar server'. The dashboard displays various metrics:

- Lines Of Code:** 105,861
- Files:** 222
- Functions:** 9,128
- JavaScript:** 47
- Directories:** 141,805
- Duplications:** 24.5%
- Complexity:** 32,088
- SOALE Rating:** A
- Technical Debt Ratio:** 3.8%
- Debt:** 250d
- Issues:** 14,895
- Blocker:** 5
- Critical:** 45
- Major:** 10,618
- Minor:** 3,827
- Info:** 400
- Directory Tangle Index:** 0.0%
- Dependencies To Cut:** 0

- By selecting the issues on the priority type, sonar will show the error message with js file name and line number with error description.



## 2.2 KARMA JASMINE UNIT TEST CASE FOR ANGULAR JS

Unit testing involves **breaking your program into pieces**, and subjecting each piece to a series of tests.

Unit testing simply verifies that individual units of code (mostly functions) work as expected. Usually you write the test cases yourself

Some of unit test case frameworks:

1. Junit
2. Mocha
3. UnitTesting
4. JSpec
5. Jasmine.

Jasmine is one of the framework which will be used to write test cases for javascript based files. Once done writing the test case using jasmine framework, that you can run using the karma test runner.

### **2.2.1 Karma, jasmine and yeoman**

#### **Karma:**

Karma is a test runner for JavaScript that runs on Node.js. It is very well suited to testing AngularJS or any other JavaScript projects. Using Karma to run tests using one of many popular JavaScript testing suites (Jasmine, Mocha, QUnit, etc.) and have those tests executed not only in the browsers of your choice, but also on the platform of your choice (desktop, phone, tablet.) Karma is highly configurable, integrates with popular continuous integration packages (Jenkins, Travis, and Semaphore) and has excellent plugin support.

#### **Jasmine:**

Jasmine is an open source testing framework for JavaScript. It aims to run on any JavaScript-enabled platform, to not intrude on the application nor the IDE, and to have easy-to-read syntax.

#### **Yeoman:**

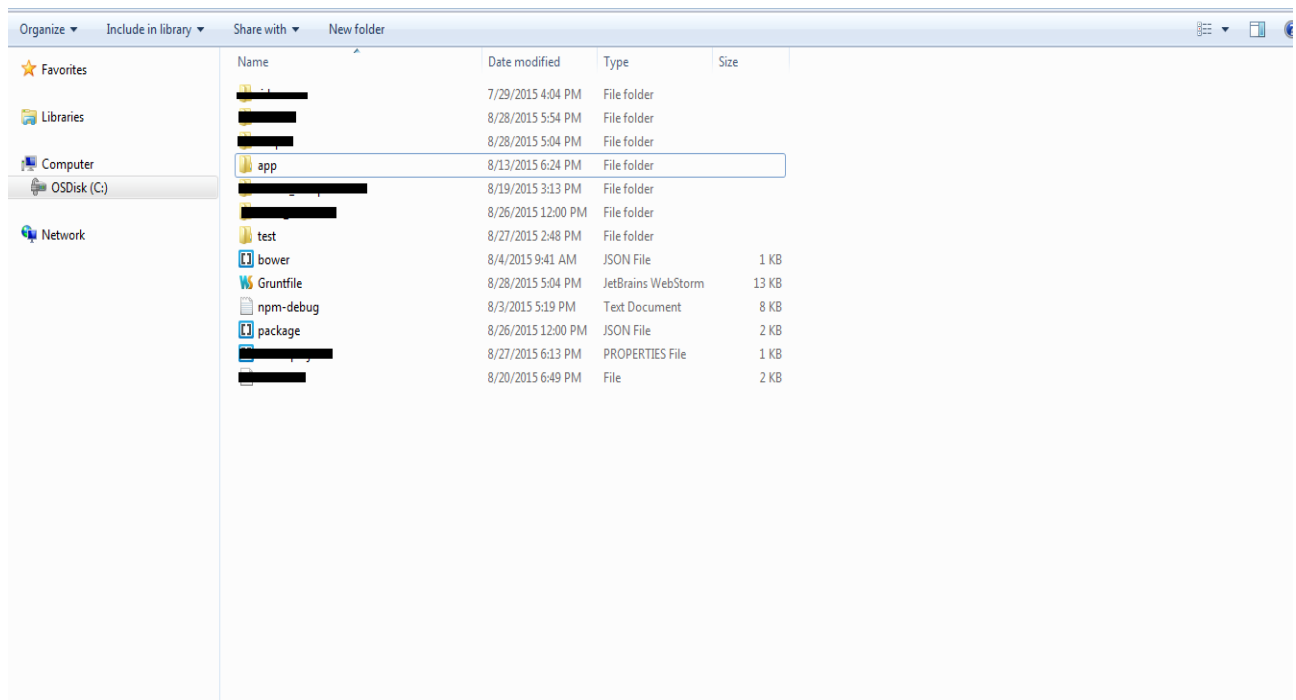
Yeoman helps you to kick start new projects, prescribing best practices and tools to help you stay productive.

To do so, we provide a generator ecosystem. A generator is basically a plugin that can be run with the `yo` command to scaffold complete projects or useful parts.

### **2.2.2 Folder structure**

Yeoman installation will provide us the default MVC folder structure for our project. Which includes karma and jasmine by default in our configuration. Once configured the yeoman, the folder structure will be looks like as shown below.





As presents in screen shot above, **app**, **test**, **bower.json**, **gruntfile.js** and **package.json** are the important files that yeoman will create while configure it.

Test folder will contains all the unit test case file for respective source file present under app folder.

**Note:**

Running the **'YO'** command in your command prompt under specific path, will generate the folder structure as shown above.

### 2.2.3 Configuration files

#### Karma.conf.js:

- The one important file required for testing jasmine and karma is karma.conf.js

This file contains all the dependencies that are belong to our angular js application module. While running grunt test command, this will loads all the dependencies files presents in karma.conf.js file and cross check with index.html.

```

1 // Karma configuration
2 // http://karma-runner.github.io/0.12/config/configuration-file.html
3 // Generated on 2015-07-24 using
4 // generator-karma 1.0.0
5
6 module.exports = function(config) {
7   'use strict';
8
9   config.set({
10    // enable / disable watching file and executing tests whenever any file changes
11    autoWatch: true,
12
13    // base path, that will be used to resolve files and exclude
14    basePath: '..',
15
16    // testing framework to use (jasmine/mocha/qunit/...)
17    // as well as any additional frameworks (requirejs/chai/sinon/...)
18    frameworks: [
19      "jasmine"
20    ],
21
22    // list of files / patterns to load in the browser
23    files: [
24
25      'bower_components/angular-sanitize/angular-sanitize.js',
26      'bower_components/angular-touch/angular-touch.js',
27      'bower_components/jquery-ui/jquery-ui.js',
28      'bower_components/angular-ui-sortable/sortable.js',
29      'bower_components/angular-local-storage/dist/angular-local-storage.js',
30      'bower_components/angular-mocks/angular-mocks.js',
31      'bower_components/oclazyload/dist/oclazyload.min.js',
32      'bower_components/angular-ui-router/release/angular-ui-router.min.js',
33      'bower_components/angular-loading-bar/src/loading-bar.js',
34      'bower_components/angular-animate/angular-animate.js',
35      'bower_components/angular-cookies/angular-cookies.js',
36      'bower_components/angular-resource/angular-resource.js',
37      'bower_components/angular-route/angular-route.js',
38      'bower_components/angular-sanitize/angular-sanitize.js',
39      'bower_components/angular-touch/angular-touch.js',
40
41      'app/scripts/**/*.js',
42      'test/mock/**/*.js',
43      'test/spec/controllers/TestController.js'
44    ]
45  });
46 }

```

Line 60, Column 27 — 89 Lines

INS JavaScript Spaces: 4

### Sample Karma.conf.js file

In the above screen shot, last three lines are js files mapped from app and test folder. While running grunt test command, these test files will be tested and the respective source file will be mapped for controller as well as module verification.

And also there are dependency files, which are mapped before we mentioned app and test folder. These dependencies are presents in our angular application modules.

#### 2.2.4 Dependency files and bower components

Dependency files and bower components are configured in karma.conf.js file. These dependency and bower files are two types. One is project dependency file and second one is bower components that we used in app modules as sub modules.

**Dependency file sample (Type 1):**

```

File Edit Selection Find View Goto Tools Project Preferences Help
FOLDERS
▼ r2-framework-poc
  ► .idea
  ► .sonar
  ► .tmp
  ► app
  ► bower_components
  ► node_modules
  ▼ test
    ► spec
    jshintnc
    jshintReport.html
    karma.conf.js
    validateReport.json
    bower.json
    Gruntfile.js
    npm-debug.log
    package.json
    sonar-project.properties
    true
25 'bower_components/jquery/dist/jquery.js',
26 'bower_components/angular/angular.js',
27 'bower_components/bootstrap/dist/js/bootstrap.js',
28 'bower_components/angular-bootstrap/ui-bootstrap.min.js',
29 'bower_components/angular-animate/angular-animate.js',
30 'bower_components/angular-cookies/angular-cookies.js',
31 'bower_components/angular-resource/angular-resource.js',
32 'bower_components/angular-route/angular-route.js',
33 'bower_components/angular-sanitize/angular-sanitize.js',
34 'bower_components/angular-touch/angular-touch.js',
35 'bower_components/jquery-ui/jquery-ui.js',
36 'bower_components/angular-ui-sortable/sortable.js',
37 'bower_components/angular-local-storage/dist/angular-local-storage.js',
38 'bower_components/angular-mocks/angular-mocks.js',
39 'bower_components/oclazyload/dist/oclazyload.min.js',
40 'bower_components/angular-ui-router/release/angular-ui-router.min.js',
41 'bower_components/angular-loading-bar/src/loading-bar.js',
42 'bower_components/angular-animate/angular-animate.js',
43 'bower_components/angular-cookies/angular-cookies.js',
44 'bower_components/angular-resource/angular-resource.js',
45 'bower_components/angular-route/angular-route.js',
46 'bower_components/angular-sanitize/angular-sanitize.js',
47 'bower_components/angular-touch/angular-touch.js',
48 'bower_components/angular-ui-grid/ui-grid.min.js',
49 'bower_components/angular-translate/angular-translate.js',
50 'bower_components/angular-translate/angular-translate.min.js',
51 'bower_components/angular-translate-loader-url/angular-translate-loader-url.min.js',
52 'bower_components/angular-translate-loader-url/angular-translate-loader-url.js',
53 'bower_components/angular-translate-loader-static-files/angular-translate-loader-static-files.min.js',
54 'bower_components/angular-translate-loader-static-files/angular-translate-loader-static-files.js',
55 // endbower
56 'app/scripts/**/*.js',
57 'test/mock/**/*.js',
58 'test/spec/controllers/TestController.js'
59
60
61 // list of files / patterns to exclude
62 exclude: [
63 ],
64
65 // web server port
66 port: 8080,
67
68 // Start these browsers, currently available:
69 // - Chrome
  
```

In the above screen shot, you can see that we have mapped our source and test files in karma.conf.js file.

### Dependency file sample (Type 2):

```

File Edit Selection Find View Goto Tools Project Preferences Help
FOLDERS
▼ r2-framework-poc
  ► .idea
  ► .sonar
  ► .tmp
  ► app
  ► bower_components
  ► node_modules
  ▼ test
    ► spec
    jshintnc
    jshintReport.html
    karma.conf.js
    validateReport.json
    bower.json
    Gruntfile.js
    npm-debug.log
    package.json
    sonar-project.properties
    true
25 'bower_components/jquery/dist/jquery.js',
26 'bower_components/angular/angular.js',
27 'bower_components/bootstrap/dist/js/bootstrap.js',
28 'bower_components/angular-bootstrap/ui-bootstrap.min.js',
29 'bower_components/angular-animate/angular-animate.js',
30 'bower_components/angular-cookies/angular-cookies.js',
31 'bower_components/angular-resource/angular-resource.js',
32 'bower_components/angular-route/angular-route.js',
33 'bower_components/angular-sanitize/angular-sanitize.js',
34 'bower_components/angular-touch/angular-touch.js',
35 'bower_components/jquery-ui/jquery-ui.js',
36 'bower_components/angular-ui-sortable/sortable.js',
37 'bower_components/angular-local-storage/dist/angular-local-storage.js',
38 'bower_components/angular-mocks/angular-mocks.js',
39 'bower_components/oclazyload/dist/oclazyload.min.js',
40 'bower_components/angular-ui-router/release/angular-ui-router.min.js',
41 'bower_components/angular-loading-bar/src/loading-bar.js',
42 'bower_components/angular-animate/angular-animate.js',
43 'bower_components/angular-cookies/angular-cookies.js',
44 'bower_components/angular-resource/angular-resource.js',
45 'bower_components/angular-route/angular-route.js',
46 'bower_components/angular-sanitize/angular-sanitize.js',
47 'bower_components/angular-touch/angular-touch.js',
48 'bower_components/angular-ui-grid/ui-grid.min.js',
49 'bower_components/angular-translate/angular-translate.js',
50 'bower_components/angular-translate/angular-translate.min.js',
51 'bower_components/angular-translate-loader-url/angular-translate-loader-url.min.js',
52 'bower_components/angular-translate-loader-url/angular-translate-loader-url.js',
53 'bower_components/angular-translate-loader-static-files/angular-translate-loader-static-files.min.js',
54 'bower_components/angular-translate-loader-static-files/angular-translate-loader-static-files.js',
55 // endbower
56 'app/scripts/**/*.js',
57 'test/mock/**/*.js',
58 'test/spec/controllers/TestController.js'
59
60
61 // list of files / patterns to exclude
62 exclude: [
63 ],
64
65 // web server port
66 port: 8080,
67
68 // Start these browsers, currently available:
69 // - Chrome
  
```

In above screen shot, highlighted bower dependencies that we are using in our angular JS module as shown below.

### App.js:

```

1 'use strict';
2 /**
3  * @ngdoc overview
4  * @name R2FPOC
5  * @description
6  * # R2FPOC
7  */
8
9
10 angular
11 .module('tss', [
12   'oc.lazyload',
13   'ui.router',
14   'ui.bootstrap',
15   'angular-loading-bar',
16   'ui.grid',
17   'ui.grid.selection',
18   'ui.grid.edit',
19   'ui.grid.pagination',
20   'ui.grid.saveState',
21   'pascalprecht.translate',
22   'ngResource',
23   'ngCookies'
24 ])
25
26 .config(['$stateProvider', '$urlRouterProvider', '$ocLazyLoadProvider', '$logProvider', '$provide', '$translateProvider', function ($stateProvider, $urlRouterProvider, $ocLazyLoadProvider, $logProvider, $provide, $translateProvider) {
27
28   /*var userSpecifiedLanguage = "";
29   var defaultLang;
30   if ((userSpecifiedLanguage != "") || (userSpecifiedLanguage = null)) {
31     defaultLang = navigator.language || navigator.userLanguage;
32   }
33   else {
34     defaultLang = userSpecifiedLanguage;
35   }
36   */
37   var defaultLang = "en-US";
38   $translateProvider.useStaticFilesLoader({
39     prefix: 'scripts/Languages/',
40     suffix: '.json'
41   });
42   $translateProvider.preferredLanguage(defaultLang);
43   $translateProvider.useSanitizeValueStrategy('escape');
44   $logProvider.debugEnabled(true);
45   $provide.decorator("$ExceptionHandler", ['$delegate', '$window', function ($delegate, $window) {

```

Whenever instantiating application module name, loading sub module or dependency files with that as shown above.

For the same dependencies file, you have to inject files in karma.conf.js as shown in type 2 screen shot.

**Note:**

These dependencies should be added in the proper order in karma.conf.js file.

## 2.2.5 writing test file using jasmine

Look at the screen shots below for the sample source file and test case file.

```

1 'use strict';
2 /**
3  * @ngdoc function
4  * @name R2FPOC.controller:TestController
5  * @description
6  * # TestController
7  * Controller of the R2FPOC
8  */
9 angular.module('LSS')
10 .controller('SimpleController', function($scope) {
11     $scope.Title = "Search Finance Engine";
12     $scope.formName = "SearchFinanceForm";
13     $scope.selectedValue = "";
14     $scope.data = [];
15     $scope.url = "";
16     $scope.name = "";
17     $scope.dataJSON = {};
18     $scope.refData = {};
19     $scope.refData.data = {};
20     $scope.getGridData = function(){
21         $scope.url = '/COB/warehouse';
22     };
23 });
24

```

Sample source file

```

1 describe('SimpleController', function () {
2     beforeEach(module('LSS'));
3
4     var controller, $controller, $scope = {};
5
6     beforeEach(inject(function (_$controller_) {
7
8         $controller = _$controller_;
9         controller = $controller('SimpleController', {$scope: $scope});
10        $scope.Title = "Search Finance Engine";
11        $scope.formName = "SearchFinanceForm";
12        $scope.selectedValue = "";
13        $scope.data = [];
14        $scope.url = "";
15        $scope.name = "";
16        $scope.dataJSON = {};
17        $scope.refData = {};
18        $scope.refData.data = {};
19        $scope.getGridData();
20    }));
21
22    it('Scope title equal to Search Finance Engine: Success scenario', function () {
23        expect($scope.Title).toEqual('Search Finance Engine');
24    });
25
26    it('Verify the URL value from scope', function () {
27        expect($scope.url).toEqual('/COB/warehouse');
28    });
29
30    /*
31    it('Scope title not equal to Search Finance Engine: Failure scenario', function () {
32        expect($scope.Title).toEqual('Fail');
33    });*/
34
35    /*
36    it('Verify the URL value from scope', function () {
37        expect($scope.url).toEqual('/COB/warehouse');
38    });*/
39
40 });

```

Sample test file

Key concepts in jasmine framework:

**Describe:**

```
describe('SimpleController', function () { });
```

Describe is the function that will combine all the unit test case into one section with the name of Source Controller name. One test case file may contain more than one describe, each will contain their own test cases writing inside it.

**BeforeEach:**

```
beforeEach(module('LSS'));
```

```
beforeEach(inject(function (_$controller_) {  
    $controller = _$controller_;  
    controller = $controller('SimpleController', {$scope: $scope});  
    $scope.Title = "Search Finance Engine";  
}));
```

Before each function will load the content inside the function before running each test case. So that the required data and module will be created before running the test case and the populated data will be used by test case block.

**IT:**

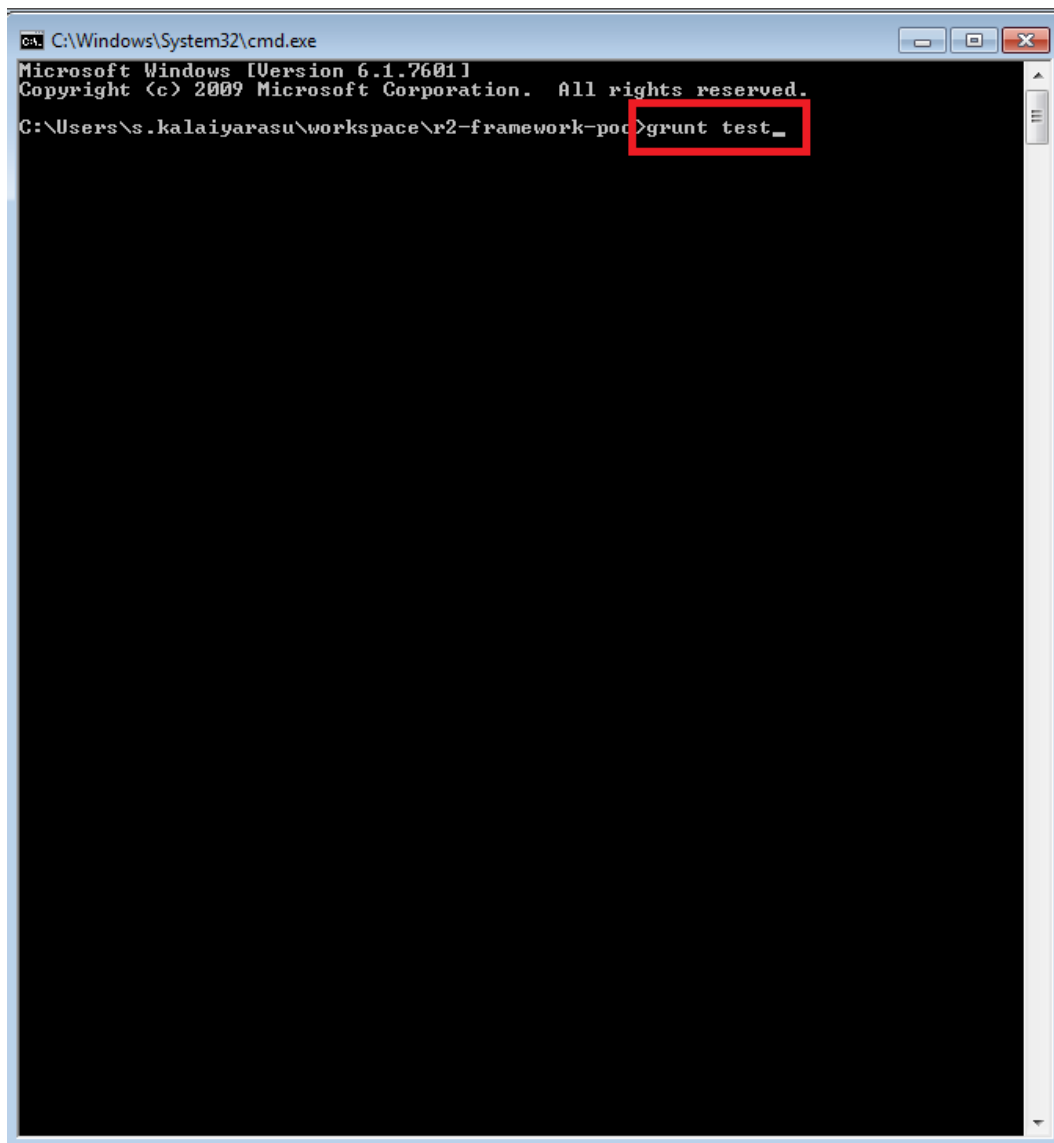
```
it('Scope title equal to Search Finance Engine: Success scenario', function () {  
    expect($scope.Title).toEqual('Search Finance Engine');  
});
```

'it' function will act as a test case. Each it function is a separate test case that will be created under describe function. Inside it function we can have some test code as shown above.

Have a look into sample source file and test case file screen shot for better understanding.

**2.2.6 running test file using karma**

**grunt test** is the command to run the test file. This command you have to run from your client path command prompt.



A screenshot of a Windows command prompt window. The title bar reads 'C:\Windows\System32\cmd.exe'. The window content shows the following text: 'Microsoft Windows [Version 6.1.7601] Copyright (c) 2009 Microsoft Corporation. All rights reserved. C:\Users\s.kalaiyarasu\workspace\r2-framework-poc>grunt test\_'. The command 'grunt test\_' is highlighted with a red rectangular box.

Once the command executed test case successfully, it will show the success and failure count of test case.

**Make sure you are running the test command from your client path.**

```
C:\Windows\System32\cmd.exe
Total 11.7s

C:\Users\s.kalaiyarasu\workspace\r2-framework-poc>grunt test --force
>> Local Npm module "jshint" not found. Is it installed?

Running "clean:server" (clean) task
Cleaning .tmp...OK

Running "concurrent:test" (concurrent) task
>> Local Npm module "jshint" not found. Is it installed?

Running "copy:styles" (copy) task
Copied 3 files

Done, without errors.

Running "autoprefixer:dist" (autoprefixer) task
File .tmp/styles/main.css created.
File .tmp/styles/r2-framework-poc.css created.
File .tmp/styles/timeline.css created.

Running "connect:test" (connect) task
Started connect web server on http://localhost:1010

Running "karma:unit" (karma) task
WARN [watcher]: Pattern "C:/Users/s.kalaiyarasu/workspace/r2-framework-poc/test/mock/**/*.js" does not match any file.
INFO [karma]: Karma v0.12.37 server started at http://localhost:8080/
INFO [launcher]: Starting browser PhantomJS
INFO [PhantomJS 1.9.8 (Windows ? 0.0.0)]: Connected on socket 4uFoFAQsqy5hIjrtnNMF with id 76155603
PhantomJS 1.9.8 (Windows ? 0.0.0): Executed 1 of 3 SUCCESS (0 secs / 0.075 secs)
PhantomJS 1.9.8 (Windows ? 0.0.0): Executed 2 of 3 SUCCESS (0 secs / 0.083 secs)
PhantomJS 1.9.8 (Windows ? 0.0.0) TestController Scope title not equal to Search Finance Engine: Failure scenario FAILED
Expected 'Search Finance Engine' to equal 'Fail'.
    at C:/Users/s.kalaiyarasu/workspace/r2-framework-poc/test/spec/controllers/TestController.js:31
PhantomJS 1.9.8 (Windows ? 0.0.0): Executed 3 of 3 (1 FAILED) (0 secs / 0.089 se
cs)
Warning: Task "karma:unit" failed. Used --force, continuing.

Done, but with warnings.

Execution Time (2015-09-07 07:02:10 UTC)
concurrent:test      8.2s   ████████████████████ 59%
autoprefixer:dist    251ms  █ 2%
connect:test         487ms  ██ 3%
karma:unit           4.9s   ████████████████████ 35%
Total 14s

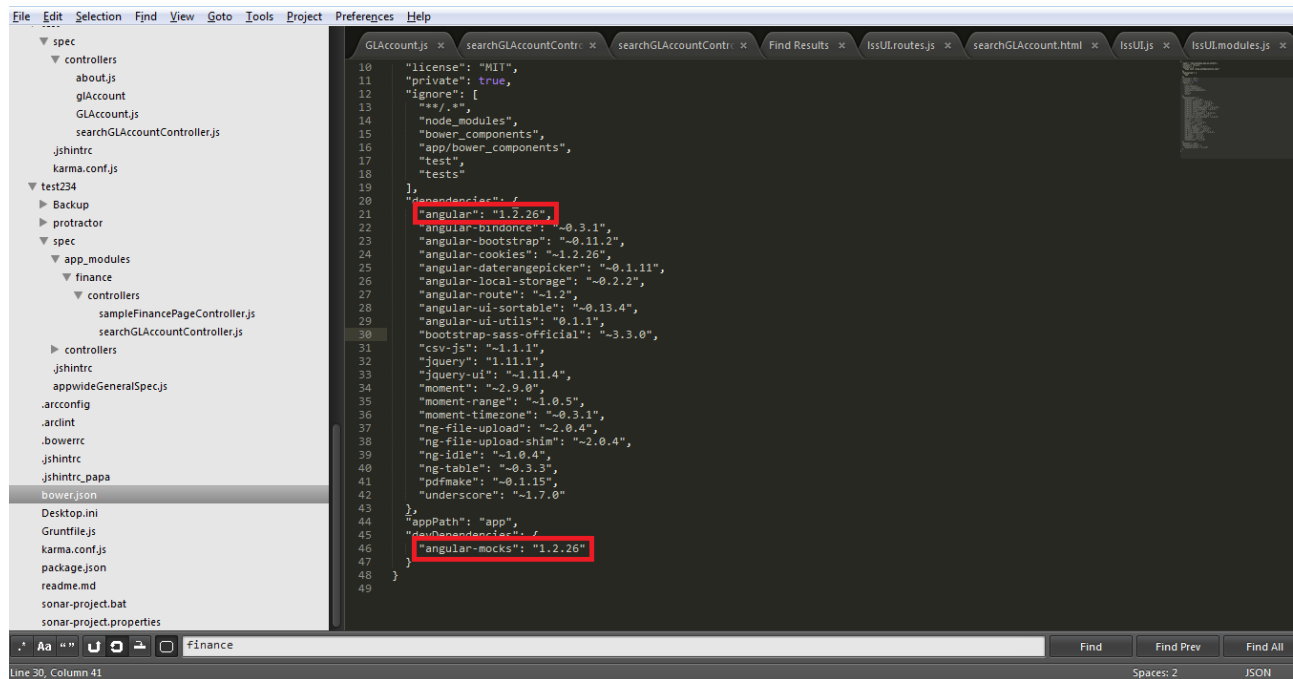
C:\Users\s.kalaiyarasu\workspace\r2-framework-poc>.idea
```

In the above test case result, out of three test cases, two are getting passed and one got failure due to expect function not matching with actual result. The failure error will throw with test case description name which is showing in red.





In your bower.json check the version of angular and angular-mocks versions are same.



### Note: (Important)

After migrating Angular to 1.3 please verify your bower.json file angular and angular-mocks version. Both versions should be same. Do bower install command in your client path and start configuring the dependency files into karma.conf.js file.

## 2.3 HTML VALIDATION FOR UI

An HTML validator aimed at AngularJS projects.

While there are other Grunt plugins that will validate HTML files, there are lacking a couple important features:

- Support for AngularJS attributes and tags (both from AngularJS and custom created)
- Support for templated/fragmented HTML files
- Ability to concurrently validate files for greatly increased speed

This plugin looks to solve these problems and provide the value that comes with having HTML validation in the build chain.

### 2.3.1 Sample configuration for HTML Validation:

```
htmlangular: {
  options: {
    reportpath: 'html-angular-validate-report.json'
  },
  files: {
    src: ['app/index.html']
  }
},
'css-validation': {
  options: {
    reportpath: 'cssValidateReportPath.json',
  },
  files: {
    src: ['app/css/grid.css']
  }
},
},
```

### 2.3.2 Sample HTML Validation report:

```
Running "htmlangular:files" (htmlangular) task
Validating app/index.html ...ERROR
[L5:C36] Element "title" must not be empty.
[L37:C16] Element "ui-loading" not allowed as child of element "body" in this context. (Suppressing further errors from this subtree.)
[L722:C26] Element "google-analytics" not allowed as child of element "div" in this context. (Suppressing further errors from this subtree.)
Warning: HTML validation failed Use --force to continue.
```

## 2.4 CSS VALIDATION FOR UI

An CSS validator aimed at CSS projects.

While there are other Grunt plugins that will validate CSS files, there are lacking a couple important features:

- Support for AngularJS and application.
- Support for templated/fragmented CSS files
- Ability to concurrently validate files for greatly increased speed

## 2.4.1 Sample configuration for CSS validation

```
htmlangular: {
  options: {
    reportpath: 'html-angular-validate-report.json'
  },
  files: {
    src: ['app/index.html']
  }
},
'css-validation': {
  options: {
    reportpath: 'cssValidateReportPath.json',
  },
  files: {
    src: ['app/css/grid.css']
  }
},
},
```

## 2.4.2 Sample CSS Validation Report

```
Running "css-validation:files" (css-validation) task
Validation started for... app/css/grid.css
1-> ".dataTables_wrapper: Property zoom doesn't exist : 1 1" Line no: "5"
2-> ".dataTables_scrollBody: Parse Error *margin-top: -1px;" Line no: "52"
3-> ".dataTables_scrollBody: Parse Error )" Line no: "53"
4-> ".paging_full_numbers span.paginate_button, .paging_full_numbers span.paginate_active: Parse Error *cursor: hand;" Line no: "94"
5-> ". Parse Error [: left; ).paging_full_numbers span.paginate_button]" Line no: "98"
6-> ". paging_full_numbers span.paginate_active: Parse Error *cursor: hand;" Line no: "106"
7-> ". Parse Error [: underline;*/background-color: #99B3FF;*/ )#gridFont]" Line no: "111"
8-> ". tag_count: Parse Error [empty string]" Line no: "254"
9-> ". grid_action: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "263"
10-> ". grid_action_clp: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "271"
11-> ". icon_status_active, .icon_status_inactive: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "366"
12-> ". tag_count: Parse Error [empty string]" Line no: "501"
13-> ". grid_action: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "510"
14-> ". grid_action_clp_asc: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "518"
15-> ". grid_action_clp_desc: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "526"
16-> ". icon_status_active, .icon_status_inactive: Value Error : -moz-inline-box is not a display value : -moz-inline-box -moz-inline-box" Line no: "606"
No of errors: 16
Validation report generated: cssValidateReportPath.json
Done, without errors.
```

## 2.5 YSLOW REPORT

### 2.5.1 Sample performance report of YSlow application

[Home](#) | [Grade](#) | [Components](#) | [Statistics](#)

**Grade B** Overall performance score 82 Ruleset applied: YSlow(V2) URL: <https://www.npmjs.com/package/grunt-html-validation>

**ALL (23)** FILTER BY: [CONTENT \(6\)](#) | [COOKIE \(2\)](#) | [CSS \(6\)](#) | [IMAGES \(2\)](#) | [JAVASCRIPT \(4\)](#) | [SERVER \(6\)](#)

<b>B</b> Make fewer HTTP requests	<b>Grade B on Make fewer HTTP requests</b>  This page has 7 external Javascript scripts. Try combining them into one.  Decreasing the number of components on a page reduces the number of HTTP requests. To combine multiple scripts into one script, combine multiple CSS files into one style sheet.  <a href="#">»Read More</a>
<b>F</b> Use a Content Delivery Network (CDN)	
<b>A</b> Avoid empty src or href	
<b>F</b> Add Expires headers	
<b>A</b> Compress components with gzip	
<b>A</b> Put CSS at top	
<b>A</b> Put JavaScript at bottom	
<b>A</b> Avoid CSS expressions	
<b>n/a</b> Make JavaScript and CSS external	
<b>D</b> Reduce DNS lookups	
<b>A</b> Minify JavaScript and CSS	
<b>A</b> Avoid URL redirects	
<b>A</b> Remove duplicate JavaScript and CSS	
<b>B</b> Configure entity tags (ETags)	
<b>A</b> Make AJAX cacheable	
<b>A</b> Use GET for AJAX requests	
<b>B</b> Reduce the number of DOM elements	
<b>A</b> Avoid HTTP 404 (Not Found) error	
<b>A</b> Reduce cookie size	
<b>E</b> Use cookie-free domains	
<b>A</b> Avoid AlphaImageLoader filter	
<b>B</b> Do not scale images in HTML	
<b>A</b> Make favicon small and cacheable	

Copyright © 2016 Yahoo! Inc. All rights reserved.

## 3. REFERENCES LINK IN KX SITE

### 3.1 KX SITE LINKS:

[https://search.accenture.com/search.aspx?aid=IKN&k=%20&s=KX\\_Contributions&a=\(CredentialChampion:baskaran.varadarajan\)/OR\(Contacts:baskaran.varadarajan\)&v=date&origin=kxHome&suborigin=Content](https://search.accenture.com/search.aspx?aid=IKN&k=%20&s=KX_Contributions&a=(CredentialChampion:baskaran.varadarajan)/OR(Contacts:baskaran.varadarajan)&v=date&origin=kxHome&suborigin=Content)

The screenshot shows the Accenture Knowledge Capital search interface. The search bar contains the query "Knowledge Capital » baskaran.varadarajan x » baskaran.varadarajan x". The results are sorted by "Best Match" and show 19 results. The first result is "AngularJS Custom Directive for Button Dropdown: Step by Step Configuration" by diribaskaran.varadarajan, dated 2/13/2016. The snippet describes how to use AngularJS custom directives to extend HTML functionality, specifically for a button dropdown. The page also includes a sidebar with navigation links like "Everything", "Knowledge Capital", "Training & Books", "Social", "Accenture Delivery Suite", "Policies", "Technology Support", "Internal Info. & News", "Content Type", "Date", "Business & Industry", "Business Process & Service", and "Item Type". A "Rate your search results" box on the right indicates that 417 search improvements have been completed as a result of user feedback.

# UI Architecture Developer Tool Kit - Whitepaper

[https://search.accenture.com/search.aspx?aid=IKN&k=%20&s=KX\\_Contributions&a=\(CredentialChampion:baskaran.varadarajan\)OR\(Contacts:baskaran.varadarajan\)&p=2&origin=searchwithin&suborigin=resultsikn](https://search.accenture.com/search.aspx?aid=IKN&k=%20&s=KX_Contributions&a=(CredentialChampion:baskaran.varadarajan)OR(Contacts:baskaran.varadarajan)&p=2&origin=searchwithin&suborigin=resultsikn)

[Advanced Search](#) | [Search Tips](#) | [Feedback](#)

---

Everything

**Knowledge Capital**

Training & Books

Social

Acenture Delivery Suite

Policies

Technology Support

Internal Info. & News

Content Type

- Credentials
- Proposals
- Offerings
- Architecture Library
- Engagement Profiles
- External Content
- Communities
- Blogs
- Stream
- Media
- Collections

Date

- Past 6 months
- Past 1 year
- Past 2 years

Business & Industry

- None

Business Process & Service

- None

Item Type

- Acenture Internal Material
- Software and Tools
- Thought Leadership

**Knowledge Capital** » **baskaran.varadarajan x** » **baskaran.varadarajan x**
x

19 results
Sort by Best Match ▾

**AngularJS Custom Directive For DateRange**

kx.accenture.com/repositories/contributionform.aspx?path=C34/67/2&mode=read

Custom directives are used in AngularJS to extend the functionality of HTML. Custom directives are defined using "directive" function. A custom directive simply replaces the element for which it is activated. Custom DateRange is a custom directive used to select start and end dates...  
 Contribution Page: [AngularJS Custom Directive For DateRange](#)  
 Date Last Updated: 3/19/2016 Author: diribaskaran.varadarajan

**AngularJS Custom Directive For File**

kx.accenture.com/repositories/contributionform.aspx?path=C34/67/3&mode=read

Custom directives are used in AngularJS to extend the functionality of HTML. Custom directives are defined using "directive" function. A custom directive simply replaces the element for which it is activated. Custom file is a custom directive used for uploading files. The custom file direct...  
 Contribution Page: [AngularJS Custom Directive For File](#)  
 Date Last Updated: 3/19/2016 Author: diribaskaran.varadarajan

**AngularJS Custom Directive For From To Date**

kx.accenture.com/repositories/contributionform.aspx?path=C34/67/4&mode=read

Custom directives are used in AngularJS to extend the functionality of HTML. Custom directives are defined using "directive" function. A custom directive simply replaces the element for which it is activated. Custom FrmToDate is a custom directive which is used to get from and to date value...  
 Contribution Page: [AngularJS Custom Directive For From To Date](#)  
 Date Last Updated: 3/19/2016 Author: diribaskaran.varadarajan

**AngularJS Custom Directive For Label**

kx.accenture.com/repositories/contributionform.aspx?path=C34/67/5&mode=read

Custom directives are used in AngularJS to extend the functionality of HTML. Custom directives are defined using "directive" function. A custom directive simply replaces the element for which it is activated. Custom Label is a custom directive used to do label in page. The Custom Label is m...  
 Contribution Page: [AngularJS Custom Directive For Label](#)  
 Date Last Updated: 3/19/2016 Author: diribaskaran.varadarajan

**Sonar Configuration for AngularJS - UI Framework Step by Step ...**

kx.accenture.com/repositories/contributionform.aspx?path=C33/73/6&mode=read

Sonar configuration for AngularJS - UI Framework Step by step approach. SonarQube is an open platform to manage code quality. It supports quality measuring of JavaScript source code and provides reports on duplicated code, coding standards, unit tests, code coverage, code complexity and hints about desi...  
 Contribution Page: [Sonar Configuration for AngularJS - UI Framework Step by Step Approach](#)  
 Date Last Updated: 1/12/2016 Author: diribaskaran.varadarajan

**AngularJS Custom Directive for Dropdown - UI Reusable compo ...**

kx.accenture.com/repositories/contributionform.aspx?path=C34/1/13&mode=read

AngularJS custom Dropdown is a custom directive which is created as a wrapper for Select control. All the select functionalities will be derived through this directive. Dropdown directive is used to display the list of values from which the user can select a value and do some action based on the sel...  
 Contribution Page: [AngularJS Custom Directive for Dropdown - UI Reusable component](#)  
 Date Last Updated: 1/30/2016 Author: diribaskaran.varadarajan

**AngularJS Custom Directive for Date UI Reusable component**

kx.accenture.com/repositories/contributionform.aspx?path=C34/1/14&mode=read

AngularJS Date is a custom directive used to select date from calendar. While clicking the Calendar button, current month calendar will be populated. Based on the user selection respective date will appear in the textbox. Date directive used to select date from calendar. Custom directives are used...  
 Contribution Page: [AngularJS Custom Directive for Date UI Reusable component](#)  
 Date Last Updated: 1/30/2016 Author: diribaskaran.varadarajan

**Mobile Application Approach Point of View**

kx.accenture.com/repositories/contributionform.aspx?path=C34/4/9&mode=read

Point of View on strategy/approach for mobile Apps. You may have a scenario and unsure of recommending Mobile App or Mobile Web or responsive website, this helps with right approaches for specific scenarios. --ATA - UI Architecture Capability - IDC  
 Contribution Page: [Mobile Application Approach Point of View](#)  
 Date Last Updated: 2/3/2016 Author: diriramamy.manoharan

**UI Architecture Patterns and Frameworks PoV**

kx.accenture.com/repositories/contributionform.aspx?path=C34/7/43&mode=read

This point of view provides details on UI architecture patterns across web client applications. Covers point of view on UI Frameworks such as angular.js, backbone.js etc and their fitment scenarios. UI Architecture Capability - Advanced Technology and Architecture - IDC.  
 Contribution Page: [UI Architecture Patterns and Frameworks PoV](#)  
 Date Last Updated: 2/4/2016 Author: diriramamy.manoharan

### Rate your search results

comments (optional)

417 search Improvements have been completed as a result of your feedback!

[<< Previous](#)    **1**    **2**