AngularJS Dependency Injection

Previous Page Next Page

Dependency Injection is a software design pattern in which components are given their dependencies instead of hard coding them within the component. This relieves a component from locating the dependency and makes dependencies configurable. This helps in making components reusable, maintainable and testable.

AngularJS provides a supreme Dependency Injection mechanism. It provides following core

service

provider

constant

value

value is simple javascript object and it is used to pass values to controller during config phase.

```
//define a module
var mainApp = angular.module("mainApp", []);
//create a value object as "defaultInput" and pass it a data.
mainApp.value("defaultInput", 5);
...
//inject the value in the controller using its name "defaultInput"
mainApp.controller('CalcController', function($scope, CalcService, defaultInput) {
      $scope.number = defaultInput;
      $scope.result = CalcService.square($scope.number);

      $scope.square = function() {
      $scope.result = CalcService.square($scope.number);
```

```
   }
});
```

factory

factory is a function which is used to return value. It creates value on demand whenever a service or controller requires. It normally uses a factory function to calculate and return the value

```
//define a module
var mainApp = angular.module("mainApp", []);
//create a factory "MathService" which provides a method multiply to return multiplication of t
mainApp.factory('MathService', function() {
   var factory = {};
   factory.multiply = function(a, b) {
      return a * b
   }
   return factory;
});

//inject the factory "MathService" in a service to utilize the multiply method of factory.
mainApp.service('CalcService', function(MathService){
      this.square = function(a) {
      return MathService.multiply(a,a);
   }
});
...
```

service

service is a singleton javascript object containing a set of functions to perform certain tasks. Services are defined using service() functions and then injected into controllers.

```
//define a module
var mainApp = angular.module("mainApp", []);
...
//create a service which defines a method square to return square of a number.
mainApp.service('CalcService', function(MathService){
      this.square = function(a) {
      return MathService.multiply(a,a);
   }
});
//inject the service "CalcService" into the controller
mainApp.controller('CalcController', function($scope, CalcService, defaultInput) {
      $scope.number = defaultInput;
      $scope.result = CalcService.square($scope.number);

      $scope.square = function() {
      $scope.result = CalcService.square($scope.number);
   }
});
```

provider

provider is used by AngularJS internally to create services, factory etc. during config phase(phase during which AngularJS bootstraps itself). Below mention script can be used to create MathService that we've created earlier. Provider is a special factory method with a method get() which is used to return the value/service/factory.

```
//define a module
var mainApp = angular.module("mainApp", []);
...
//create a service using provider which defines a method square to return square of a number.
mainApp.config(function($provide) {
   $provide.provider('MathService', function() {
      this.$get = function() {
         var factory = {};
         factory.multiply = function(a, b) {
            return a * b;
         }
         return factory;
      };
   });
});
```

constant

constants are used to pass values at config phase considering the fact that value can not be used to be passed during config phase.

```
mainApp.constant("configParam", "constant value");
```

Example

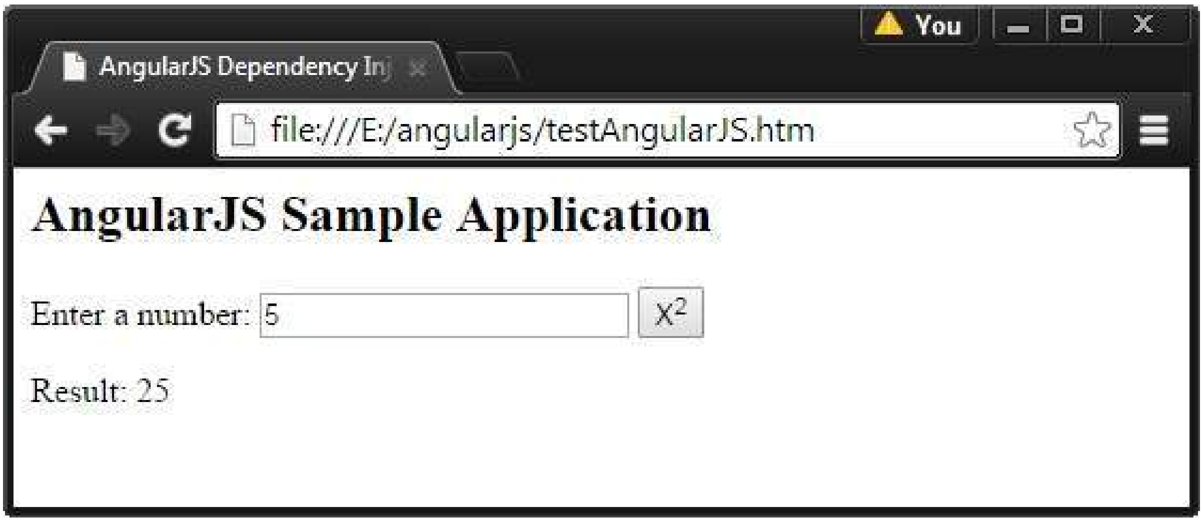
Following example will showcase all the above mentioned directives.

testAngularJS.htm

```
<html>
<head>
   <title>AngularJS Dependency Injection</title>
</head>
<body>
   <h2>AngularJS Sample Application</h2>
   <div ng-app="mainApp" ng-controller="CalcController">
      <p>Enter a number: <input type="number" ng-model="number" />
      <button ng-click="square()">X<sup>2</sup></button>
      <p>Result: {{result}}</p>
   </div>
   <script src="http://ajax.googleapis.com/ajax/libs/angularjs/1.3.14/angular.min.js"></script
   <script>
      var mainApp = angular.module("mainApp", []);

      mainApp.config(function($provide) {
         $provide.provider('MathService', function() {
            this.$get = function() {
               var factory = {};
               factory.multiply = function(a, b) {
                  return a * b;
               }
               return factory;
            };
         });
      });

      mainApp.value("defaultInput", 5);

      mainApp.factory('MathService', function() {
         var factory = {};
         factory.multiply = function(a, b) {
            return a * b;
         }
         return factory;
      });

      mainApp.service('CalcService', function(MathService){
            this.square = function(a) {
            return MathService.multiply(a,a);
         }
      });

      mainApp.controller('CalcController', function($scope, CalcService, defaultInput) {
            $scope.number = defaultInput;
            $scope.result = CalcService.square($scope.number);

            $scope.square = function() {
            $scope.result = CalcService.square($scope.number);
         }
      });
   </script>
</body>
</html>
```

Result

Open textAngularJS.htm in a web browser. See the result.



AngularJS Sample Application

Enter a number: 5 X^2

Result: 25

Previous Page Next Page

About us Write for us Contact