**Assignment No: 09**

**TITLE**

Design and develop any web application using AngularJS.

**OBJECTIVES**

1. Understand the design of single-page applications and how AngularJS facilitates their

development

2. Properly separate the model, view, and controller layers of your application and

implement them using AngularJS

3. Master AngularJS expressions, filters, and scopes

4. Build Angular forms

5. Elegantly implement Ajax in your AngularJS applications

6. Write AngularJS directives

**PROBLEM STATEMENT**

Create an application for Bill Payment Record using AngularJS

**OUTCOMES**

Students can able to,

1. Implement the effective client side implementation.

2. Solve the complex problem of development using MVC framework.

**SOFTWARE & HARDWARE REQUIREMENTS**

**Software’s:** Eclipse IDE/ Notepad/ Notepad++, Modern Web browser

**THEORY-CONCEPT**

AngularJS is an open-source web application framework. It was initially created in 2009 by

MiskoHevery and Adam Abrons. It is presently kept up by Google. Its most recent adaptation is

1.2.21. "AngularJS is an auxiliary system for dynamic web applications. It gives you a chance toutilize HTML as your layout dialect and gives you a chance to stretch out HTML's linguistic

structure to express your application parts plainly and compactly. Its information official and

reliance infusion take out a significant part of the code you as of now need to compose. Also,

everything occurs inside the program, making it a perfect band together with any server

innovation".

**General Features**

AngularJS is a productive system that can make Rich Internet Applications (RIA).

AngularJS gives designers a choices to compose customer side applications utilizing

JavaScript in a spotless Model View Controller (MVC) way.

Applications written in AngularJS are cross-program agreeable. AngularJS consequently

handles JavaScript code reasonable for every program.

AngularJS is open source, totally free, and utilized by a great many engineers the world

over. It is authorized under the Apache permit version2.0.

By and large, AngularJS is a system to assemble expansive scale, elite, and simple tokeep

up web applications.

**Core Features:**



1. **Data-authoritative:** It is the programmed synchronization of information amongst model

and view parts

**2. Scope:** These are objects that allude to the model. They go about as paste amongst

controller and view.

**3. Controller:** These are JavaScript capacities bound to a specific degree.

4. **Services:** AngularJS accompanies a few implicit administrations, for example, $http to

make aXMLHttpRequests. These are singleton objects which are instantiated just once in

application.

**5. Filters:** These select a subset of things from a cluster and restore another exhibit.

**6. Directives:** Directives are markers on DOM components, for example, components,

characteristics, css, and that's only the tip of the iceberg. These can be utilized to make

custom HTML labels that fill in as new, custom gadgets. AngularJS has worked in

mandates, for example, ngBind, ngModel, and so on.

**7. Templates:** These are the rendered see with data from the controller and model. These

can be a solitary record, (for example, index.html) or different perspectives in a single

page utilizing partials.

**8. Routing:** It is idea of exchanging sees**.**

9. **Model View Whatever:** MVW is an outline design for isolating an application into

various parts called Model, View, and Controller, each with unmistakable obligations.

AngularJS does not actualize MVC in the conventional sense, yet rather something nearer

to MVVM (Model-View-ViewModel). The Angular JS group alludes it cleverly as

Model View Whatever.

10. **Deep Linking:** Deep connecting permits to encode the condition of use in the URL with

the goal that it can be bookmarked. The application would then be able to be reestablished

from the URL to a similar state.

11. **Dependency Injection:** AngularJS has a worked in reliance infusion subsystem that

encourages the designer to make, comprehend, and test the applications effectively.

**Advantages of AngularJS**

It gives the ability to make Single Page Application in a spotless and viable way.

It gives information restricting ability to HTML. Along these lines, it gives client a rich

and responsive experience.

AngularJS code is unit testable.

AngularJS utilizations reliance infusion and make utilization of partition of concerns.

AngularJS gives reusable segments.

With AngularJS, the engineers can accomplish greater usefulness with short code.

In AngularJS, sees are unadulterated html pages, and controllers written in JavaScript do

the business handling.

**Model View Controller**

Model View Controller or MVC as it is famously called, is a product configuration design for

creating web applications. A Model View Controller design is comprised of the accompanying

three sections.

Model − It is the most minimal level of the example in charge of looking after

information.

View − It is in charge of showing all or a part of the information to the client.

Controller − It is a product Code that controls the connections between the Model and

View.

MVC is mainstream since it secludes the application rationale from the UI layer and backings

detachment of concerns. The controller gets all solicitations for the application and afterward

works with the model to set up any information required by the view.



**Model**

The model is in charge of overseeing application information. It reacts to the demand from see and to the

directions from controller to refresh itself.

**The View**

An introduction of information in a specific arrangement, activated by the controller's choice to exhibit the

information. They are content based layout frameworks, for example, JSP, ASP, PHP and simple to incorporate

with AJAX innovation.

**The Controller**

The controller reacts to client enter and performs communications on the information show objects. The controller

gets input, approves it, and afterward performs business operations that alter the condition of the information

demonstrate.

**AngularJS is a MVC based structure.**

**An AngularJS application comprises of following three essential parts −ng-app** − This directive defines and links an AngularJS application to HTML.

**ng-model** − This directive binds the values of AngularJS application data to HTML

input controls.

**ng-bind** − This directive binds the AngularJS Application data to HTML tags.

**DESIGN/EXECUTION STEPS**

**Steps for AngularJS**

1. When a link https://angularjs.org/ is opened, there are two options to download AngularJS

library –



**View on GitHub** − Click on this button to go to GitHub and get all of the latest scripts.

**Download AngularJS 1** − Or click on this button, a screen as below would be seen –



This screen gives various options of using Angular JS as follows

**Downloading and hosting files locally**

1. There are two different options **legacy** and **latest**. The names itself are selfdescriptive.

**Legacy** has version less than 1.2.x and **latest** has 1.5.x version.

2. We can also go with the minified, uncompressed or zipped version.

**CDN access** − You also have access to a CDN. The CDN will give you access around

the world to regional data centers that in this case, Google host. This means using CDN

moves the responsibility of hosting files from your own servers to a series of external

ones. This also offers an advantage that if the visitor to your webpage has already

downloaded a copy of AngularJS from the same CDN, it won't have to be redownloaded.

**Example:**

Now let us write a simple example using AngularJS library. Let us create an HTML

file *myfirstexample.html* as below –

<!doctype html>

<html>

<head>

<scriptsrc="https://ajax.googleapis.com/ajax/libs/angularjs/1.5.2/angular.min.js"></script>

</head>

<bodyng-app="myapp">

<divng-controller="HelloController">

<h2>Welcome {{helloTo.title}} to the world of Tutorialspoint!</h2>

</div>

<script>

angular.module("myapp",[])

.controller("HelloController",function($scope){

$scope.helloTo={};

$scope.helloTo.title="AngularJS";

});

</script>

</body>

</html>

Following sections describe the above code in detail:

**1. Include AngularJS**

We have included the AngularJS JavaScript file in the HTML page so we can use AngularJS –

<head>

<scriptsrc="https://ajax.googleapis.com/ajax/libs/angularjs/1.4.8/angular.min.js"></script>

</head>

To update into latest version of Angular JS, use the following script source.

<head>

<scriptsrc="https://ajax.googleapis.com/ajax/libs/angularjs/1.5.2/angular.min.js"></script>

</head>

**2. Point to AngularJS app**

Next we tell what part of the HTML contains the AngularJS app. This done by adding the *ngapp*

attribute to the root HTML element of the AngularJS app. You can either add it

to *html* element or *body* element as shown below −

<bodyng-app="myapp">

</body>

**3. View**

The view is this part −

<divng-controller="HelloController">

<h2>Welcome {{helloTo.title}} to the world of Tutorialspoint!</h2>

</div>

*ng-controller* tells AngularJS what controller to use with this view. *helloTo.title*tells AngularJS

to write the "model" value named helloTo.title to the HTML at this location.

**4. Controller**

The controller part is −

<script>

angular.module("myapp",[])

.controller("HelloController",function($scope){

$scope.helloTo={};

$scope.helloTo.title="AngularJS";

});

</script>

This code registers a controller function named *HelloController* in the angular module

named *myapp*. The controller function is registered in angular via the

angular.module(...).controller(...) function call.

The $scope parameter passed to the controller function is the *model*. The controller function

adds a *helloTo* JavaScript object, and in that object it adds a *title* field.

**5. Execution**

Save the above code as *myfirstexample.html* and open it in any browser.

Output as below:

Welcome AngularJS to the world of Tutorialspoint!

At the point when the page is stacked in the program, following things happen −

HTML archive is stacked into the program, and assessed by the program. AngularJS

JavaScript document is stacked, the precise worldwide question is made. Next,

JavaScript which registers controller capacities is executed.

Next AngularJS look over the HTML to search for AngularJS applications and

perspectives. When see is found, it associates that view to the comparing controller

work.

Next, AngularJS executes the controller capacities. It at that point renders the

perspectives with information from the model populated by the controller. The page is

presently prepared.

**6. How AngularJS integrates with HTML**

ng-app directive indicates the start of AngularJS application.

ng-model directive then creates a model variable named "name" which can be used with

the html page and within the div having ng-app directive.

ng-bind then uses the name model to be displayed in the html span tag whenever user

input something in the text box.

Closing</div> tag indicates the end of AngularJS application.

AngularJS directives are used to extend HTML. These are special attributes starting with ngprefix.

We're going to discuss following directives −

**ng-app** − This directive starts an AngularJS Application.

**ng-init** − This directive initializes application data.

**ng-model** − This directive binds the values of AngularJS application data to HTML

input controls.

**ng-repeat** − This directive repeats html elements for each item in a collection.

**TECHNOLOGY/TOOL**

Any IDE or you can use web browser.

**TEST CASES**

Deploy the Html program run test the result for dynamic implementation of AngularJS.

**CONCLUSION/ANALYSIS**

With the help of this assignment it is helpful to understand features of AngularJS. MVC model

structure and its use in advanced web programming is studied.