**What is angular js?**

Angular js is a structural (mvc) framework for develop dynamic web applications. It follows mvc design pattern.

Angular js is not replacement of JavaScript, it is developed by JavaScript.

It is open sources framework developed by Google.

According to MVC application development process divided into 3 modules.

1. Models 2) View 3) Controller

**Models:**

It is responsible for data storage logic

It is developed by JavaScript variables, arrays, objects, functions

Models should communicate with server through services where is should contains $http logic for communicate with server.

**Controller:**

It is responsible for business logic

It is mediator between models and view

It is developed by JavaScript functions.

It can get data from services and transfer data to view by adding data to scope object, $scope object injected in controller

$scope object is just memory, it should have all angular variables , objects, arrays, functions and data within it and it can bind into html elements.

**View:**

Views are responsible for presentation logic,

It developed with angular directives, filters, html, css and JavaScript.

It can get data from controller and bind into html elements with help of $scope object.

**Features of angular Js:**

1. It is Structural -MVC
2. Data binding – one way (ng-bind, expression .. etc) two way (ng-model)
3. Multiple programmers can work at a time due to MVC design pattern
4. Directives –it extends html elements attributes
5. Testing –we can test by karma ,Jasmine Libraries
6. Single page application – by using config and ngroute we can implement SPA
7. Dependency injection – it is design pattern, it used to create loosely coupled code.

By using this without creating object we can access members of class for ex we can inject services in controller then access members of service without creating object in controller.

**Angular Js life cycle:**

First when we request a page then static page is displayed

Angular js framework create angular object,

Then this object search for ng-app in View

Then compilation process started, in this compilation Search for directives in view

then linking process started in this bind the model data with directives generate dynamic page.

By using watcher angular observers data changes with in model variables

If any changes occurs then updated with new values using $digest process

**Directives:**

It extends the html elements attributes or it enhance the functionality of angular

It has some logic which executes and bind into DOM elements dynamically with angular

The main use of angular is used for partial pages in angular js application

Some of pre defined directives are ;

Ng-app : initialize angular application, it contains unique module name,

we can have only 1 ng-app but have n no of ng-controllers

Ng-init : used for initialize angular variables like array , variable…

Np-contoller : each view should have one ng-controller

Ng-click : used for click event

Ng-view : used in SPA for render views

Ng-style : used for apply css properties in html elements

Ng-class : used for apply css class over html elements

ng-switch : used for multiple condition

Ng-if, Ng-hide, Ng-show,

We can also create custom directive according to requirement,

We can create

* Element directive – ‘E’
* Attribute directive –‘A’
* Class directive -‘CA’
* Comment directive –‘C’

**Rules for create custome directive** :

**Filters:**

It is Used to format data in views, we can apply these in variables, arrays , objects.

We can use pipe symbol(|) for apply filters

By using this we cannot communicate with server for sort or order, we can do this by filter in view

We have predefined filter uppercase, lowercase, currency, date, orderby, filter

We can also create custom filters according to requirement.

Services:

These are re usable Pease of code used for multiple times , it has logic to communicate with server and get data then transfer to controller by injecting service in controller .

Then controller transfer data to view and bind using $scope object

We can have predefined services $http, ngroute

We can also create custom services using

* Services
* Factory
* Providers
* Val
* Const

**Service:**

It is reusable Pease of code. In this we need not to create object by default angular creates **this** object

We can use **this** object to assign variables, functions arrays, in service

By injecting service name in controller, directives we can access all members of services

Service cannot return any thing

Service object is singleton object in service only

**Factory:**

It is reusable Pease of code. In this we need to create object by user

We can use user created object to assign variables, functions arrays, in service

By injecting service name in controller, directives we can access all members of services

Factory not return object.

Factory object is not singleton object in service only

**Provider:**

A provider is an object with a $get() method. The injector calls the $get method to create a new instance of a service.

**Const:**

A constant is a value that can be injected everywhere.

We cannot change the value once we assign value

We can inject into any where

**Val:**

Value is just a simple inject able value. It can be a number, string or JavaScript object.

We can change the value once we assign value

We can inject into controller, service, and factory but can't be injected in config.

**Difference between const and val:**

1) constant's value cannot be change 2) value's data can be change

1) Constant can be injected any where 2) value can be injected in controller, service, and factory but can't be injected in config.

**Single page application:**

It means one page loaded from server and remaining pages loaded into same page without refreshing whole page.

We can use config and routing to develop SPA.

First we need to import angular-route.js in angular app which contains ngroute module in it.

We can inject ngroute in our module app array.

Then we can implement spa with config and $routeprovider

**What is promise and defer?**

‘Promises’ result of some operation/action is completed, these promises either sucess or failuer,accourding to thses we have to perform action

‘deferred’ is used to control how and when those promise logics will execute.

We can think about promises as “WHAT” we want to fire after an operation is completed while deferred controls “WHEN” and “HOW” those promises will execute.

**Defer:**

A new instance of defer is created by calling defer() method of $q service. It has mainly three methods.

Here “$q” is the angular service which provides promises and deferred functionality.

var defer = $q.defer();

defer.resolve(value); resolve(value) – This method is use to resolve the derive promise

defer.reject(value);This method is use to reject the derived promise

defer.notify(value) – This method is used to notify the current state of the derived promise

**what is dirty checking:**

Dirty checking is a very simply process to check if the value of an expression/variable has changed. Its basically just comparing old value with a new value to see if it has changed. AngularJS uses dirty checking to see if a value of a expression/variable in it’s scope has changed or not, and if it has changed it does the required operation (updating DOM etc)

$watch is angular method used for dirty checking.

**$scope.watch():**

The $scope.watch() function is used to observe changes in a variable on the $scope

$watch is angular method used for dirty checking.

$scope.$watch('name', function (newValue, oldValue) {

$scope.counter = $scope.counter + 1;

});

**$digest()** is angular method it checks values of angular variables are changed or not with watchers within scope/child scoples. if changes then perform updating. it is invoked internally by angularjs in frequent intervals.

**$apply()** is a angular method , this method called by user to update values of angular variables outside of angular scope. it internally invokes $digest. It will update every scope.

Note: this nnot read:

This method is used when you want to tell angular manually start dirty checking (execute all $watches).

**$destory** is both a method and event in angularjs. $destory() method, removes a scope and all its children. $destory event is called by angular whenever a $scope or $controller is destroyed.

**Diff between $digest and $apply:**

--$apply() update values outside of angular scope ,When the $apply() function call finishes AngularJS calls $digest() internally,

--$digest() will update the current scope and any child scopes.So most of the time $digest() will be more efficient.

--$apply() will update every scope.

--$apply() handle exceptions , $digest() no

--$digest() gets called without any arguments. $apply() takes a function

**Some of events:**

ng-blur

ng-change

ng-click

ng-copy

ng-cut

ng-dblclick

ng-focus

ng-keydown

ng-keypress

ng-keyup

ng-mousedown

ng-mouseenter

ng-mouseleave

ng-mousemove

ng-mouseover

ng-mouseup

ng-paste

ng-mouseenter

ng-mouseover

ng-mousemove

ng-mouseleave

$error:

It should used for check validation , it is angular object, it has properties

Required, minlength, maxlength, pattern

$dirty:

When user is touched any filed it should be true otherwise it is false

$pristine:

It is opposite to dirty, when user is not touched it should true otherwise false

$valid:

It should be true when form is valid otherwise false

$invalid:

It should be true when form is not valid otherwise false